

2002 - 2003

PCC Catalog

PORTLAND COMMUNITY COLLEGE

www.pcc.edu



COLLEGE THAT FITS YOUR LIFE

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Equal Opportunity

It is against the college's policy for any manager, supervisor, faculty, staff, or student to engage in harassment or discrimination of any member of the college community based on his/her race, color, religion, ethnicity, use of native language, national origin, age, sex, marital status, height/weight ratio, disability, or sexual orientation. Inquiries regarding these matters may be directed to the Director of Affirmative Action, 503-978-5841, TTY 503-452-4975, P.O. Box 19000, Portland, OR 97280-0990. Questions specific to the Americans with Disabilities Act (ADA) may be directed to Randy Boose, 503-978-5852, TTY 503-273-2908.

USING THIS CATALOG

General Information introduces Portland Community College and its programs, then covers topics such as admissions, registration, comprehensive degree requirements, degree requirements, special programs and services and student services and activities.

Basic Skills provides information on counseling, handicapped student services, developmental education, English as a Second Language (ESL), General Education Development (GED) and high school completion. In addition, this section includes mathematics and writing courses that have been developed for professional/technical programs and Associate of General Studies students.

Professional and Technical Programs and Courses and College Transfer Programs contains information on areas of study. Career information and program requirements are listed for the Associate of Applied Science degrees and various certificates in Professional and Technical programs. College transfer disciplines are listed with information useful to students.

Course Descriptions contain details on more than 1,800 PCC credit classes that are referenced in the courses and programs information.

A list of professional staff, an index, and a district map complete this catalog.

See the Table of Contents or Index to locate specific programs and courses.

Accreditation

Portland Community College is accredited by the Northwest Association of Schools and Colleges Commission on Colleges, the accrediting agency for this region. Many programs within the college have accreditation from professional associations. Documents describing Portland Community College's accreditation and licensing are available for review in the college library. Information regarding accreditation from professional associations may be obtained by contacting the department chairperson of the individual program.

Student Rights And Responsibilities

The mission of Portland Community College as a comprehensive community college is to provide educational opportunities for a wide variety of individual and community needs. The rules and regulations of the college exist in order to provide an atmosphere that supports and fosters this mission. The college expects students to conduct themselves responsibly and in ways that reflect consideration and respect for the rights of others. PCC may take appropriate disciplinary action when students conduct materially and substantially interferes with the operation of the college.

Every student has a right to conditions which allow pursuit of education. The right to academic freedom includes freedom of speech, freedom of expression and freedom of association. Students have rights to study, to have a safe and healthy

environment, and to redress for grievances, including due process and appeal. Further, students have the right to privacy which is protected by the Family Educational Rights and Privacy Act. These rights, as well as rights to access of student records, campus rules and regulations, and grievance and disciplinary procedures are included in the Student Rights and Responsibilities handbook, available at ASPCC offices, the Student Affairs office and Admissions office on each campus.

Academic Integrity

Students of Portland Community College are expected to behave as responsible members of the college community and to be honest and ethical in their academic work. PCC strives to provide students with the knowledge, skills, judgement, and wisdom they need to function in society as educated adults. To falsify or fabricate the results of one's research; to present the words, ideas, data, or work of another as one's own; or to cheat on an examination corrupts the essential process of higher education.

Students assume full responsibility for the content and integrity of the coursework they submit. The following are guidelines to assist students in observing academic integrity:

1. Students must do their own work and submit only their own work on examinations, reports, and projects, unless otherwise permitted by the instructor. Students are encouraged to contact their instructor about appropriate citation guidelines.
2. Students may benefit from working in groups. They may collaborate or cooperate with other students on graded assignments or examinations as directed by the instructor.
3. Students must follow all written and/or verbal instructions given by instructors or designated college representatives prior to taking examinations, placement assessments, tests, quizzes, and evaluation.
4. Students are responsible for adhering to course requirements as specified by the instructor in the course syllabus.

Calendar of Instruction

	Term Begins	Final Exams	End Of Term
Summer 2002	June 24	Varies*	Sept. 7"
Fall 2002	Sept. 23	Dec. 9-14	Dec. 14
Winter 2003	January 6	March 17-22	March 22
Spring 2003	March 31	June 9-14	June 14
Summer 2003	June 23	Varies*	Sept. 6"

*Summer final exam schedules vary. Consult instructor.

"11-week classes

PCC operates on the quarter system.

For registration calendar details (phone and in-person registration dates, adds/drops, late registration, etc.), see the appropriate term's Schedule of Classes.

PORTLAND COMMUNITY COLLEGE

Portland Community College is the largest institution of higher learning in the state, serving close to 900,000 residents in a five-county, 1,500 square mile area in northwest Oregon. The district includes the state's largest city, Portland, and the most rapidly growing population areas in the state. PCC enrolls close to 100,000 students annually.

The college is governed by a seven-member board of directors, elected by zones for four-year terms. The board selects the president and approves the hiring of other staff and faculty, approves the college budget, and establishes policies which govern the operation of the college.

They meet twice monthly, usually on the first and third Thursdays. For meeting information, call 503-977-4365.

President: Jesus "Jess" Carreon

2002-2003 Board of Directors

Dana Anderson, Zone 4

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Bob Palmer, Zone 3

Karen McKinney, Zone 7

Doreen Stamm Margolin, Zone 5

Harold C. Williams, Zone 2

Mission

Portland Community College provides quality education in an atmosphere that encourages the full realization of each individual's potential. The college offers students of all ages, races, cultures, economic levels, and previous educational experience opportunities for personal growth and attainment of their goals.

To achieve its mission Portland Community College offers accessible and affordable education to the residents of its 1,500 square mile district and to the residents of its service districts. As a public, comprehensive, post-secondary institution, this multi-campus college offers lower-division college transfer programs, occupational and technical programs, basic skills education, and community education programs. Partnerships with business, industry, labor, educational institutions and public sector agencies provide training opportunities for the local work force and promote economic development. Through effective teaching and supportive student services, Portland Community College prepares students for success as individuals, members of a democratic society and citizens of a rapidly changing world.

Values

We believe that certain fundamental values characterize the institution in which we work and guide us in the accomplishment of our mission and goals. As a college community, we value:

- ◆ The dignity and worth of each individual
- ◆ Effective teaching
- ◆ Educational and personal growth of the individual
- ◆ Open and honest communication
- ◆ Teamwork and cooperation
- ◆ An environment that encourages the expression of original ideas and creative solutions
- ◆ Effective and ethical use of public funds

College History

Portland Community College began as the adult education program of the Portland Public Schools. On May 15, 1961, the school district established the college as a separately operating entity. Because the college included students from many areas outside the Portland school district, in 1965 the school board appointed an advisory council to supervise the college and to give representation to areas beyond the school district boundaries.

As the advisory council and the school board developed programs and plans for the rapidly growing college, it became evident that the college needed to be a separate governmental unit with its own elected board to represent the areas from which students came.

In 1968, voters of the five-county area approved the formation of a new college district named the "Metropolitan Area Education District." It included the school districts of Portland, Sauvie Island and Riverdale in Multnomah County; Lake Oswego in Clackamas County; St. Helens, Scappoose and Vernonia school districts in Columbia County; Newberg school district in Yamhill County and all of Washington County. At this time the voters also elected the first college board of directors and approved a tax base, providing the college with funds for the local share of operation and building construction. In 1971, the name of the district was changed to "Portland Community College District."

District residents showed continuing support for their college in 1980, and again in 1986 as they voted to increase the PCC tax base. Enrollment growth of 25 percent since 1986 led voters to approve a \$61.4 million bond measure in 1992 to expand facilities at all campuses, and repair and upgrade existing buildings. In 2000, voters approved another bond measure for \$144 million.

PCC Campuses

The college has three comprehensive campuses which provide lower-division college transfer courses, two-year associate degree programs, and professional/technical career training programs. The Open Campus provides adult basic education, job training and retraining, small business development, and life enrichment courses for residents in over 200 district locations. Campuses and centers are strategically located throughout the district to be within easy access of residents.

Cascade Campus

PCC's Cascade Campus is located in the urban heart of the city of Portland and serves almost 6,600 students each year. Its neighborhood is diverse, lively and close-knit. The campus offers a full array of educational offerings, including the first two years of the university courses where students can earn an associate's degree and 27 professional-technical degree and certificate offerings. Cascade is an excellent campus where you can prepare for a rewarding life and exciting career. Cascade has the friendliness of a neighborhood college campus. The staff go out of their way to help make sure students succeed.

Executive Dean: Mildred Ollee

705 N. Killingsworth

Portland, Oregon, 97217

Open Campus

Operating in locations throughout the district, PCC's Open Campus provides job training, adult and continuing education, literacy, life enrichment courses, small business development, and contracted short-term training for business and industry. Annually, more than 54,000 people participate in Open Campus programs seven days a week at about 200 locations throughout the five-county district.

The Open Campus operates facilities at the following locations:

CAPITAL Center (WCWTC)

18624 N.W. Walker Rd.

Beaverton, Oregon, 97006-1975

PCC's Workforce Training Center is part of the CAPITAL Center partnership that includes higher education, K-12 schools and business. It provides a variety of short-term training including computer education, customized training for industry, English as a Second Language, life-long learning classes, and personal and professional development courses. It also offers Microelectronics, an AAS program.

Central Portland Workforce Training Center

1626 S.E. Water Ave.

Portland, Oregon, 97214-3336

The Central Portland Workforce Training Center, a 31,000 square foot facility in central eastside Portland, offers management and professional development classes, computer classes, personal enrichment, short-term job training, small business development courses, English as a Second Language, Senior Studies Institute activities, and multimedia software training.

Columbia County Center

1510 St. Helens Street, Suite C

St Helens, Oregon, 97051-1700

Hillsboro Center

102 S.W. Washington

Hillsboro, Oregon, 97123-3960

Newberg Center

1505 N.E. Portland Road, #206

Newberg, Oregon, 97132-1852

Portland Metropolitan Workforce Training Center

5600 N.E. 42nd

Portland, Oregon, 97218-1410

Southeast Center

2850 S.E. 82nd

Portland, Oregon, 97266-1556

Located in a heavily populated area of southeast Portland, the Center provides college transfer, adult basic education and job training programs. It offers extensive evening and weekend programs to accommodate those who work full-time.

These offices serve their respective geographic areas with community education programs and selected credit courses.

Rock Creek Campus

While Rock Creek has a Portland address, it sits about 12 miles west of downtown in the rapidly growing Beaverton-Hillsboro area of Washington County. The 256-acre campus provides a beautiful setting for both college transfer and professional/technical programs and annually serves 8,600 students. The campus provides a model for successful partnerships with area high schools. A new Science and Technology building ensures the continuing excellence of classroom and laboratory instruction.

Executive Dean: William Christopher

17705 N.W. Springville Road

Portland, Oregon, 97229-1744

Sylvania Campus

Sylvania is located in suburban southwest Portland between Lake Oswego, Tigard and downtown Portland. It is the largest campus, serving more than 26,000 students annually. Sylvania is home for numerous PCC programs, which have national reputations for excellence. Sylvania provides college transfer, professional/technical, and developmental education. The new library and theater facilities are a focal point of the campus.

Executive Dean: Alice Jacobson

12000 S.W. 49th Avenue

Portland, Oregon, 97219-7132

PCC Contracted Educational Service Districts

Tillamook Bay Community College

2510 First Avenue

Tillamook, Oregon 97141, 503-842-8222

Columbia Gorge Community College

400 East Scenic Drive

The Dalles, Oregon 97058, 541-296-6182

The PCC Foundation

The Portland Community College Foundation was established in 1982 as a nonprofit corporation to solicit and administer private support for the educational programs of Portland Community College. The Foundation is governed by a board of trustees whose members are business, professional and civic leaders in the Portland area. The Foundation is linked to the college through the PCC Public Affairs/Foundation Office, which provides staff support for the Foundation's fund raising.

The PCC Foundation provides an opportunity to invest in the future of the community and the college. Donors may designate their contributions to the program of their choice and all donations are tax deductible. Contributions may be in the form of cash gifts, securities, deferred gifts, gifts in trust with reservation of income to donors, transfer of real property and equipment, and by wills and bequests.

Board of Trustees:

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Sho Dozono

Jill Eiland
Kerry Gillespie
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Staff

Over 3,100 full- and part-time staff members serve Portland Community College and its students. The teaching staff meets the standards of the Oregon State Board of Higher Education and those followed by community colleges nationally. PCC's outstanding faculty have studied at many of the leading institutions in the country and bring years of practical, "real-world" experience to the teaching profession. A detailed list of PCC's professional and academic staff with their credentials may be found in the back of this catalog.

Student Profile

Portland Community College serves close to 100,000 students annually. Over 72,000 reside within the five-county district and some 11,500 students come from other Oregon areas. Fewer than 4,500 students are not Oregon residents, with foreign students and Washingtonians representing the largest portion of this group.

Demographics

Average Age	36
Female	55%
Male	45%
Caucasian	75%
African American	4%
American Indian/Alaskan Native	1%
Asian, Pacific Islander	8%
Hispanic	11%
International	1%
Employed full- or part-time (at time of admission)	71%

Enrollment

Lower division	25%
Professional and Technical	36%
Community Education	29%
Adult Education	8%
Development Education	2%
Enrolled part time (fewer than 12 credits)	84%
Enrolled part time (credit students only)	74%

Student Right-to-Know

In compliance with the Student Right-to-Know and Campus Security Act of 1990 (Public Law 101-542), it is the policy of Portland Community College to disclose its completion/graduation rate and transfer rate to all current and prospective students. Rates are based on fall term enrollment of full-time (12 term credits), first-time, degree- or certificate-seeking undergraduates. Students are counted as graduates or as transfers-out if they graduated or transferred within 150 percent of the normal time for completion or graduation. Rates do not include part-time credit students, students who have attended college elsewhere before attending PCC, students who began their studies in a term other than fall or non-degree seeking students.

During Fall 1997, 792 students met the criteria. 7.1% (56 students) graduated within three years and 53.5% (424 students) transferred. During Fall 1998, 708 students enrolled at Portland Community College met this criteria. 7.8% (55 students) of this group graduated within three years and 23.6% (167 students) transferred to a four-year college or university or another two-year college. Transfer rates are calculated based on known transfers which include Oregon University System and Oregon community college transfers. Transfers to private Oregon colleges and out-of-state transfers are excluded from these figures.

ENROLLING AT PCC

New Students

Portland Community College has an open admissions policy, meaning that anyone may enroll at the college. Previous college experience or a high school diploma is not necessary for entry. However, certain programs or courses may require prerequisite course work, department approval, or an instructor's signature for enrollment.

1. Students enrolling in credit courses at Portland Community College for the first time will be expected to process enrollment information through the Admissions Office.
2. Students enrolling for a certificate, degree, or diploma will attend an orientation designed specifically for new students and complete an assessment of their basic skills before they register.
3. Students will be strongly encouraged to use the services of the Counseling and/or Advising Center(s) and to request assignment to an advisor, appropriate to their course of study.
4. Students performing below requisite skill level will be advised to enroll in courses to upgrade their skills.
5. Students, once admitted, must meet prerequisites for courses and programs, as required.

Admissions

You are required to fill out an Admissions Form before registering for credit classes. You may obtain the form in person by visiting one of the four campus Admissions offices listed below or check our website: www.pcc.edu and click on Admission and Registration. This first step will help you determine the next steps you'll take to be admitted to PCC, which may include orientation, assessment testing, and advising. New students are encouraged to start the admissions process well in advance of registration.

Admissions Offices

Cascade Campus: Student Services Bldg. 110, 503-978-5282

Rock Creek Campus: Building 5/124, 503-614-7270

Southeast Center: Room 157, 503-788-6252

Sylvania Campus: College Center 225, 503-977-4519

Health Care Professions : Sylvania Health Tech 205
503-977-4908;

International Students: Sylvania College Center 225
503-977-4952 or 503-614-7150.

Dual Enrollment Programs

PCC offers dual admission and enrollment programs with:

- Portland State University
- Oregon State University
- Oregon Institute of Technology
- Western Governors University

The benefits of these programs include:

- One application process for both Portland Community College, Oregon Institute of Technology, Oregon State University, Portland State University and Western Governors University

Advising available at either institution

Flexibility in scheduling with access to classes at both institutions

Opportunity to access services and participate in college life on both campuses

Coordinated financial aid and scholarships for qualified students

Access to library and computer lab resources on both campuses

Skill-building through preparatory courses at Portland Community College and lower division courses at either Portland Community College or the four-year institution

Easier transition from community college to university

More affordable route to your degree

Applications are available at our admissions offices or on www.pcc.edu

Assessment

A wide variety of tests and inventories is available through the Counseling Services office, the Office of Students with Disabilities and the Assessment Offices. These services help students gain self-understanding and an increased ability to make decisions regarding career and educational plans.

ASSET, a basic skills placement test, is used to determine the appropriate classes for students in English and math. If you are enrolling for a certificate, degree or diploma, placement testing is required.

Testing Centers

Cascade Campus: Student Services Bldg 205, 503-978-5234

Rock Creek Campus: Building 5 Room 115, 503-614-7300

Southeast Center: Room 162, 503-788-6256

Sylvania Campus: College Center 216, 503-977-4131

Orientation

New student orientation introduces students to Portland Community College. There are orientation sessions geared specifically for professional/technical program students as well as for general transfer and undecided students. First time credit students are required to attend a session prior to registration if planning to enroll in a degree, certificate, or diploma program, or accumulating a significant number of credits toward a transfer degree.

The orientation includes an overview of college resources and student support services. Contact the Admissions Office at the campus you plan to attend for orientation dates and times.

Advising

Select the right classes to reach your goals with the help of an advisor. Before registering for classes, review your progress with an advisor at your campus advising center or your program department. They will answer questions about prerequisites, degree requirements, comprehensive degree requirements and procedures, transfer credits and more.

Non-credit or non-degree students may also seek scheduling and advising help.

Advising Centers

Cascade Campus: Student Services Bldg. 110, 503-978-5271

Rock Creek Campus: Building 5, 503-614-7297

Southeast Center: Room 157, 503-788-6252

Sylvania Campus: College Center 225, 503-977-4519
or see your program department.

Residency

A residence is a place in which a person resides—a dwelling place or abode—especially a house or apartment. Residence is not established by attendance at a college.

In-state student: an American citizen, immigrant or permanent resident who has established and maintains residency in Oregon, Washington, Idaho, Nevada or California.

Out-of-state student: an American citizen, immigrant or permanent resident who has not established or maintains residency in Oregon, Washington, Idaho, Nevada or California.

International student: a citizen of another country.

Transfer Students

Credits from other institutions may be accepted toward degree requirements if they were completed at a fully accredited college or university. Send official transcripts of previous course work to:

Student Records
Portland Community College
P.O. Box 19000
Portland, Oregon 97280-0990

All transcripts received by the Records Office become the property of PCC. The Records Office will not provide copies of transcripts from other institutions. The Records Office is responsible for determining acceptance of transfer work to meet General Education requirements. Students should plan to meet with a department chair or advisor to review program requirements.

It is the responsibility of each student with transcripts (credits) from international schools to have them translated (if necessary) and evaluated course by course for acceptance toward a Portland Community College certificate or degree, by a service that is a member of the National Association of Credential Evaluation Services.

High School Students

Students under the age of 16 who wish to be considered for enrollment in PCC classes must complete the ASSET placement exam and meet with a PCC counselor. For more information, contact the PCC Admissions Office of the campus where you intend to enroll.

Portland Community College also offers a High School Completion program.

Students With Disabilities

The Office of Students with Disabilities (OSD) offers a wide range of services to provide students with disabilities access to college programs and activities, and auxiliary support. Services may include: interpreters and communication devices for deaf and hearing impaired students, notetaking options, proctored testing at campus locations (as an optional service for instructors), taping of printed materials, test readers/writers at campus locations, campus-based adaptive equipment and training, enrollment assistance, orientations, campus tours by special arrangement, referral assistance, program and career guidance, and counseling. OSD also provides faculty/staff consultations and workshops for college personnel and students designed to increase awareness of disability issues.

Students wishing to request services from OSD must:

Arrange to meet with an OSD counselor or learning disability specialist.

1. Provide OSD with documentation from a certifying professional that establishes the existence of a current disability and supports the need for accommodations requested. Documentation is required to be on file in OSD prior to receiving services.
2. Request accommodations through an OSD counselor or learning disability specialist each term.
3. Follow the timelines and procedures for receiving each service as outlined in OSD's Student Handbook.

Accommodations (not special education) are provided by OSD so students with disabilities can access and participate in the educational programs or courses attended by other students. Although specialized (individualized) instruction is not provided by OSD, individualized vocational training is available for qualified students with disabilities through the Culinary Assistant Training Program (see Professional/Technical Programs in this catalog). A Corrective Physical Education program instructed and supervised by a physical therapist is also available through the Physical Education Department.

Accessible Parking (disabled parking) is available at each campus, and disabled parking permits are obtained through the Oregon State Department of Motor Vehicles. Students needing temporary disabled parking (two weeks or less) may make arrangements through OSD. A letter from physician supporting the need for temporary disability parking is required.

Pay phones equipped with a TTY (for hearing/speech impairments) are available at most campus locations. For specific TTY locations, contact OSD.

International Students

International student applicants must complete all correspondence and forms in English. Questions about admissions should be directed to the Admissions Office at the Sylvania Campus, College Center Mall (503-977-4952) or the Office of International Education (503-614-7150).

To be considered for admission to PCC, the following must be submitted to the Office of International Education.

1. International Student Application for Admission form.
2. Declaration of Finances form.
3. \$50 application fee, which is non-refundable and nontransferable (Cashier's check, money order or cash). Personal checks will be accepted from local banks only.
4. Tuberculosis certification form.
5. Proof of government or private scholarship support (if applicable)
6. Proof of college-level English ability. An international TOEFL score is required (150 on the computer-based TOEFL test or 470 on the paper/pencil TOEFL test.)
7. For transfer students only:
 - a. Official transcripts from high schools, other colleges or universities.
 - b. Letter of consent from previous college's foreign student advisor.
 - c. Copy of I-94 and I-20 ID.
 - d. Copy of pages one through four of passport and U.S. Visa page.

When all of the above has been received, the applicant will be considered for admission. (An I-20 form will not be issued to any individual until all the required information has been received and approved.) All students must enroll by the last scheduled day of registration each term. International students must pursue a full course of study (12 credit hours or more per term) to be on the I-20 form.

International students must pay all tuition and fees at the time of registration. Payment of out-of-country drafts must clear the business office approval procedure before registration is final. Students requesting this billing service must file authorization forms with the Business Office prior to registration. Deferred tuition is not available for international students.

It is the responsibility of each student with transcripts (credits) from international schools to have them translated (if necessary) and evaluated course by course for acceptance toward a Portland Community College certificate or degree, by a service that is a member of the National Association of Credential Evaluation Services.

How to Register

The college offers several registration service options. Students are encouraged to use TRAIL, the touch tone telephone system or the WEB (<https://banweb.pcc.edu>). Other options include FAX, in-person, and mail-in processes. Specific registration information and procedures are in the quarterly Schedule of Classes, mailed throughout the district or available at any PCC facility, plus many other public sites around the community. Those living outside the PCC district may call any PCC Admissions Office to request a schedule to be sent to them. Students are not allowed to attend classes unless they are registered.

Tuition for Credit Classes

The Portland Community College Board of Directors evaluates tuition rates annually. The following rates are subject to change:

Summer 2002–Spring 2003 Tuition

In-State: \$45 per credit hour

International students and students residing in states which do not border Oregon: \$175 per credit hour

Student Activity Fee

Students registering for credit classes will be assessed \$1 per credit hour student activity fee. The amount charged each term will not exceed \$15.

Technology Fee

Students registering for credit classes will be assessed a \$3.00 per credit hour technology fee. The amount charged each term will not exceed \$45.00.

Non-credit and CEU classes are priced individually. Tuition and fees for these classes are printed in the Schedule of Classes following the course description.

Students with past due debts payable to Portland Community College will not be allowed to register until the total indebtedness is paid in full. An unsatisfactory credit history at PCC will prevent students from eligibility for deferred note, emergency loans or other institutional financial assistance.

Continuing Education Classes (CEUs)

Course numbers beginning with "CEU" are classes that award Continuing Education Units (CEUs) rather than college credits. CEUs are not equivalent to credit hours and therefore may not be used toward PCC certificates or degrees. Some programs offering CEU classes offer recertification or CEU certificates. One CEU is awarded for each 10 hours or their equivalent. PCC transcript records are available for CEU hours.

Tuition for CEU courses is charged regardless of the number of credit hours for which the student enrolls. CEU classes do not meet the federal requirements for financial aid or most Veterans' benefits.

Community Education Classes

Designed for adults, these classes are planned to fit your needs at hours when you might want to take a class, usually during evenings and weekends. Unless otherwise specified in class descriptions or marketing materials, community education classes are restricted to persons at least 16 years of age or older. Requests for an exception to this policy should be directed to a community education manager.

The managers of the Community Education program want to hear from you if you have an idea for a class or are interested in teaching a class.

Beaverton-Janice Dolan, 503-533-2707

Online Learning-Marcia Truman, 503-731-6650

Hillsboro, Forest Grove-Cindi Johnston, 503-533-2708

Lake Oswego, SW Portland-Cecelia Barry, 503-731-6621

North/NE Portland, Cascade Campus, Columbia County-Ed Kaiel, 503-978-5205

Downtown/NW Portland, Rock Creek-Ann VanOrman, 503-614-7308

SE Portland-Kaia Cabana, 503-788-6260

Sylvania Campus-Julie Wolleck, 503-731-6620

Tigard, Tualatin, Newberg and Sherwood-Tsipora Dimant, 503-538-9774

Non-credit classes do not meet the federal requirements for financial aid or most Veterans' benefits are not equivalent to credit hours and may not be used toward PCC certificates and degrees.

Older Adults (62 and over)

If you are 62 years of age or over, when classes begin, you are eligible to receive a 50% older adult tuition discount on credit and non-credit classes. The tuition discount does not apply to lab and other class fees, out-of-state tuition or CEU tuition. The discount may be requested at the time of payment or by calling 503-977-4234.

Limited grants are also available to Oregon residents unable to afford the reduced tuition rates. Grants do not cover lab or other fees and are not available if you are enrolled in a degree or certification program. To apply for a grant, contact Neal Naigus at 503-977-4122. Submit your approved grant authorization to any campus business office during registration.

Special Fees

Some classes have special fees which must be paid directly to the instructor or to a sponsoring organization. These charges are listed in the Schedule of Classes and are paid in addition to PCC tuition.

Lab Fees

Classes with lab fees have the amount indicated in the course description in the Schedule of Classes. Lab fees are payable with tuition.

Late Registration

An instructor's written approval is required to add a class once it has started. The approval form must be submitted in person to the registration office within one week of approval. After that date, your enrollment cannot be guaranteed. A late registration fee may be charged if you enroll after the class begins.

Cancelled Classes

The college reserves the right to cancel a class that does not meet the minimum enrollment established by the college. Charges for cancelled classes will be automatically reversed.

Adding or Dropping a Class

Classes may be added or dropped by filing an Add/Drop form with the campus registration office, by calling TRAIL at 503-977-5000 or by accessing the Student Web at: (<https://banweb.pcc.edu>).

Written instructor approval is required to add a class after the first class session. Approval forms are available at any registration or department office.

The deadline to drop and have charges removed varies by class length and type. The drop deadline for credit classes is published in the quarterly schedule of classes. Instructor drops do not remove charges.

Withdrawing from College

You may formally withdraw from class by filing an Add/Drop form with the campus registration office, by calling TRAIL at 503-977-5000 or via the Student Web at: <https://banweb.pcc.edu>. If you have applied for financial aid or veterans benefits, you must also notify the appropriate office of your intentions to withdraw.

Students who stop attending without formally withdrawing will receive the grades assigned by their instructors and will be responsible for payment of tuition and fees.

Paying for College

Payment Due Dates and Options

Full payment or college-approved financial arrangements must be in place by the 2nd Friday of the term. After that date, payment is due within one week. If you have financial arrangements that will not cover the full term charges, the difference must be paid by the due date.

You are required to pay on time, even if you do not receive a bill.

Payment is accepted in the form of cash, checks and credit cards (Visa and MasterCard). No two-party or counter checks will be accepted. All payment must be made in U.S. currency. Other college-approved financial arrangements include:

Financial Aid: If the amount of the award is not enough to cover your full term charges, you must pay the difference by the due date. If you applied late, please be prepared to pay the balance on the due date. You will be refunded once your aid is disbursed.

Third Party Sponsor or Scholarship: It is your responsibility to insure that the payment arrangements are in place by the due date, even if your account is being paid by another party.

Deferred Payment-The 50/50 Plan: Information and applications are available through any campus business office, and via the Student Web.

All term charges must be paid in full before you will be allowed to register for the next term.

Removing Tuition Charges

If you are dropping a class, you must use TRAIL, the Student Web or file an Add/Drop form with the registration office. Be sure to confirm your drop!

100% of the charges associated with a class will be removed if you formally drop that class within the refund period.

No charges will be removed if you drop after the refund period.

Length of Class

11–12 week classes:
8–10 week classes:
2–7 week classes:

Refund Drop Period

By the second Friday of the term
By the end of the first week of classes
By the end of the first day of classes
(For night and weekend classes, through the next business day)
Prior to first day the class meets

For classes meeting less than two weeks:

Please note: Drop deadlines may vary for non-credit and CEU courses.

Tuition Forgiveness

If you believe that there is a substantial and verifiable cause to remove charges from your student account, you may file a written petition with the college's appeal committee. Your completed Hardship or Account Dispute petition form will be accepted for review once you have met all of the petition requirements. Only tuition is eligible for removal. Related class fees and past due student account charges must be paid in advance.

Additional information is available on line <http://www.pcc.edu/pcc/fin/removal.htm>, through your campus Dean of Student Development Office, or by calling 503-977-4234.

Refunds

Refunds are calculated when your account has a credit balance resulting from an overpayment of your account balance, or from charges being removed which were previously paid. Only payments made by you in the form of cash, check or credit card may be refunded to you. Credit balances resulting from payments made by third party sponsors, financial aid or scholarships will be returned to the originator.

Refunds are first applied to other charges outstanding on your account, even if payment is not yet due. Refunds in excess of \$15 are automatically issued beginning the third week of the term. Checks are mailed to the most recent address on file. You may also request a refund check in person by contacting the Business Office. See the quarterly schedule of classes for details.

Your Financial Responsibilities

By registering for a class, you incur a legal obligation to pay all charges related to that class. Tuition and fees may be canceled only if you officially drop the classes within the refund drop period. You will be billed for any unpaid charges.

1. You are responsible for full payment of all charges on your account by the payment due date, even if your account is being paid by another party.
2. You are responsible for keeping PCC informed of any changes in your mailing address or name.
3. If you are 18 years of age, you will be held liable for any charges on your account under Oregon Revised Statute (ORS 348.105).
4. When you register for a class, you are liable for payment of the charges on that class, whether or not you attend. To have the charges removed, you must formally drop the class by the drop deadline listed in the PCC schedule. By submitting your registration, you agree to all policies and procedures, including financial liability, published in the PCC Schedule of Classes. Furthermore, if your account is referred for collection, you agree to pay to PCC reasonable collection costs of up to 40% of the past due balance.

If You Don't Pay On Time

Full payment of your account balance must be received when due. One week after the due date, a late payment penalty of 10 percent of your account balance, up to \$75, will be assessed. Holds are placed on past due accounts restricting future registration and transcripts. If the college is required to enlist the services of an outside collection agency to secure your payment, you will be required to pay all future charges in advance.

If extreme hardship forces you to withdraw after the drop deadline, you may be able to petition to have the tuition charges removed. Only tuition charges are eligible for removal. Petition forms and instructions are available through the business office or your Dean of Student Development.

Financial difficulties are not considered grounds for appeal, however, you may be able to establish a payment plan with the college. For further information, contact the Student Service Unit located at the Sylvania campus business office.

Student Account Information

Information about your student account activity, payment options, deadlines, billing office hours and the institutions refund policy is available by calling TRAIL at 503-977-5000, and on the Student Web at: <https://banweb.pcc.edu>. To speak

with an experienced student account representative, please call 503-977-4234 Monday through Friday from 8:30 a.m. to 5 p.m.

Confidentiality

Financial information related to your student account is protected by various state and federal confidentiality laws. Therefore, your student account information may only be released with your advance written consent.

FINANCING YOUR EDUCATION

Financial Aid

The Financial Aid Office administers a variety of aid programs in the form of scholarships, grants, loans and part-time employment to eligible students who need assistance to attend college. The amount of aid awarded is subject to availability of funding and date of application is completed.

Cascade Campus: Student Services Bldg., 107, 503-978-5278

Rock Creek Campus: Building 5/131, 503-614-7216

Southeast Center: Room B18, 503-788-6254

Sylvania Campus: College Center 212, 503-977-4934

Application

Complete the free application for Federal Student Aid (FAFSA) to have eligibility for assistance determined or on-line at <http://www.fafsa.ed.gov>. Forms are available in any Financial Aid office. Additional information may be requested from the Financial Aid Office. Eligibility is determined when all requests for additional information have been met.

When to Apply

You may submit your application beginning January 1 for the following academic year beginning with the fall term. Applications continue to be accepted during the year. Late applicants should be aware that adequate funding may not be available.

The priority funding date for financial aid is March 1 for all programs with the exception of Pell Grants, Oregon Need Grants, Stafford Loans and Parent Loans for Undergraduate Students (PLUS). Applications received after March 1 will be processed after those received by March 1. Financial aid is awarded as funding permits.

Who is Eligible

The Federal Government sets the eligibility requirements:

1. You must be a U.S. citizen or an eligible non-citizen.
2. You must have a high school diploma, GED or have the ability to benefit according to federal regulations.
3. You must be enrolled in a program leading to a degree, certificate or transfer program and be taking courses applicable to your program.
4. You must not owe a refund or repayment on federal financial aid or be in default on a student loan.

5. Loan borrowers may be subject to credit checks or other credit worthiness requirements.

Getting Award Notification

Most applications are processed during the spring and summer for the following academic year. You will be notified of financial aid awards by mail. You have accepted when you return the signed financial aid award letter to the Financial Aid Office, and you must return it by the date indicated or the award may be reduced or withdrawn.

How you are paid

Upon meeting all of the qualification requirements, your financial aid funds are credited to your student account. These funds pay your tuition fees and other charges related to attending PCC. Any financial aid remaining after these charges are paid will be refunded to you.

Financial aid checks are issued at the campus Business Offices at the beginning of the third week of the term. If you do not pick up your financial aid check in person, your check will be mailed within 14 days of disbursement to your last known address on file.

Keeping your Financial Aid

Federal regulations require that you maintain satisfactory progress (2.0 GPA) and complete the minimum required courses according to your enrollment status toward a degree or certificate to keep receiving financial aid. The Financial Aid office reviews academic performance each term. If you do not meet the standards of progress, you may be placed on financial aid warning or probation or financial aid may be discontinued. You may appeal to be reinstated by completing an Satisfactory Academic Progress Appeal form and document in writing why academic standards were not met. If you withdraw, drop out or stop attending classes, you may be subject to repayment of financial aid funds to PCC.

Scholarships

Portland Community College awards a number of scholarships each year through the PCC Foundation. Scholarships are generally awarded on the basis of academic progress and financial need. Scholarship criteria, deadlines and award amounts vary. Most scholarships have an April application period for awards for the following year. If you are interested in applying for scholarships, pick up information at any Financial Aid Office, the PCC Development Office at Sylvania or check the Bridge student newspaper and department bulletin boards.

Veterans' Educational Benefits

Veterans, disabled veterans and the dependents of certain veterans may be eligible for educational benefits from the Veterans Administration. Portland Community College is approved for the training of veterans and most of the programs offered by PCC have been approved by the VA. You should verify your program status before registering. If you have eligibility questions call 888-442-4551.

The PCC Veterans' Services Office is located at the Sylvania Campus, CC 246, 503-977-4502, and all student files are maintained there. If you are using veterans benefits for the first time or are transferring to PCC, you must apply through this office and complete an intake interview. Call the office to verify which documents to bring for certification. A veterans advisor is available to help complete the process.

VA regulations require that students receiving educational benefits must maintain a 2.0 GPA in their declared major for satisfactory academic progress. Also, the VA will not pay for W or NP grades. Students receiving benefits should be aware of these conditions to avoid VA over-payments or possible termination of benefits.

COMPREHENSIVE DEGREE REQUIREMENTS

Catalog Editions, Graduation and General Information

Which Catalog?

Portland Community College operates on the quarter system. A new edition of the PCC Catalog is published and dated with each academic year, which begins fall term and ends with the next summer term.

To earn an associate degree or a certificate, students must meet the requirements in the Catalog that is current when they earn their first credit(s) at PCC, unless they choose to meet the requirements of a later Catalog.

However, students who do not earn at least one PCC credit applicable to their degree requirements each academic year lose the right to meet the requirements of their original Catalog. They must then meet requirements of the Catalog current at the time they resume work on their degree at PCC, or a later Catalog. To be considered full-time, you must be enrolled for at least 12 credit hours.

Students enrolled in programs that are accredited or licensed must meet the requirements most recently approved by the accrediting agency or licensing authority.

An edition of the Catalog is valid for 6 academic years. For example, a Catalog that takes effect fall term 2002 is only valid through summer term 2008. However, some programs may impose shorter time limits on accepting credits for degree or certificate requirements.

Occasionally the College may change courses and course numbers within a program. Students should regularly consult an advisor in their major department about their course of study.

Students who have declared themselves as non-degree seeking and who have earned thirty-credit hours at Portland Community College are required to contact the college in order to confirm or change their current status before registering for a subsequent term.

Petitioning for Graduation and Paying College Debts

Two terms before students expect to complete requirements for a degree or certificate, they should file a petition to graduate with the Graduation Office. This allows college staff to check

students' plans to be sure they are meeting all requirements. In any event, students must file their petitions within one year after completing all requirements.

Students must clear all debts to the college before their degree or certificate will be awarded.

Credit courses with passing grades are only counted once in accumulated hour and point totals. If you have graduation questions, call 503-614-7718.

Computer Proficiency: A Statement to Students

Students at Portland Community College, in order to succeed here and in the communities outside the college, need to be familiar with and capable of using computers and computer software. Both upper division college work and the requirements of the workplace demand such skills. Many PCC faculty will require students to access class materials on the Internet, use a word processor, e-mail and data bases as part of regular course activities.

Students need to determine which computer skills are appropriate to their areas of study and take positive steps to acquire and use them early. In order to facilitate appropriate student access to computers and computer software, each comprehensive campus at the college provides classrooms, labs, course work and library access where students can learn about and use these tools.

Students should contact their instructors, the campus library, the campus office of Student Development, the Associated Students of Portland Community College, or the campus Advising and Counseling offices to find out what computer resources are available and when they can be accessed. Advisors, counselors, and faculty can assist students in choosing appropriate courses to help them achieve computer proficiency.

General Education Waiver for Prior Degree

The General Education requirements for one and two year certificates and for the Associate of Applied Science and Associate of General Studies degrees will be waived for students who enroll at PCC with an A.A., A.A.S., A.G.S., A.S., B.A., B.S. degree or higher from an accredited United States institution. Program-specific General Education requirements for some certificates or Associate of Applied Science degrees will not necessarily be waived. Students should consult the program department for specific courses required for General Education.

Certificate Programs

Most PCC professional/technical programs offer one or two year certificates to students who complete their course of study with a minimum 2.0 grade point average. Specific courses required for each certificate program, including any General Education requirements are listed under their appropriate programs in this Catalog.

One-Year Certificate Restrictions

1. At least 12 credits must be earned at PCC, of which 9 must apply to the certificate requirements. The final 9 credits that apply to the certificate must be earned at PCC.

Two-Year Certificate Restrictions

1. At least 24 credits must be earned at PCC, of which 18 must apply to the certificate requirements. The final 9 credits that apply to the certificate must be earned at PCC.
2. Only 9 credits of 199 and 299 Special Topics courses will apply.

Comprehensive Requirements for:

Associate of Applied Science
Associate of General Studies
Associate of Science

Comprehensive Credit and GPA Requirements

All candidates must earn a minimum of 90 credits which count towards an associate degree. (Many programs require more than 90 credits. See descriptions in this catalog for the specific number of credits required.)

All candidates must earn a minimum of 30 credits transcribed by PCC to establish residency. Non-traditional credit, credit transferred from another institution or credit earned through the course challenge process may not be used to establish the 30 credit residency requirement and the student petition process may not be used to waive the residency requirement.

Twenty-four (24) of the credits earned at PCC must apply to the degree.

The final 18 credits that apply to the degree must include at least 9 credits earned at PCC. (Note: An additional requirement exists for the AAS degree: see AAS specific degree requirements.)

All candidates for a degree must earn a 2.0 overall grade point average (C average) or higher for:

- All courses applied to the degree
- All PCC courses applied to the degree

The following limitations apply:

- No more than 12 credits of Cooperative Education courses
- No more than 9 credits of special topics courses (course numbers 199-199Z and 299-299Z)
- No more than 24 credits of English as a Non-Native Language (ENL)
- Developmental Education courses may not be applied to the degree
- PE 10, Physical Education Activity Program, may not be applied to the degree
- Course numbers beginning with a zero may not be applied to the degree
- No more than 12 credits of Speech 270.

Basic Competency Requirements

All candidates must meet the following basic competencies:

Degree candidates must demonstrate competency in basic mathematics and writing skills within five (5) years prior to receiving their degree.

Competency in writing must be demonstrated by either:

1. Completing WR 121 with a letter grade of C or better, or
2. Passing a lower division collegiate* writing course for which WR 121 is a prerequisite with a letter grade of C or better, or
3. Passing the PCC WR 121 Challenge Exam. Students must meet criteria to sit for the exam.

*See "Course Descriptions" in this catalog for a complete list.

**See "Course Challenge" for information on the course challenge process.

Competency in mathematics must be demonstrated by either:

1. Completing MTH 65 or MTH 63 with a letter grade of C or better, or
2. Passing the PCC competency exam for MTH 65*, or
3. Passing a mathematics course (minimum of 3 credits) for which MTH 65 is a prerequisite with a letter grade of C or better.

*Contact any campus testing center for more information.

Students with A.A., A.A.S., A.G.S., A.S., B.A., B.S. degree or higher from an accredited United States institution will have the basic competency in writing (WR 121) waived. The basic competency in mathematics (MTH 65) may be met by submitting a transcript showing successful completion of Intermediate Algebra or a mathematics course (minimum of 3 credits) with MTH 95 or equivalent as a prerequisite. (Intermediate Algebra is equivalent to MTH 95 at PCC.) All specific writing and mathematics requirements for the major remain in effect.

Associate of Applied Science Degree

The Associate of Applied Science degree is awarded to students in professional/technical programs who meet the following requirements:

All candidates must complete a program of approved course work in the major field. The program descriptions in this catalog contain these course work requirements.

All candidates must complete the following:

Comprehensive Requirements

All candidates must meet the Comprehensive Requirements for Associate of Applied Science, Associate of General Studies and Associate of Science.

General Education

All candidates must earn 18 credits of General Education. See "General Education Requirements" for the specific details on this requirement.

Additional Requirements

All candidates must earn 24 credits from PCC that apply to the specific program requirements excluding courses used solely for the General Education requirements.

The final 18 credits that apply to the degree must include at least 9 credits at PCC that apply to the specific program requirements, excluding courses used solely for the General Education requirements.

A maximum of 3 credits (100 level and above) in Physical Education (PE) may be applied to the degree.

One-credit MSD workshops may only be applied to the Management/Supervisory Development degree. (Students should contact the MSD department for details and limitations.)

Professional/Technical Requirements

All candidates must complete all professional/technical course work specified by the program in this catalog.

Associate of General Studies Degree

The Associate of General Studies degree is designed for students wishing to acquire a broad education, rather than pursuing a specific college major or professional/technical program. College work may include courses selected from a variety of professional/technical and college transfer courses. Because of the flexibility of this degree, it may not fulfill requirements for transfer to a four-year institution. Students are responsible for checking with the college of their choice if transferability is desired.

All candidates must complete the following:

Comprehensive Requirements

All candidates must meet the Comprehensive Requirements for Associate of Applied Science, Associate of General Studies and Associate of Science.

General Education

All candidates must earn 18 credits of General Education. See "General Education Requirements" for the specific details on this requirement.

Writing

All candidates must complete WR 121.

Additional Requirements

Maximum of 6 credits (100 level and above) of Physical Education (PE) may apply to the degree.

Maximum of 6 credits of one-credit MSD workshops may apply to the degree.

Maximum of 24 credits of professional skills classes (PST) may apply to a degree.

Math 30 or higher may be used as elective credit.

General Education Requirements

General Education Requirements for:

Associate of Applied Science

Associate of General Studies

All candidates for the Associate of Applied Science and the Associate of General Studies degrees must complete 18 credits from courses listed under General Education in this catalog.

The 18 credits must include at least one (1) course and no more than nine (9) credits from each of the following three categories:

1. Arts and Humanities
2. Social Science
3. Mathematics, Natural and Physical Sciences and Computer Studies

No more than nine (9) credits may come from any one subject (e.g., BI, ESR, WR, WS).

No more than two (2) courses may come from program pre-requisites or from courses required by specific programs.* A few programs are exempt from this policy. Check with your program advisor.

*Note: Because of these restrictions, it is possible that a course is acceptable as General Education for some students while it is not acceptable for others. Degree candidates who are unsure of how the General Education Policy applies to their individual cases are responsible for seeking help from an advisor or counselor.

The General Education requirements will be waived for students who enroll at PCC with an A.A., A.A.S., A.G.S., A.S., B.A., B.S. degree or higher from an accredited United States institution. Program specific General Education requirement for some degrees will not necessarily be waived. Students should consult their program advisor for specific courses required for General Education.

Philosophy Statement

The faculty of Portland Community College affirms that a prime mission of the college is to aid in the development of educated citizens. Ideally, such citizens possess:

- ◆ Understanding of their culture and how it relates to other cultures
- ◆ Appreciation of history both from a global perspective and from a personal perspective, including an awareness of the role played by gender and by various cultures
- ◆ Understanding of themselves and their natural and technological environments
- ◆ Ability to reason qualitatively and quantitatively
- ◆ Ability to conceptually organize experience and discern its meaning
- ◆ Aesthetic and artistic values
- ◆ Understanding of the ethical and social requirements of responsible citizenship.

Such endeavors are a life-long undertaking. The General Education component of the associate degree programs represent a major part of the college's commitment to that process.

General Education Course List:

Arts and Humanities

ART 101, 102, 103 Introduction to Art
 ART 115, 116, 117 Basic Design
 ART 131 Introduction to Drawing
 ART 141 Introduction to Photography (Non-darkroom)
 ART 142 Introduction to Photography (Darkroom)
 ART 143 Photography II
 ART 181 Introduction to Painting
 ART 204, 205, 206 History of Western Art
 ART 207, 208, 209 History of Asian Art
 ART 210 Women in Art
 ART 211, 212, 213 Modern Art History
 ART 218 Lettering Calligraphy I
 ART 220 Advanced Lettering and Seminar
 ART 231 Drawing
 ART 237 Life Drawing
 ART 253 Ceramics I
 ART 256 Ceramics II
 ART 277 Life Painting
 ART 281 Painting
 ART 284 Watercolor I
 ART 287 Watercolor II
 ART 291 Sculpture: Plaster/Clay

ART 292 Sculpture: Welding
 ART 293 Sculpture
 ART/WLD 295 Sculpture:Welding II
 ASL 101, 102, 103, 150, 151 First Year American Sign Language
 ASL 201, 202 203 Second Year American Sign Language
 ASL 250, 251 Accelerated American Sign Language
 D 251 Introduction to Dance
 D 260 Dance Improvisation and Choreography
 ENG 104, 105, 106 Introduction to Literature
 ENG 107, 108, 109 World Literature: Western
 ENG 195, 196 Film Studies
 ENG 197 Contemporary Themes & Genres
 ENG 201, 202, 203 Shakespeare
 ENG 204, 205, 206 Survey of English Literature
 ENG 207, 208, 209 World Literature: Asian
 ENG 211 Contemporary African Literature
 ENG 212 Biography
 ENG 213 Latin American Literature
 ENG 214 Literature of the Northwest
 ENG 222 Images of Women in Literature
 ENG 240 Introduction to Native American Literature
 ENG 244 Introduction to Asian American Literature
 ENG 250 Introduction to Folklore & Mythology
 ENG 253, 254, 255 Survey of American Literature
 ENG 256, 257, 258 African-American Literature
 ENG 260 Introduction to Women Writers
 ENG 261 Literature of Science Fiction
 ENG 265 International Political Poetry
 ENG 275 Bible as Literature
 ENL 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 173, 183, 250, 252, 253, 254, 255, 256, 257, 258, 260, 262, 264, 265, 266, 267, 268, 272 English as a Non-Native Language
 FR 101, 102, 103, 150, 151 First Year French
 FR 201, 202, 203, 250, 251 Second Year French
 FR 255, 256, 257 Accelerated French
 FR 260A, 261A, 262A French Culture
 FR 270A, 271A, 272A Readings in French Literature
 FR 290A French Speaking and Writing
 FR 291A, 292A French Composition
 GER 101, 102, 103, 150, 151 First Year German
 GER 201, 202, 203, 250, 251 Second Year German
 GER 255, 256, 257 Accelerated German
 GER 270A, 270B, Readings in German Literature
 GER 290A, 290B German Composition
 GER 291A, 291B German Composition
 GER 292A German Composition
 HUM 106 British Life and Culture
 HUM 201 Humanities & Technology:Exploring Origins
 HUM 202 Humanities & Technology:Contemporary Issues
 HUM 203 Humanities & Technology:Future Directions
 HUM 204 African History
 HUM 205 African Literature
 HUM 206 African Art
 HUM 221 Leadership Through the Classics
 HUM 230 Transformations of Myth Through Time
 JPN 101, 102, 103, 150, 151 First Year Japanese
 JPN 201, 202, 203, 250, 251 Second Year Japanese
 JPN 260A, 261A, 262A Japanese Culture
 MUS 105 Music Appreciation
 MUS 106 Opera Appreciation
 MUS 108 Music Cultures of the World
 MUS 110 Fundamentals of Music
 MUS 111, 112A, 113 Music Theory I

MUS 191, 192, 193 Class Guitar
 MUS 191P, 192P, 193P Class Piano
 MUS 201A, 202, 203 Intro to Music & Its Literature
 MUS 205 Introduction to Jazz History
 MUS 206 Introduction to the History of Rock Music
 MUS 207 Introduction to the History of Folk Music
 MUS 208, 209, 210 African-American Music
 PHL 191 Language & the Layout of Argument
 PHL 193 Evaluation of Practical Argument
 PHL 195 Critical Thinking: Science & the Occult
 PHL 197 TV & the Presentation of Reality
 PHL 201 Philosophical Problems
 PHL 202 Introduction to Philosophy: Elementary Ethics
 PHL 204 Philosophy of Religion
 PHL 205 Biomedical Ethics
 PHL 208 Political Philosophy
 PHL 209 Business Ethics
 PHL 210 Introduction to Asian Philosophy
 PHL 221 Symbolic Logic
 PHL 222 Elementary Aesthetics: Philosophy of Art
 RUS 101, 102, 103, 150, 151 First Year Russian
 RUS 201, 202, 203, 250, 251 Second Year Russian
 RUS 262R Russian Culture in Russia
 RUS 270A, 271A, 272A Readings in Russian
 SP 100 Introduction to Speech Communication
 SP 111, 112, 113 Fundamentals of Speech
 SP 140 Introduction to Intercultural Communication
 SP 215 Theories of Persuasion
 SP 227 Non-verbal Communication
 SP 228 Rhetoric of the Media
 SP 237 Gender and Communication
 SPA 101, 102, 103, 150, 151 First Year Spanish
 SPA 201, 202, 203, 250, 251 Second Year Spanish
 SPA 255, 256, 257 Accelerated Spanish
 SPA 260M Spanish Culture (Mexico)
 SPA 260A, 261A, 262A Spanish Culture
 SPA 270A, 271A, 272A Reading in Spanish Literature
 SPA 290A, 291A, 292A Spanish Composition
 TA 101 Theater Appreciation
 TA 274 Theater History
 WR 241, 242, 243 Creative Writing
 WR 244, 245, 246 Advanced Creative Writing
 WR 247 Creative Writing Advanced Scriptwriting
 WS 101 Women's Studies

Social Science

ATH 101 Introduction to Physical Anthropology
 ATH 102 Introduction to Archaeology Prehistory
 ATH 103 Introduction to Cultural Anthropology
 ATH 207, 208, 209 Cultural Anthropology
 ATH 210 Selected Topics: Ethnology
 ATH 214, 215 Human Environments
 ATH 230 Native Americans of Oregon
 ATH 231 Native Americans of the Northwest
 ATH 232 Native North Americans
 EC 115 Outlines of Economics
 EC 200, 201, 202, 203 Principles of Economics
 EC 216 Labor Markets: Economics of Gender and Work
 EC 230 Contemporary World Economic Issues
 GEO 105, 106, 107 Introduction to Human Cultural Geography
 GEO 202 Geography of Europe
 GEO 206 Geography of Oregon
 GEO 208, 209 Physical Geography
 GEO 210 The Natural Environment

GEO 214 Geography of Mexico
 GEO 221 Field Geography
 GEO 265 Introduction to GIS
 GEO 290 Environmental Problems
 HEC 226 Child Development
 HST 101, 102, 103 Western Civilization
 HST 104, 105, 106 History of Eastern Civilization
 HST 201, 202, 203 History of the United States
 HST 204, 205, 206 History of Women in the U.S.
 HST 218 Native American Indian History
 HST 225 History of Women, Sex and the Family
 HST 240 Oregon's Social History
 HST 246, 247 Religion in the United States
 HST 270 History of Mexico
 HST 274, 275, 276 African-American History
 HST 277 Oregon Trail
 HST 278, 279 Russian History I, II
 HST 285 The Holocaust
 PS 201, 202 U.S. Government
 PS 203 State and Local Government
 PS 204 Comparative Political Systems
 PS 205 Global Politics: Conflict and Cooperation
 PS 211 Peace and Conflict
 PS 220 U.S. Foreign Policy
 PS 225 Political Ideology
 PSY 101 Psychology of Human Relations
 PSY 201, 202, 203 General Psychology
 PSY 201A, 202A, 203A General Psychology: Gender Perspectives
 PSY 213 Brain, Mind and Behavior
 PSY 214 Introduction to Personality
 PSY 215 Human Development
 PSY 216 Social Psychology
 PSY 220 Psychology: Applied
 PSY 222 Family and Intimate Relationships
 PSY 231, 232 Human Sexuality
 PSY 239 Introduction to Abnormal Psychology
 PSY 240 Personal Awareness and Growth
 SOC 204 General Sociology: Sociology in Everyday Life
 SOC 205 Social Change/Social Institutions
 SOC 206 General Sociology: Social Problems
 SOC 211 Peace and Conflict
 SOC 213 General Sociology: Diversity in America
 SOC 218 Sociology of Gender
 SOC 223 Sociology of Aging
 SOC 228 Introduction to Environmental Sociology
 SOC 230 Introduction to Gerontology
 SOC 232 Death and Dying
 SOC 252 Introduction to Sociological Theory
 WS 101 Women's Studies
 WS 201 Women of the World
 WS 202 Women Working for Change

Mathematics, Natural and Physical Sciences, and Computer Studies

BI 101, 101B, 102, 103 Biology
 BI 121, 122 Introduction to Human Anatomy & Physiology I, II
 BI 141 Habitats: Life of the Forest
 BI 142 Habitats: Marine Biology
 BI 143 Habitats: Fresh Water Biology
 BI 170 Environmental Science
 BI 200 Principles of Ecology
 BI 201, 202, 203 Botany
 BI 211, 212, 213 Principles of Biology

BI 222 Human Genetics
 BI 231, 232, 233 Human Anatomy & Physiology I, II, III
 BI 234 Microbiology
 CH 100 Fundamentals of Chemistry
 CH 101 Inorganic Chemistry Principles
 CH 102 Organic Chemistry Principles
 CH 104, 105, 106, 221, 222, 223 General Chemistry
 CH 241, 242, 243 Organic Chemistry
 CIS 120 Computer Concepts I
 CIS 121 Computer Concepts II
 CIS 122 Software Design
 CS 160 Exploring Computer Science
 CS 251 Logical Structures
 ESR 171 Environmental Science: Bio Perspectives
 ESR 172 Environmental Science: Chem Perspectives
 ESR 173 Environmental Science: Geo Perspectives
 FN 225 Nutrition
 G 201, 202 Physical Geology
 G 203 Historical Geology
 G 207 Geology of the Pacific Northwest
 G 208 Volcanoes and Their Activity
 G 209 Earthquakes
 G 291 Elements of Rocks and Minerals
 GS 106 Physical Science (Geology)
 GS 107 Physical Science (Astronomy)
 GS 108 Physical Science (Oceanography)
 GS 109 Physical Science (Meteorology)
 MTH 111A College Algebra for Liberal Arts
 MTH 111B College Algebra for Business
 MTH 111C College Algebra for Math, Science & Engineering
 MTH 112 Elementary Functions
 MTH 116 Calculus Preparation
 MTH 211, 212, 213 Foundations of Elementary Math I, II, III
 MTH 231 Elements of Discrete Mathematics I
 MTH 241 Calculus for Management, Life and Social Sci.
 MTH 243, 244 Statistics I, II
 MTH 251 Calculus I
 MTH 252 Calculus II
 MTH 253 Calculus III
 MTH 254 Vector Calculus I
 MTH 256 Differential Equations
 MTH 261 Applied Linear Algebra
 PHY 101, 102, 103 Fundamentals of Physics
 PHY 121, 122, 123 Elementary Astronomy
 PHY 201, 202, 203, 211, 212, 213 General Physics

Associate of Science Transfer Degree

The Associate of Science degree is designed for students planning to transfer credits to a baccalaureate degree program at four-year institutions of the Oregon University System. It allows more freedom in course selection than the Oregon Associate of Arts Transfer Degree, but does not guarantee that students will be accepted as having completed all lower division comprehensive and General Education requirements for a baccalaureate degree.

In selecting courses for this degree, students should consult advisors at PCC and the institution to which they will transfer about the requirements of their baccalaureate major.

All candidates must complete the following:

Comprehensive Requirements

All candidates must meet the Comprehensive Requirements for Associate of Applied Science, Associate of General Studies and Associate of Science.

Writing

All candidates must complete six (6) hours from:

1. WR 121 (or pass the PCC WR 121 Challenge Exam),
2. Lower division collegiate writing courses (minimum 3 credits) for which WR 121 is a prerequisite.

Health and P.E.

All candidates must complete either:

1. HE 250, Personal Health, and one (1) credit (100 level or above) of Physical Education (PE), or
2. HPE 295, Health and Fitness for Life

Distribution Requirements

All candidates must complete a minimum of nine (9) quarter credits of Lower Division Collegiate courses in each of the three (3) following distribution areas:

Arts and Humanities

Art, foreign languages, humanities, journalism, literature, music, philosophy, speech, theater arts, women's studies and writing (excluding WR 115, 185, 121 and 122.)

Social Science

Anthropology, economics, geography, history, political science, psychology, sociology and women's studies.

Science/Mathematics

Biology, chemistry, computer science*, general science, geology, mathematics, physical science and physics.

*includes CIS 120, 121, 122.

Requirements for Electives

All elective courses must be Lower Division Collegiate courses. See "Course Descriptions in this catalog for a complete list.

Maximum of three (3) credits of PE (100 Level or above).

Associate of Arts, Oregon Transfer Degree

The Oregon Transfer Degree is an opportunity for students to complete lower division (freshman and sophomore) degree requirements at PCC. Students who complete this degree and are accepted at Oregon public universities will be admitted as having completed all lower division comprehensive and General Education requirements for a baccalaureate degree. Students should see advisors at PCC and the institution to which they will transfer about the requirements of their major.

Please contact any campus admissions or advising center for more information.

All candidates for an Associate of Arts, Oregon Transfer Degree must complete the following requirements.

General Requirements

All candidates must earn at least 90 total credits.

All candidates for a degree must attend Portland Community College at least two terms and accumulate at least 30 quarter hours of satisfactory work at PCC to establish residency. The 30 quarter hours must include the last nine hours for the major. Non-traditional credit, credit transferred from another institution or challenge credit may not be used to establish the 30 quarter hour residency requirement and the student petition process may not be used to waive the residency requirement.

The final 18 credits for the degree must include at least nine credits earned at PCC.

Twenty-four of the credits earned at PCC must apply to the degree requirements.

All candidates for a degree must earn a 2.0 grade point average (C average) or higher for courses applied to the degree.

Transfer credit is allowed for grades “C” or higher. Transfer grades of “pass” are considered equivalent to a “pass” grade at PCC, even when that institution defines a pass as “D” or better. Except when a letter grade is required, pass grades may be applied to the degree where applicable.

No more than 24 credits taken on a pass/no pass basis may be applied to the degree.

No more than 24 credits of English as a Non-Native Language (ENL) courses may be applied to the degree.

No more than 12 credits of Speech 270.

No more than nine credits of 199 or 299 Special Topics courses may be applied to the degree.

No more than 12 credits of cooperative education may be applied to the degree.

Maximum of three credits of physical education (PE) courses may be applied to the degree.

One-credit MSD workshops may not be applied to this degree.

Basic Competencies

Degree candidates must demonstrate competency in basic mathematics and writing skills within five years before receiving their degree

1. Competency in mathematics must be demonstrated by completion with a letter grade of “C” or better in MTH 111A, MTH 111B, MTH 111C or a lower division collegiate math class of three credits or more with Intermediate Algebra as a prerequisite.
2. Competency in writing must be demonstrated by completion with a letter grade of “C” or better in WR 121 or a lower division collegiate writing course with WR 121 as a prerequisite.

Distribution Requirement

All candidates must complete 17 courses (quarter system) listed under Associate of Arts Oregon Transfer Degree Distribution Lists. The distribution areas are:

Arts and Letters

Social Science

Science and Mathematics

The 17 courses (quarter system) must include:

Five (5) courses from each of the three distribution areas (15 courses total) to include:

- One (1) three course sequence from List A in each distribution area
- Two (2) courses from List A or B that are in a different discipline than the sequence courses.

Two (2) additional courses from List A or B as follows:

- Each course must be from a different distribution area (Arts and Letters, Social Science, Science & Mathematics).
- The two (2) courses may be from either List A or List B and may be in any discipline area on the selected distribution list.

Cultural Diversity

All candidates must complete one (1) Cultural Diversity course (*notation on the Associate of Arts Oregon Transfer Degree Distribution Lists) with a letter grade of C or higher. This course may be from any area (list A or list B) and may also count as part of the overall distribution requirement.

Writing

All candidates must complete the following nine (9) quarter hours with a letter grade of “C” or higher:

- WR 121 (3)
- WR 122 (3)
- One course from WR 123 (3) or WR 227 (3)

Mathematics

All candidates must complete a minimum of four (4) quarter hours with a letter grade of “C” or higher. The following courses may be used for this requirement:

- Math 111A, 111B or 111C
- Any mathematics course, minimum 4 credits, with Intermediate Algebra as a prerequisite (Note: Six (6) credits of MTH 211, 212, 213 are needed to fulfill this requirement)

Course(s) may apply to the distribution requirements for Science and Mathematics

Oral Communication/Rhetoric

All candidates must complete three (3) quarter hours with a letter grade of “C” or higher to include:

Speech 111 or 112 or 113

Course may apply to the distribution requirements for Arts and Letters.

Health and Physical Education

All candidates must complete with a letter grade of C or higher or a grade of Pass

- HPE 295 (3) Health & Fitness for Life or
- HE 250 (3) Personal Health and one (1) credit of PE (100 level or above)

Electives

All candidates must complete elective credits to meet the overall requirement of 90 credits for this degree.

Elective credits may include:

- A maximum of 12 credits of Professional/Technical courses (100-299)*
- Courses from List A or List B or any lower division collegiate course, see “Course Descriptions” in this catalog for a complete list.

*See specific credit limitations listed under General Requirements.

Associate of Arts Oregon Transfer Degree Distribution Lists

Candidates for the Associate of Arts, ORegon Transfer Degree must select distribution courses from the following lists. Courses marked * will satisfy the diversity requirement.

Arts and Letters

Art

List A Courses

ART 101, 102, 103 Introduction to Art
ART 204, 205, 206 History of Western Art
ART 207*, 208*, 209* History of Asian Art
ART 211, 212, 213 Modern Art History

List B Courses

ART 115, 116, 117 Basic Design
ART 131 Introduction to Drawing
ART 141 Intro to Photography (Non-darkroom)
ART 142 Intro to Photography (Darkroom)
ART 143 Photography II
ART 181 Introduction to Painting
ART 210* Women in Art
ART 231 Drawing
ART 237 Life Drawing
ART 253 Ceramics I
ART 256 Ceramics II
ART 277 Life Painting
ART 281 Painting
ART 284 Watercolor I
ART 287 Watercolor II
ART 293 Sculpture
ART/WLD 295 Sculpture: Welding II

Dance

List B Courses

D 251* Introduction to Dance

Humanities

List A Courses

HUM 201 Humanities & Tech: Exploring Origins
and HUM 202 Humanities & Tech: Contemporary Issues
and HUM 203 Humanities & Tech: Future Directions
HUM 204* African History
and HUM 205* African Literature
and HUM 206* African Art

List B Courses

HUM 106 British Life and Culture
HUM 221 Leadership Through the Classics

Journalism

List B Courses

J 201 Mass Media and Society
J 202 Information Gathering
J 203 Writing for the Media
J 204 Visual Communication for the Media

Modern Languages

List B Courses

ASL 201 American Sign Language IV
ASL 202 American Sign Language V
ASL 203 American Sign Language VI
ASL 250 Accelerated American Sign Language
ASL 251 Accelerated American Sign Language
ENL 250, 252, 253, 254, 255, 256, 258, 260, 262, 264, 265,
266, 268, 272 English as a Non-Native Language
FR 201, 202, 203 Second Year French
FR 250, 251 Second Year French
FR 256, 257 Accelerated French
FR 260A, 261A, 262A French Culture
FR 270A, 271A*, 272A* Readings in French Literature
FR 290A French Speaking and Writing
GER 201, 202, 203 Second Year German
GER 250, 251 Second Year German
GER 256, 257 Accelerated German
GER 260A, 261A, 262A German Culture
GER 270A, 271A, 272A Readings in German Literature
JPN 201, 202, 203 Second Year Japanese
JPN 250, 251 Second Year Japanese
JPN 260A*, 261A*, 262A* Japanese Culture
RUS 201, 202, 203 Second Year Russian
RUS 250, 251 Second Year Russian
RUS 262R Russian Culture in Russia
RUS 270A, 271A, 272A Readings in Russian
SPA 201, 202, 203 Second Year Spanish
SPA 250, 251 Second Year Spanish
SPA 256, 257 Accelerated Spanish
SPA 260M* Spanish Culture (Mexico)
SPA 260A*, 261A*, 262A Spanish: Culture
SPA 270A*, 271A*, 272A Readings in Spanish Literature

Literature

List A Courses

ENG 104, 105, 106 Introduction to Literature
ENG 107, 108, 109 World Literature: Western
ENG 195, 196, 197 Film Studies: Film as Art, Directors,
Contemporary Themes & Genres
ENG 201, 202, 203 Shakespeare
ENG 204, 205, 206 Survey of English Literature
ENG 207*, 208*, 209* World Literature: Asian
ENG 253, 254, 255 Survey of American Literature
ENG 256*, 257* 258* African American Literature
Three terms chosen from:
ENG 211* Contemporary African Literature
ENG 213* Latin American Literature
ENG 222* Images of Women in Literature
ENG 240* Introduction to Native American Literature
ENG 244* Introduction to Asian American Literature
ENG 250* Introduction to Folklore and Mythology
ENG 256* African American Literature
ENG 260* Introduction to Women Writers
ENG 265* International Political Poetry

List B Courses

ENG 212 Biography
ENG 214 Literature of the Northwest
ENG 261 Literature of Science Fiction
ENG 275 Bible as Literature

Music

List A Courses

- MUS 111, 112A, 113 Music Theory
- MUS 201A, 202, 203 Introduction to Music and Its Literature
- MUS 205*, 206*, 207* Introduction to Jazz History, History of Rock Music, History of Folk Music
- MUS 208*, 209*, 210* African-American Music

List B Courses

- MUS 105 Music Appreciation
- MUS 106 Opera Appreciation
- MUS 108* Music Cultures of the World
- MUS 110 Fundamentals of Music

Philosophy

List A Courses

- PHL 191 Lang & the Layout of Argument,
- PHL 193 Eval of Practical Argument
and one of:
 - PHL 195 Crt Think: Sci & the Occult
 - PHL 197 TV & the Present of Reality
- PHL 201 Philosophical Problems
- PHL 202 Introduction to Philosophy: Elementary Ethics
and one of:
 - PHL 204 Philosophy of Religion
 - PHL 209 Business Ethics
 - PHL 210 Introduction to Asian Philosophy
 - PHL 222 Elementary Aesthetics

List B Courses

- PHL 205 Biomedical Ethics
- PHL 208 Political Philosophy
- PHL 221 Symbolic Logic

Speech

List B Courses

- SP 100 Introduction to Speech Communication
- SP 105 Listening
- SP 111, 112, 113 Fundamentals of Speech
- SP 130 Business and Professional Speech
- SP 140* Introduction to Intercultural Communication
- SP 215 Small Group Communications
- SP 217 Theory of Persuasion
- SP 227 Nonverbal Communication
- SP 229 Oral Interpretation
- SP 237* Gender and Communication

Theater Arts

List B Courses

- TA 101 Theater Appreciation
- TA 141, 142, 143 Fundamentals of Acting Technique
- TA 144 Improvisational Theater
- TA 148 Movement for the Stage
- TA 155 Readers Theater
- TA 180, 253A Theater Rehearsal and Performance
- TA 190A, 290A Projects in Theater
- TA 240 Beginning Pantomime
- TA 241, 242, 243 Intermediate Acting Technique
- TA 261 Introduction to Costuming

Writing

List B Courses

- WR 240, 241, 242, 243 Creative Writing
- WR 244, 245, 246, 247 Advanced Creative Writing

Women's Studies

List B Course

- WS 101* Women's Studies

Social Science

Anthropology

List A Courses

- ATH 101, 102, 103 Introduction to Physical Anthropology, Archaeology & Prehistory, Cultural Anthropology
- ATH 207, 208, 209 Cultural Anthropology
- ATH 230* Native Americans of Oregon
and ATH 231* Native Americans of the Northwest
and ATH 232* Native North Americans

List B Courses

- ATH 210* Selected Topics in Ethnology
- ATH 214 Human Environments: Ecological Aspects
- ATH 215 Human Environments: Energy Consideration

Economics

List A Courses

- EC 201 Principles of Economics: Microeconomics
- EC 202 Principles of Economics: Macroeconomics
and one of:
 - EC 200 Principles of Economics: Introduction, Institutions and Philosophies
 - EC 203 Principles of Economic Issues: Applications to Economic Issues

List B Courses

- EC 115 Outlines of Economics
- EC 216 Labor Markets: Economics of Gender & Work
- EC 230 Contemporary World Economic Issues

Geography

List A Courses

- GEO 105, 106, 107 Introduction to Human Cultural Geography

List B Courses

- GEO 202 Geography of Europe
- GEO 206 Geography of Oregon
- GEO 208, 209 Physical Geography
- GEO 210 The Natural Environment
- GEO 214* Geography of Mexico
- GEO 221 Field Geography
- GEO 265 Introduction to GIS
- GEO 290 Environmental Problems

History

List A Courses

- HST 101, 102, 103 Western Civilization
- HST 104*, 105*, 106* History of Eastern Civilization
- HST 201, 202, 203 History of the United States
- HST 204*, 205*, 206* History of Women in the U.S.
- HST 274*, 275*, 276* African-American History

List B Courses

- HST 218* Native American Indian History
- HST 225* History of Women, Sex and the Family
- HST 240 Oregon's Social History
- HST 246, 247 Religion in the United States
- HST 270* History of Mexico
- HST 277 Oregon Trail
- HST 278 Russian History I
- HST 279 Russian History II
- HST 285 The Holocaust

Political Science

List A Courses

PS 201, 202 U.S. Government
and PS 203 State and Local Government

List B Courses

PS 204 Comparative Political Systems
PS 205 Global Politics: Conflict and Cooperation
PS 211 Peace and Conflict
PS 220 U.S. Foreign Policy
PS 225 Political Ideology

Psychology

List A Courses

PSY 201, 202, 203 General Psychology
PSY 201A*, 202A*, 203A* General Psychology: Gender Perspectives

List B Courses

PSY 101 Psychology and Human Relations
PSY 213 Brain, Mind & Behavior
PSY 214 Introduction to Personality
PSY 215 Human Development
PSY 216 Social Psychology
PSY 220 Psychology: Applied
PSY 222* Family and Intimate Relationships
PSY 231, 232 Human Sexuality
PSY 239 Introduction to Abnormal Psychology
PSY 240 Personal Awareness and Growth

Sociology

List A Courses

SOC 204, 205, 206 General Sociology: Sociology in Everyday Life, Social Change/Social Institutions, Social Problems

List B Courses

SOC 211 Peace and Conflict
SOC 213* Diversity in America
SOC 215* Social Issues and Movements
SOC 218* Sociology of Gender
SOC 223 Sociology of Aging
SOC 228 Introduction to Environmental Sociology
SOC 230 Introduction to Gerontology
SOC 232 Death and Dying

Women's Studies

List B Courses

WS 101* Women's Studies
WS 201* Women of the World
WS 202* Women Working for Change

Science and Mathematics**Biology**

List A Courses

BI 101 or 101B, 102, 103 Biology
BI 141, 142, 143 Habitats
BI 211, 212, 213 Principles of Biology
BI 231, 232, 233 Anatomy and Physiology I, II, III

List B Courses

BI 170 Environmental Science
BI 200 Principles of Ecology: Field Biology
BI 222 Human Genetics
BI 234 Microbiology

Chemistry

List A Courses

CH 104, 105, 106 General Chemistry
CH 201, 202, 203 General Chemistry
CH 221, 222, 223 General Chemistry
CH 241, 242, 243 Organic Chemistry

List B Courses

CH 100 Fundamentals for Chemistry

Computer Science

List B Courses

CIS 120, 121 Computer Concepts I, II
CIS 122 Software Design
CS 160 Exploring Computer Science
CS 161, 162 Computer Science I, II
CS 171 Assembler Language I, II
CS 250 Discrete Structures
CS 251 Logical Structures

Geology

List A Courses

G 201, 202 Physical Geology and
G 203 Historical Geology

List B Courses

G 207 Geology of the Pacific Northwest
G 208 Volcanoes and their Activity
G 291 Elements of Rocks and Minerals

General Science

List A Courses

ESR 171 Environmental Science: Bio Perspectives
and ESR 172 Environmental Sci: Chem Perspectives
and ESR 173 Environmental Science: Geo Perspectives

Three of the following courses:

GS 106 Physical Science (Geology)
GS 107 Physical Science (Astronomy)
GS 108 Physical Science (Oceanography)
GS 109 Physical Science (Meteorology)

Mathematics

List B Courses

MTH 111A, 111B, 111C College Algebra
MTH 112 Elementary Functions
MTH 116 Calculus Preparation
MTH 211, 212, 213 Foundations of Elementary Math I, II, III
MTH 231 Elements of Discrete Mathematics I
MTH 241 Calculus for Management, Life and Social Science
MTH 243, 244 Statistics I, II
MTH 251 Calculus I
MTH 252 Calculus II
MTH 253 Calculus III
MTH 254 Vector Calculus I
MTH 256 Differential Equations
MTH 261 Applied Linear Algebra

Physics

List A Courses

PHY 101, 102, 103 Fundamentals of Physics
PHY 121, 122, 123 Elementary Astronomy
PHY 201, 202, 203 General Physics
PHY 211, 212, 213 General Physics (Calculus)

Associate of Arts, Oregon Transfer Degree Worksheet: 2002–2003

The Oregon Transfer Degree is an opportunity for students to complete lower division (freshman and sophomore) degree requirements at PCC. Students who complete this degree and are accepted at Oregon public universities will be admitted as having completed all lower division comprehensive and General Education requirements for a baccalaureate degree. In addition to satisfying the General and Basic Competency Requirements, candidates for an Associate of Arts, Oregon Transfer Degree must complete the following:

Distribution courses must total 17 courses, with a maximum of 6 courses in any single distribution area.

ARTS AND LETTERS Distribution Area(5 Courses)

Complete one 3-course sequence from the Arts and Letters Distribution Area, List A courses.

_____ Credit _____

1st course in sequence

_____ Credit _____

2nd course in same sequence

_____ Credit _____

3rd course in same sequence

Complete two Arts and Letters courses from either List A or List B (those courses with a prefix different from the Arts and Letters Sequence selected).

_____ Credit _____

_____ Credit _____

SOCIAL SCIENCE Distribution Area (5 Courses)

Complete one 3-course sequence from the Social Science Distribution Area, List A courses.

_____ Credit _____

1st course in sequence

_____ Credit _____

2nd course in same sequence

_____ Credit _____

3rd course in same sequence

Complete two Social Science courses from either List A or List B (those courses with a prefix different from the Social Science Sequence selected).

_____ Credit _____

_____ Credit _____

SCIENCE AND MATH Distribution Area (5 Courses)

Complete one 3-course lab sequence from the Science and Math Distribution Area, List A courses.

_____ Credit _____

1st course in sequence

_____ Credit _____

2nd course in same sequence

_____ Credit _____

3rd course in same sequence

Complete two Science and Math courses from either List A or List B (those courses with a prefix different from the Science and Math Sequence selected).

_____ Credit _____

_____ Credit _____

Two Additional Courses

Complete two additional courses from two different distribution areas. Courses may be from List A or B in any subject (including List A sequence subjects).

Select one distribution area:

- ☐ Arts & Letters
☐ Social Science
☐ Science & Math

_____ Credit _____
 Course Number _____

Select second distribution area:

- ☐ Arts & Letters
☐ Social Science
☐ Science & Math

_____ Credit _____
 Course Number _____

Total Courses _____

Total Credits _____

In addition to the distribution area requirements, students must complete the following courses with a letter grade of "C" or higher:

Cultural Diversity—any class marked with *. (3 credits total. Apply to List A or B distribution requirements).

Completed ☐

MTH 111A, 111B, 111C, or above (4 credits total or 6 credits of MTH 211, 212, or 213. Apply to List B for the Science and Math area.)

Completed ☐

Speech 111, or 112, or 113 (3 credits total. Apply to List B for the Arts and Letters distribution requirement.)

Completed ☐

Writing (9 credits total)

WR 121 _____ Credit _____

Other _____ Credit _____

WR 122 _____ Credit _____

(WR 123 or WR 227)

Total Credits _____

In addition to the distribution area requirements, students must complete the following courses with a grade of "C" or pass or higher:

HPE 295, or HE 250 plus one credit of P.E.

_____ Credit _____

_____ Credit _____

Total Credits _____

In addition to the distribution area requirements, students must complete the following:

Electives to bring total credits to 90: Electives may include a maximum of 12 credits of Professional/Technical courses (100–299). Additional electives may be from List A or List B or the Lower Division Collegiate list in this Catalog. (See specific credit limitations under General Requirements.)

_____ Credit _____

_____ Credit _____

_____ Credit _____

_____ Credit _____

_____ Credit _____

_____ Credit _____

Total Credits _____

Transfer students should see an advisor. Exit requirements were current Fall 2002-Summer 2003 catalog year.

Page	Program	Campus Address	Phone	Degree/Certification	Entry Writing	Entry Math	Exit Writing	Exit Math
62	Accounting	SY SS 215 CA TH RC 3/201	503-977-4393 503-978-5317 503-614-7447	AAS			WR 214	MTH 65
63	Accounting Clerk	Same as above	Same as above	One-year Certificate			WR 214	MTH 65
63	Accelerated Computerized Accounting	Same as above	Same as above	One-year Certificate				
71	Administrative Assistant	Same as above	Same as above	AAS	Into WR 115	Into MTH 20	WR 121	MTH 65
72	Administrative Assistant-Office Management	Same as above	Same as above	AAS	Into WR 115	Into MTH 20	WR 121	MTH 65
41	Agricultural Mechanics	RC 2/230	503-614-7331	AAS			WR 121	MTH 65
42	Alcohol and Drug Counselor	CA TH 231	503-978-5667	AAS		Into WR 121	WR 122	MTH 65
44	Apprenticeship	SEC 128	503-788-6105	AAS				MTH 65
44	Architectural Design and Drafting	SY ST 208	503-977-4163	AAS	Into WR 115	Into MTH 60	WR 121	MTH 95
46	Audio Visual Tech	SY		One-year Certificate				
46	Auto Collision Repair Tech -Auto Collision Repair -Auto Painting -Auto Collision Repair	RC 2/126	503-614-7229 503-614-7331	AAS Two-year Certificate One-year Certificate One-year Certificate			WR 121	MTH 65
47	Automotive Service Tech	SY AM 210	503-977-4130	AAS (ASEP) AAS (ASRT) Two-year Certificate	WR 115 Into WR 90, Intro RD 90 -	Into MTH 60 Into MTH 20 -	WR 121	MTH 65
49	Aviation Maintenance Technology -Airframe -Power plant	RC 2/230	503-614-7256	AAS Two-year Certificate One-year Certificate One-year Certificate	WR 115 Into WR 90, Intro RD 90	Into MTH 60 Into MTH 20	WR121	MTH 65
50	Aviation Science -Airplane -Helicopter	RC 2/230	503-614-7246	AAS AAS	Into WR 80 Intro RD 90	Into MTH 20	WR121	MTH 65
52	Biotechnology Laboratory Technician	RC 7/202	503-614-7255	AAS	Into WR 121	Into MTH 95	WR 121	MTH 111C
53	B-FIT Program	RC 7/202	503-614-7255	Certificate				MTH 65
54	Building Construction Technology	RC 7/202	503-614-7255 503-614-7405	AAS Two-year Certificate One-year Certificate	Into WR 90	Into MTH 20	WR 121	MTH 65
55	Building Construction-Mgmt Option	RC 7/202	503-614-7255 503-614-7405	AAS Two-year Certificate One-year Certificate	Into WR 90	Into MTH 20	WR 121	MTH 65
56	Building Inspection Technology -Building Inspection -Building Code Admin -Structural Inspection -Mechanical Inspection -Plans Examiner -Family Dwelling Examiner	SY ST 208	503-977-4163	AAS AAS One-year Certificate One-year Certificate One-year Certificate One-year Certificate	Into WR 115 Into WR 115 Into WR 115 Into WR 115 Into WR 115 Into WR 115	Into MTH 60 Into MTH 60 Into MTH 20 Into MTH 20 Into MTH 20 Into MTH 20	WR 121 WR 121 WR 121 WR 121 WR 121 WR 121	MTH 95 MTH 65 MTH 65 MTH 65 MTH 65 MTH 65
61	Business Administration	SY SS 215	503-977-4393	AAS				
68	Civil Engineering Tech (CET)	SY ST 208	503-977-4163	AAS One-year Certificate	Into WR 115	MTH 60	WR 121 (WR 227 recommended)	CMET 131
70	Computer Applications/Office Systems	SY SS 215 CA TH RC 3/201 SE Rm 130	503-977-4393 503-978-5317 503-614-7447 503-788-6200	One-year Certificate	WR 115	MTH 20	WR 121	MTH 65
73	Computer Info Systems (CIS) CIS: E-Commerce	SY SS 215 CA JH 212 RC 2/103A SE Rm 130	503-977-4287 503-978-55317 503-614-7447 503-788-6296	AAS One-year Certificate One-year Certificate	Into WR 121	Into MTH 95	WR 123	MTH 111C
76	Computer Software Engineering Tech (CST)	SY ST 208	503-977-4163	AAS One-year Certificate	Into WR 121	Into MTH 111C	WR 227	*Depends on school to which transferring
78	Consumer and Family Studies	SY HT 318	503-977-4217	See individual Subject	headings-Parent Ed;	Early Childhood	Ed; Interior	Design;
80	Criminal Justice Juvenile Correction	CA TH 4B	503-978-5430	AAS One-year Certificate	WR 121 Into WR90 Intro RD 90	Into MTH 20	WR 228	MTH 65
80	Culinary Assistant Training	SY CC 110	503-977-4305	One-year Certificate				
81	Dental Assisting	SY HT 206	503-977-4236	One-year Certificate	WR 115			
82	Dental Hygiene	SY HT 206	503-977-4236	AAS	WR 121	MTH 65	WR 121	MTH 65
83	Dental Laboratory Technology	SY HT 206	503-977-4236	AAS Two-year Certificate	WR 115	MTH 20	WR 121	MTH 65

Professional & Technical Requirements Fall Term 2002-Summer Term 2003

Transfer students should see an advisor. Exit requirements were current Fall 2002-Summer 2003 catalog year.

Page	Program	Campus Address	Phone	Degree/Certification	Entry Writing	Entry Math	Exit Writing	Exit Math
84	Diesel Service Technology	RC 2/107	503-614-7210	AAS Two-year Certificate One-year Certificate			WR 121	MTH 65
85	Drafting Technology & Design	SY ST 208	503-977-4163	AAS	Into WR 115	Into MTH 60		
86	Early Childhood Education Level 1 Level 2	SY HT 318	503-977-4217	AAS One-year Certificate One-year Certificate	Into WR 121 Into WR 121 Into WR 121	Into MTH 20 Into MTH 20 Into MTH 20	WR 121 WR 121 WR 121	MTH 65 - -
88	Education	CA TH 109	503-978-5226 503-978-5229	For Teacher Re- certification/Licensing, Elem. Ed Transfer and	Outdoor School see individual advisors.			
91	Electrical Trades	CA/ SEC 128	503-788-6105	AAS	WR 115	MTH 20	WR 121	MTH 65
91	Electronic Engineering Technology	SY ST 208	503-977-4163	AAS	WR 115 or Into WR121	MTH 95	WR 227	MTH 252
92	Emergency Dispatch Operator/911	CA PH 2036	503-978-5424	One-year certificate			WR 121	
94	Emergency Medical Technology	SE 128	503-788-6205	AAS One-year Certificate				
97	Facilities Maintenance Technology	CA/ SEC 128		AAS One-year Certificate	WR 115	MTH 20		
98	Fire Protection Technology	TRAIN EAST	503-492-6910	AAS	Into WR 115	Into MTH 70	WR 121	MTH 95
100	Fitness Technology	SY HT 215	503-977-4210	AAS One-year Certificate	Into WR 90 Into RD 90	Into MTH 20		
102	Gerontology	SY SS 217	503-977-4289	AAS One-year Certificate	Into WR 121	Into MTH 65		
104	Graphic Design	SY CT 102	503-977-4790 503-977-4834	AAS	WR 121	Into MTH 65	WR 121	MTH 65
105	Health Information Management	CA JH 117	503-978-5667	AAS			WR 121	MTH 65
88	Instructional Assistant:: Special Ed	CA TH 107	503-978-5226 503-978-5229	One-year Certificate	Into WR 121	Into MTH 60		
107	Interior Design -Interior Furnishings	SY HT 318	503-977-4217 503-977-4030	AAS One-year Certificate			WR 121	MTH 65
109 109	Landscape Technology -Services Technician			AAS One-year Certificate	Into WR 115 Into RD 90	Into MTH 60	WR 121	MTH 65
110 111 110 112	-Construction -Design -Management -Plant Propagation	RC 7/202	503-614-7255	Two-year Certificate Two-year Certificate Two-year Certificate Two-year Certificate	Same " " "	Same " " "		
128	Legal Assistant			(See Paralegal)				
108	Library/Media Assistant	CA TH 107	503-978-5226	One-year Certificate	Into WR 121	Into MTH 60		
113	Machine Manufacturing Technology	SY AM 113	503-977-4155 503-977-4897	AAS Two-year Certificate One-year Certificate	Into WR 90 Into RD 90	Into MTH 20	WR 121 - -	MTH 65 - -
64	Management	SY SS 215	503-977-4393	AAS	Into WR 121		WR 121	MTH 65
114	Management/Supervisory Development -Advanced Certificate	WCTC 1506 CPWTC114	503-533-2955 503-731-6600	AAS One-year Certificate			WR 121 - WR 121	MTH 65 - MTH 65

Transfer students should see an advisor. Exit requirements were current Fall 2002-Summer 2003 catalog year.

Page	Program	Campus Address	Phone	Degree/Certification	Entry Writing	Entry Math	Exit Writing	Exit Math
65	Marketing	SY SS 215	503-977-4393	AAS One-year Certificate	Into WR 115		WR 121, WR 214	MTH 30, MTH 65
116	Mechanical Engineering Technology	SY ST 208	503-977-4163	AAS One-year Certificate	Into WR 115	MTH 60	WR 121, (WR 227 recommended)	CMET 131
117	Medical Assisting	CA JH 117	503-978-5667	One-year Certificate				MTH 22A
118	Medical Laboratory Technology	CA JH 218	503-978-5209	AAS			WR 121	MTH 65
120	Medical Sonography	SY HT 306	503-977-4227 503-977-4795	AAS				
121	Microelectronics Technology	WCWTC 1506	503-533-2702	AAS	Into WR 121	Into MTH 95	WR 227	MTH 243
122	Multimedia	CA TH 4B	503-978-5672	One-year Certificate				
124	Music (Professional Program)	CA CM 105	503-978-5226 503-978-5317	One-year Certificate			WR 115	
125	Nursing	SY HT 126	503-977-4908	AAS	WR 121	MTH 65	WR 121	MTH 65
127	Ophthalmic Medical Tech	CA JH 117	503-978-5667	AAS			WR 121	MTH 65
128	Paralegal	CA TH 4B	503-978-5212	AAS One-year Certificate				
133	Professional Skills Training	SEC 132	503-788-6127	One-year Certificate				
133	Publishing Technology/ Electronic Imaging	SY CT 216	503-977-4840	One-year Certificate	Into WR 115	Into MTH 20		
134	Radiography	SY HT 306	503-977-4227	AAS	WR 121	MTH 111C	WR 121	MTH 111C
136	Refrig./HVAC Trade	SEC 128	503-788-6105	AAS	WR 115	MTH 20	WR 121	MTH 65
137	Sign Language Interpreter	SY CT 219	503-977-4672 503-977-4951	AAS Two-year Certificate	WR 121		WR 121	MTH 65
141	Technical and Professional Writing	SY RC 3/214b	503-977-4266 503-614-7340	Certificate				
141	Telecomm Management	CA TH 4B	503-978-5317	Certificate			WR 121	
143	Veterinary Tech	RC 3/111	503-614-7330	AAS	WR 121	MTH 65	WR 121	MTH 65
144	Video Production Internship	SY CT 212	503-977-4405 503-977-4276	One-year Certificate				
71	Web Site Development	CA TH RC 3/201 SY SS 215	503-978-5317 503-614-7447 503-977-4398	One-year Certificate	WR 121			
144	Welding	RC 2/131	503-614-7226	AAS Two-year Certificates One-year Certificate	WR 80 RD 80	MTH 20	WR 121	MTH 65

ACADEMIC REGULATIONS

Continuing Education Units

Portland Community College works with professional associations and individual employers to offer job-related classes where students may earn Continuing Education Units (CEUs). One CEU is defined as 10 contact hours of participation in an organized continuing education experience under qualified instruction. Contact the instructional department in your area of interest for more information.

Classes awarding CEUs may not be paid for with Financial Aid money and do not count toward the credit hour eligibility requirement for Financial Aid. CEUs may **not** be applied toward any PCC degree or certificate.

Grading Guidelines

Graded System

The traditional graded system uses A, B, C, D, and F, as defined under "Grade Definitions." Degree or certificate requirements may designate certain courses as pass/no pass only.

Pass/No Pass System

To take a class on a pass/no pass basis, students must make arrangements with the instructor during the first 8 weeks of class. A pass grade does not satisfy the prerequisite of C or better required for entry into some courses — the English Composition sequence, for example. Transfer students should be aware that four-year institutions limit the number of pass/no pass credits that may be applied to a degree. Degree or certificate requirements may prohibit taking certain courses on a pass/no pass basis.

Grade Definitions

- A Superior. Honor grade indicating excellence. Earned as a result of a combination of some or all of the following as outlined by the instructor in the course handout: superior examination scores, consistently accurate and prompt completion of assignments, ability to deal resourcefully with abstract ideas, superior mastery of pertinent skills, and excellent attendance. Probable success in a field relating to the subject or probable continued success in sequential courses.
- B Above average. Honor grade indicating competence. Earned as a result of a combination of some or all of the following as outlined by the instructor in the course handout: high examination scores, accurate and prompt completion of assignments, ability to deal well with abstract ideas, commendable mastery of pertinent skills, and excellent attendance. Probable continued success in sequential courses.
- C Average. Standard college grade indicating successful performance earned as a result of a combination of some or all of the following as outlined by the instructor in the course handout: satisfactory examination scores, generally accurate and prompt completion of

assignments, ability to deal with abstract ideas, fair mastery of pertinent skills, and regular attendance. Sufficient evidence of ability to warrant entering sequential courses.

- D Substandard but receiving credit. Substandard grade indicating the student has met only minimum requirements as outlined by the instructor in the course handout. Earned as a result of some or all of the following: low examination scores, generally inaccurate, incomplete or late assignments, inadequate grasp of abstract ideas, barely acceptable mastery of pertinent skills, irregular attendance, insufficient evidence of ability to make advisable the enrollment in sequential courses. Does not satisfy requirements for entry into courses where prerequisites are specified.
- F Failure. Non-passing grade indicating failure to meet minimum requirements as defined by the instructor in the course handout earned as a result of some or all of the following: non-passing examination scores, inaccurate, incomplete or late assignments, failure to cope with abstract ideas, inadequate mastery of pertinent skills, repeated absence from class. Does not satisfy requirements for entry into courses where prerequisites are specified.
- P Pass. Acceptable performance. A grade of "P" represents satisfactory achievement which would have been graded "C" or better on the regular grading scale, but is given instead of a letter grade. By the end of the eighth (8th) week of class (or equivalent) students shall choose the graded or pass option. If they don't choose the pass option, the class will be letter graded. By the end of the eighth (8th) week of class (or equivalent), students may rescind an earlier request of the pass option. Instructors who deny a grading systems option request through the eighth (8th) week (or equivalent) must provide reasons in writing to their Dean for the denial.
- NP No pass. Unacceptable performance or does not satisfy requirements for entry into courses where prerequisites are specified. This grade may be used in situations where an instructor considers the "F" grade to be inappropriate. An "NP" mark is disregarded in the computation of grade point average.

Mark Definitions

- SC Satisfactory completion. Mark used when a student satisfactorily completes continuing education units (CEUs).
- NSC Not satisfactory completion. Mark used when a student does not satisfactorily complete Continuing Education Units (CEUs).
- I Incomplete. When the quality of work is satisfactory, but some minor, yet essential, requirement of the course has not been completed, and for reasons acceptable to the instructor, a report of "I" may be made and additional time granted for completion of the work. If the course is not completed within a year, the "I" will be administratively changed to an "NP" unless the instructor submits another grade. The conditions for completion of work should be stated in writing, signed by the instructor and the student, and kept on file in the department or program office. An "I" may not be assigned as a withdrawal. An "I" does not entitle a student to repeat a course without paying tuition. It may be impossible to receive an "I" in some courses where, for example, equipment usage is required.

- W** Withdrawal. This mark is to be used only by the student records office when the student has followed established school policies and procedures for properly withdrawing from class within the specified time limits.
- CIPR** Course In Progress Re-register. A mark used only for designated classes. To receive credit, students must re-register because equipment usage is required. This may include courses in modular or self-paced programs. This mark may also be used in a skills-based course to indicate that the student has not attained the skills required to advance to the next level. If the course is not completed within a year, the "CIPR" changes to an "AUD" (Audit) on the transcript unless the course was repeated and a grade earned.
- CIP** Course in progress. A mark used only for designated classes in modular programs or in self-paced programs that do not conform to the normal academic calendar. If the course is not completed within a year, the "CIP" changes to a "NP" (No Pass) on the transcript unless the course was repeated and a grade earned. A student does not need to re-register for the course.
- AUD** Audit. Some courses may allow students to attend a course without receiving a grade or credit for the course. Tuition must be paid, and instructor permission must be obtained during the first three weeks of class. Instructors are expected to state on their course handouts any specific audit requirements. Does not satisfy requirements for entry into courses where prerequisites are specified.

Repeated Courses

Courses with grades of "D," "F," "NP," "I," or "CIP" and "CIPR" may be repeated for a higher grade. All grades earned will appear on the transcript. The first earned grade of "C," "P," or better will count in the accumulated credit total. The first grade of "C" or better will be used for the GPA calculation.

Computing Grade Point Averages

Grade points are computed on the basis of four points for each credit of "A", three points for each credit of "B", two points for each credit of "C", one point for each credit of "D", and zero points for each credit of "F". Grades of "P" and "NP" and marks of "SC," "NSC," "I," "W," "X," "CIP," "CIPR," "R," and "AUD" are disregarded in the computation of the grade point average. The grade point average is the quotient of the total points divided by the total credits in which "A," "B," "C," "D," and "F" are received.

Attendance

Students are expected to attend all classes in which they are enrolled. Repeated absences will affect a student's grade. Students must follow the published guidelines for dropping/withdrawing from class. If a student has excessive absences and fails to drop/withdraw from class by the published deadlines, a grade of "F" may be assigned. Faculty members are not required to drop students for non-attendance. In addition, students that do not attend or stop attending classes and fail to drop will be responsible for the associated tuition and fees.

Grade Changes

If a student feels that there has been a mistake in a grade, the instructor should be contacted immediately. If a grade dispute cannot be resolved with the instructor, the student may

follow the student grievance procedure within one year after receiving a grade. Note that requests for grade changes after one year following receipt of a grade will not be considered unless the instructor who issued the grade agrees to such consideration.

Withdrawal Policy

Responsibility for withdrawal from a class within the specified withdrawal timelines resides with the student. To have tuition charges removed, students must withdraw from the class within the first two weeks of the term (or equivalent*). If a student withdraws from the class in the first four weeks, the class will not appear on the transcript. A withdrawal in the fifth through the eighth week will show as a W on the transcript. Students must withdraw before the end of the eighth week, or a grade or mark will be assigned by the instructor.

Faculty may deny registered students access to a class if they do not attend the first class session or stop attending class anytime through the end of the fourth week. Faculty denial of access will not remove student tuition charges. From the fifth week on, faculty may withdraw a student for lack of attendance. Faculty must indicate the last date of attendance to withdraw a student; that date must be within the first eight weeks of the term, although paperwork may be processed later. A faculty-initiated withdrawal does not result in tuition charges being removed.

*Timelines stated here refer to an 11-12 week term-length class. Equivalent deadlines must be substituted for classes offered in shorter formats.

Honors

Honor Roll

The College will recognize academic excellence in students who have earned a 3.25 or higher GPA in a given term on a minimum of six graded credits, excluding pass/no pass, in a given term. The following honors will be awarded:

Honor's List: 3.25 - 3.49
Dean's List: 3.50 - 3.74
President's List: 3.75 - 4.00

Highest Honors: 3.75 - 4.00 cumulative average awarded upon graduation.

Phi Theta Kappa

Phi Theta Kappa is an honorary society designed for students in two-year colleges who have established a 3.5 or higher grade point average. Membership forms are available through the Associated Students of Portland Community College (ASPPCC).

Psi Beta

Psi Beta is the national honor society in psychology for community and junior colleges. The mission of Psi Beta is professional development of psychology students through promotion and recognition of excellence in scholarship, leadership, research, and community service. Students with an established grade point average of 3.3 or higher, should contact Dr. Cynthia Gollidge (503-977-4075; cgollidge@pcc.edu) for membership information.

Non-Traditional Credit

In all cases of non-traditional credit, a student must have an established PCC transcript before the credit can be recorded.

Non-traditional credit may not be used to establish the residency requirement. PCC will evaluate any of the following learning experiences for credit. Students must submit a “non-traditional credit form” and pay a non-refundable \$10 fee prior to the evaluation.

Formal Course Work at Non-Accredited Institutions

Credit may be granted for course work completed at training sites other than those listed in the “Transfer Credit Practices Directory” published by the American Association of Collegiate Registrars and Admissions Officers. Examples include hospitals, banks, corporations, business schools, etc.

Students must furnish detailed training records, course outlines and, whenever possible, transcripts. Individual departments will evaluate and assign PCC equivalencies. A maximum of 45 credit hours may be assigned through this process. Only those subject areas taught by PCC will be considered. Contact the graduation office for details. Course work evaluated from non-accredited institutions is not generally acceptable in meeting the requirements for an AAOT degree.

Students may petition based on previous coursework:

1. To waive comprehensive degree and/or certificate requirements
2. Substitute course work to meet General Education requirements, and
3. Substitute course work to meet degree or certificate requirements. Petitions are submitted to the Records Office.

No student may graduate with less than the required number of credits. Credit may be given for equal course work, but it may not be waived.

Military Service Credit

PCC equivalencies may be granted for formal military courses after careful evaluation of transcripts, records and information provided in the “Guide to the Educational Experiences in the Armed Services. Block credit is not granted and only the subject areas taught by PCC will be considered. Contact the Graduation Office for details.

Military Service Physical Education Credit

Two (2) hours of credit may be granted for military training.

A copy of the DD 214 is required. Applications should be made on the non-traditional credit form and be approved by the graduation office.

College Level Entrance Examination Program (CLEP)

Students enrolled at PCC may receive credit for certain college courses by submitting official scores from the College Level Entrance Examination Program (CLEP). For mathematics, credit is given for a minimum score of 50 on the subject area exams: College algebra (MTH 111C), trigonometry (MTH 112) and college algebra - trigonometry (MTH 116). Minimum scores of 50 are accepted on certain subject area exams. CLEP credit is not given for English or foreign languages. Credits earned in this manner will be recorded on the student's transcript and may count toward graduation. Application is made on the non-traditional credit form and processed through the Graduation Office.

Advanced Placement

Students who have taken college level courses at their high school under the Advanced Placement Program may receive college credit pending official copies of their test results. Credit awarded will vary based on scores received. To request a copy of advanced placement to be sent to PCC contact:

Advanced Placement Program
PO Box 6671
Princeton NJ 08541-6671

Questions? Contact the Graduation Office 503-614-7719.

Course Challenge

Some courses offered at Portland Community College may be challenged. This allows a student to receive credit by taking a special examination. Students who wish to challenge a course must accept the following conditions:

1. Designated credit courses may be challenged by special examination at a time set by the appropriate department chair or instructional administrator. Check with the department to see which courses can be challenged.
2. Students currently enrolled in such a course must request a challenge prior to the third week of classes or in a proportionate period of time for courses less than one term. Students must have formally withdrawn from class prior to submitting the challenge form and taking the exam.
3. Students must be currently registered in credit classes or have previously completed credit classes at PCC. Students must have an established PCC transcript before challenge credits will be recorded.
4. Challenge credit may not be used to meet the 30 quarter hour residency requirement.
5. Students must complete and submit to the Business Office a challenge form with the current non-refundable fee. If the student successfully challenges the course, the student will pay the course tuition rate in effect at the time of testing, less the non-refundable fee, in order to receive credit. Students must complete the challenge exam within two consecutive terms.
6. The department may issue a letter grade or “Pass” for successful completion of a challenge. The grade will be added to the student's academic record using a Grade Review Request Form submitted by the department chair. All challenge courses will appear on the transcript as “Credit by Examination”. Students must assume the responsibility for determining if the challenge credit earned at PCC is transferable to other institutions.

7. Students may take the challenge exam for a specific course only once.
8. Students may not challenge a course in which they have previously enrolled or audited and received either a letter grade (A, B, C, D, F) or a mark (W, CIP, CIPR, I, NP, P, AUD, or X.)
9. Test scores may be required before a student may take a challenge exam for a specific course.

PAVTEC/PCC Articulation (Dual Credit) Programs

PAVTEC is a consortium composed of all of the K-12 school districts within the PCC district, several other organizations related to professional technical education and the College itself. Among its responsibilities, PAVTEC coordinates the two articulation (dual credit) programs called “Tech Prep” and “Project Advance.”

Tech Prep and Project Advance

These are programs whereby 11th and 12th grade students may earn PCC credit for advanced level courses that are taught at their local high schools by high school teachers. These courses are equivalent to those offered on a PCC campus. For a \$25 annual fee, high school students who earn an “A” or “B” grade in these “articulated (dual credit)” courses may obtain PCC credit and thereby save both time and money in their college pursuits.

Tech Prep includes **Professional Technical** courses, i.e., courses that lead directly into a career. Approximately 40 high school sites offer Tech Prep articulated (dual credit) courses connected to more than 20 participating PCC professional technical programs. Examples include Drafting, Office Systems, Health Services, Early Childhood Education, Auto Service, Building Construction, Engineering, Machine Manufacturing, Fire Protection and Welding.

Project Advance includes **Lower Division Collegiate** courses. Examples include American Sign Language, Biology, Dance, English, Mathematics, Writing, and History. Approximately 15 high school sites offer one or more courses connected to the 9 PCC Lower Division Collegiate subject areas that currently participate in Project Advance.

For specific information about articulation including what courses are offered at each high school and how many students participated last year, visit www.pcc.edu/pavtec or contact the PAVTEC office at 503-614-7738.

Standards for Student Progress

Portland Community College is open to any citizen of the PCC district who can benefit from the instruction offered. Students who are not making satisfactory progress will be provided with counseling, advising, and instruction which will be aimed at maximizing opportunities for students to benefit from their learning experience at PCC.

Any individual may be denied admission or continued admission if the appropriate college procedure indicates that the individual cannot benefit from the instruction desired. The procedure may be based on, but is not limited to, an evaluation of educational experiences, work history or appropriate testing.

Academic Standards and Student Progress Policy

1. Students enrolling for a degree, certificate, or diploma must achieve satisfactory progress; i.e., must achieve a minimum 2.0 GPA and must earn a minimum quarterly completion rate of at least half the credit hours for which the student is enrolled.
2. Student failing to achieve satisfactory progress shall be assisted by program faculty or Student Development staff. Progress interventions will be as follows:
 - (a) **Academic Alert**—At the end of the first term of unsatisfactory progress, students will be notified that they are in academic alert status. They will be strongly encouraged to seek assistance to prevent a recurrence of the problem.
 - (b) **Academic Probation**—At the end of the second consecutive term of unsatisfactory progress, students will be notified that they have been placed on academic probationary status. They will not be allowed to register without the signature of a program faculty advisor or counselor.
 - (c) **Academic Suspension**—At the end of the third consecutive term of unsatisfactory progress, students will be notified that they are suspended from the institution for one year.
3. Students may submit a written appeal for reinstatement to their campus Dean of Student Development's Office.

Records Office

Rock Creek Campus, Building 2, Room 122, 503-614-7100

Transcripts

To obtain a transcript of classes completed at PCC, students must complete a Transcript Request form in the Business Office at one of the college centers. You may also fax or mail transcript requests. The request must include your name, social security number, payment of \$3 per copy, and your signature. The fax number is: 503-645-0894. Mail requests to:

Portland Community College
Record Office
PO Box 19000
Portland, OR 97280

Withholding Transcripts

If a student owes money to the college for any reason (tuition, fines, etc.) the college will hold the student's transcript until payment is made in full.

Graduation

All students graduating from Portland Community College must petition for graduation, preferably two terms prior to the student's final term. Petitions for graduation may be obtained from the Business Office, Advising, Counseling or the Graduation Office. A separate petition is required for each degree or certificate application. The \$10 fee may be paid at the business office or mailed to the graduation office with the petition. Students must file their petition no later than one year after completing all degree requirements.

A formal commencement ceremony is held at the end of Spring Term. All students graduating in the current academic year (Fall, Winter, Spring and Summer) are eligible to participate if they have petitioned prior to the mid-April deadline which is advertised in the Winter and Spring Schedule, and the petition has not been denied. Information letters including cap and gown order forms are mailed to students who have petitioned, beginning in late March and continuing until the deadline for inclusion in the commencement program.

All graduating students will receive their diploma by mail eight to ten weeks after the completion of their degree or certificate. The diploma will be mailed to the address provided on the petition. Please contact the Graduation Office if there is an address change.

Students must clear all debts to the college before their degree or certificate will be awarded.

If you have graduation questions, please call 503-614-7718.

Confidentiality

The PCC district follows all applicable state and federal laws, rules and regulations that apply to student records. All information that is personally identifiable to any student will be kept confidential and will not be released, except upon prior written consent of the subject student or other order of a court of competent jurisdiction.

Students 18 years of age or older and the parents of students who are under 18 years of age have certain rights with respect to student records under Public Law 93-380. These include:

1. The right to inspect the educational records of the student.
2. The right to challenge the accuracy of the records if they are believed to be misleading or to violate privacy or other rights of the student.
3. Except as may be provided by law, the right to prevent the release of any or all information from the records to any other party. The college will not send transcripts or copies of other educational records to any other school, prospective employer or other person without written request of the student.

Solomon Act

Federal law requires PCC to provide student name, address and telephone number to the military for recruiting purposes. If you would like your name withheld, call the Registration Office at 503- 977-4933.

Privacy Rights of Student Educational Records

The Family Educational Rights and Privacy Act of 1974 (Statute: 20 U.S.C. 1232g; Regulations: 34CFR Part 99) also known as the Buckley Amendment is a Federal Law which states (a) that a written institutional policy must be established and (b) that a statement of adopted procedures covering the privacy rights of students be made available. The law provides that the institution will maintain the confidentiality of student education records.

Educational Records Policy

The Family Educational rights and Privacy Act (FERPA) affords students certain rights regarding their educational records. They are:

The right to inspect and review the student's records. The student may request to review his/her records by submitting a written request to the Records Office or other school official having custody of such records;

The right to seek amendment of the student's records that the student believes are inaccurate, misleading, or otherwise in violation of the student's privacy rights. Requests for amendment of records must be in writing and must describe the specific portions or specific record(s) the student wishes to have amended, instructions as to the change desired, and reasons why the change is justified;

The right to consent to disclosure of personally identifiable information contained in the student's education records, except for when consent is not required by FERPA. FERPA does not require a student's consent when disclosure is to other school officials with legitimate educational interests. A school official is a person employed by the college in an administrative, supervisory, academic or research, or support staff position; a person or company with whom the college has contracted or appointed as its agent; or a student serving on an official committee or assisting another school official in performing the official's tasks. A school official has a legitimate educational interest if the official needs to review an educational record in order to fulfill his/her professional responsibilities.

The right to file a complaint with the Department of Education, Family Compliance Office, concerning alleged failures by the college to comply with the requirements of FERPA.

Portland Community College Board Policy

The PCC district shall follow all applicable state and federal laws, rules, and regulations which apply to student records. All information contained in the college records which is personally identifiable to any student shall be kept confidential and not released except upon prior written consent of the subject student or upon the lawful subpoena or other order of a court of competent jurisdiction.

PROGRAMS, SERVICES AND ACTIVITIES

Special Programs

Adult Basic Education (ABE)

Southeast Center 111, 503-788-6111

ABE is a free program in basic skills for students whose abilities range from non-literate to the eighth grade level. Development of reading skills is emphasized, although arithmetic skills, life skills and other basic skills are included.

Apprenticeship Training

Southeast Center 132, 503-788-6105

Develop a marketable job skill in an area not normally addressed by on-campus programs through on-the-job training. Students receive no wages for the time spent in training and do not replace regular employees. This program is approved for state worker's compensation clients and disabled veterans.

Community Education

At Portland Community College, education doesn't begin or end with the certificate or degree programs. PCC's community education programs provide non-credit and career enhancement classes to communities within the PCC district.

Community education classes are primarily designed for adults and are offered during the evening or on weekends. They are also designed for the communities in which they are offered. Courses range from special art workshops to karate, small business classes, professional development seminars and workshops.

Community education offers both traditional and non-traditional classes in Hillsboro, Tigard, Vernonia, Forest Grove, Scappoose, St. Helens, Newberg, Sherwood, Beaverton, Lake Oswego and Tualatin, in addition to PCC campuses and centers. These courses and offerings are designed to meet the needs of students who would otherwise have to travel great distances to take advantage of classes at a particular campus.

Computer Training Program

Central Portland Workforce Training Center

Southeast Center, 503-788-6200

Washington County Workforce Training Center

The Computer Training Program's offerings range from basic computer literacy to advanced instruction in complex, specialized software applications, using both traditional classroom formats (listed in the schedule of classes) and specially contracted, customized workshops for business and public agencies.

Customized Workforce Training

Washington County Workforce Training Center, 503-533-2821

The Customized Workforce Training department provides customized training and educational services to business, industry, government, labor groups and a variety of associations. All instruction is tailored to meet the needs of the employers and their employees. Through a contracting process, the department develops relationships with clients to provide training assessments, curriculum design and development, training and training support services. The department focuses on front line production and service workers providing a range of training and services including but not limited to: consulting services, workforce enhancement programs, quality programs, technical training, general workplace skills training, basic skills training, language training and train-the trainer. Most classes are offered at the employers site. Programs are customized to the unique needs and dynamics of your workplace.

Dislocated Workers Project

4510 N.E. 102nd Avenue, 503-252-0758

The Dislocated Workers Project offers a comprehensive range of services, including outreach and recruitment prior to plant closure, orientation and skills assessment, job search instruction, job placement assistance, career and educational counseling, job development, occupational retraining and referral to social services. This project is offered in cooperation with Mt. Hood Community College.

English as a Second Language (ESL)

Southeast Center 132, 503-788-6111

The ESL program offers free classes for persons whose native language is not English. Reading, writing, conversation and American culture are stressed.

The Portland Teachers Program (PTP)

PTP is a partnership effort among PCC, Portland State University and Portland Public Schools committed to diversity, equity, excellence, community and service to others. It is designed to recruit and prepare culturally competent teachers, with a special focus on the recruitment of historically underrepresented groups in the teaching profession (K-12). Students accepted into the program receive tuition to complete lower division coursework at PCC, upper division coursework for a baccalaureate degree at PSU, and completion of the Graduate Teacher Education Program at PSU. PTP includes a range of support services, special activities and rigorous requirements in addition to regular coursework. Students must be committed to a teaching career in Portland Public Schools; be an Oregon resident; and have experience in culturally/ethnically diverse educational settings. Prerequisites also include admissibility to Writing 121 and Math 65. For more information call 503-978-5444.

General Education Development (GED)

Southeast Center 111, 503-788-6111

GED preparation is a free course in high school level skills needed for the GED test. Reading, mathematics, science and social studies are covered. The writing skills test covers both grammar and essay writing.

General Education Development (GED) tests are also offered through PCC. See the GED Office for testing times and appointments. Persons passing the five GED tests earn a Certificate of Equivalency from the Oregon Board of Education, which indicates a level of educational development equivalent to that of a high school graduate.

Institute for Health Care Professionals (IHP)

Central Portland Workforce Training Center, 503-731-6633

IHP offers timely and innovative solutions for health professionals needing continuing education and professional development. Choose from traditional classroom format, customized on-site training, or distance education. Other services include: instructional design, curriculum development, and conference management. For more information visit IHP's homepage at www.pcc.edu/academ/ihp.

Institute for Management And Professional Development

Central Portland Workforce Training Center, 503-731-6600

Management training in both customized workshop and traditional classroom format is offered by PCC's Institute for Management and Professional Development.

Modular training programs are structured to serve organizations of all sizes in business, industry, labor and government. Currently practicing business managers and consultants provide the training, emphasizing participatory, "hands-on" activities.

International Education

PCC recognizes the importance of international education at the community college level. Programs are designed to educate citizens to appreciate the economic, political and cultural implications of international cooperation. All departments encourage increased awareness and understanding of world affairs and world cultures which can enrich career opportunities and help students expand their world view beyond the United States and realize their responsibilities to a diverse and interdependent world.

International Studies

PCC offers a certificate in International Studies. It is designed for PCC students, community leaders and representatives of business and industry who are interested in current questions of foreign policy, relations among nations, international resources, and international trade. Consult this catalog's "International Studies" section and counselors for details.

International Cooperative Education

The International Cooperative Education program offers work opportunities in several countries. Students earn academic credit for this experience. Employment is usually for eight weeks, extending from the middle of June to the end of August. A student's monthly stipend depends on the position and country, but may range from no stipend (with free room and board) to a generous stipend (with no prearranged room and board). Contact the college international cooperative education coordinator for more information at 503-977-4559.

International Student Exchange

Portland Community College has a sister college relationship with Nagasaki Wesleyan and Yamada Gakuen Junior Colleges in Japan, which affords students from each institution an exchange opportunity for one year. PCC students pay tuition to and receive credit from PCC in Japanese language and culture. Previous Japanese language is not a prerequisite; however, it is strongly recommended. More information may be obtained from the program coordinator, Office of Coopera-

tive Education, at 503-977-4559, or from the Office of International Education at 503-614-7150.

International Students

International students are valued for the cultural enrichment they contribute to the classroom and to the college environment.

The Office of International Education provides comprehensive student services for international students. Information can be obtained from the Office of International Education at the Rock Creek Campus (503-614-7150) or the International Student Specialist at the Sylvania Campus (503-977-4952).

Other International Programs

For additional programs related to international education, see English as a Second Language, Modern Languages, World Trade and Transportation, and the Small Business International Trade Program.

PAVTEC

Rock Creek Campus, 2/123, 503-614-7738

PAVTEC is a consortium of 12 school districts, private industry, labor, and other educational institutions including K-12 through graduate school. PAVTEC works with the 30 area high schools and PCC to provide quality articulated professional technical programs.

Professional Skills Training

Southeast Center 132, 503-788-6127

Professional skills training is a unique, off-campus training program, providing opportunities to develop marketable job skills in fields not normally addressed by ongoing college programs.

An interview with the professional skills coordinator is required to determine educational goals and to see if a suitable training site is available. Certain skills require the ability to read and understand technical manuals, to use basic math skills and to write. Basic skills may be assessed at any PCC testing center.

Professional Skills Training is an approved program for state worker's compensation clients and disabled veterans.

Senior Studies Institute (SSI)

Washington County Workforce Training Center, 503-533-2592

The SSI is an affiliate of the Elderhostel Institute Network.

This unique program offers older adults a connection with others to expand their horizons. The Institute provides a means by which dynamic older adults can engage in group discussion, exchange ideas and share knowledge.

There is a \$25 fee which entitles seniors to participate in all SSI activities for an entire school year, September through June. For information, call 503-414-2485.

Skill Center

Cascade Campus, Fragmeier Building, 503-978-5341

The PCC Skill Center provides job related skill training to under and unemployed individuals. Computer and technical training help students update skills so they can compete for living-wage jobs. Applied math, computer applications, workplace communications, keyboarding, and industrial technology are taught in this tuition free program. Job placement services help students find jobs at the completion of training.

Small Business Development Center (SBDC)

Montgomery Park, Suite 499, 2701 N.W. Vaughn St., 503-978-5080

Helping businesses grow and prosper is the goal of the SBDC. Classes and workshops are provided on practically every aspect of starting and running a business successfully. Services include free counseling and an extensive resource center.

Small Business International Trade Office

One World Trade Center, 121 S.W. Salmon, Suite 210, Portland, 503-274-7482

Located at the World Trade Center in Portland, this program provides technical help and hands-on training to businesses moving into the field of international trade.

Often working with small business development centers and other educational institutions state-wide, workshops and conferences stress licensing, U.S. and foreign import/export laws, shipping and transportation, marketing, and other keys to success in this field.

Steps to Success

East: 1415 SE 122nd, 503-256-0432

West: Capital Center, 18624 NW Walker Road, 533-2713

North/Northeast: Portland Metro Center, 5600 N.E. 42nd, 503-943-2000

Provides welfare clients with life skills training, basic skills training, job placement and numerous support services necessary to enable them to become productive workforce members and to obtain a living-wage job.

Telecourses

Sylvania Campus, Social Sciences 4, 503-977-4730 or 503-977-4655

Telecourses are courses delivered by television that offer you the opportunity to take a campus based course at home. All telecourses are credit courses. The components of a telecourse consist of a textbook, study guide, pre-taped video lessons and an instructor to guide students through the course. Telecourses required an on-campus orientation, mid-term and final exam. Viewing is available in the PCC district on AT&T Cable Services, channels 27 and 2. Other viewing options include rental of taped sets from the college bookstore or on-campus viewing at the libraries.

Interactive Television Classes

Sylvania Campus Communications Technology 236, 503-977-4405

Interactive television classes are regular college courses delivered live from a PCC television classroom to receive classrooms at Rock Creek, Sylvania, and Cascade campuses, and Southeast Center. Receiving classrooms are also located at business sites, and at selected Washington County public libraries. Students taking Interactive televised classes see the instructor on live television and are able to interact with the instructor and with students at other sites through special audio systems.

On-line Classes

Distance Learning - Sylvania Campus, Social Sciences 4, 503-977-4730 or 503-977-4655

If you have access to a computer that has Internet connectivity and you feel comfortable with this medium of class delivery this type of class may suit you. These classes have no pre-set schedule for meeting, students and instructors interact via email and bulletin boards. The course syllabus, assignments and quizzes are online. Students should check the requirements in the class schedule for specific requirements. Courses are available for credit as well as CEU. The Distance Learning Virtual Campus provides complete information and access to services for distance learners. (<http://www.distance.pcc.edu>)

Trade Extension

Southeast Center 128, 503-788-6105

Specialized courses are offered to provide upgrading of outdated skills to individuals currently employed in areas such as refrigeration, air conditioning, and the electrical trades.

Volunteer Tutoring

Sylvania Campus Social Science 123, 503-977-4148

Volunteer tutors are available to help with basic skills in reading, writing, math and speaking English. Some tutors can also help with academic subjects. Tutorial services are available at all PCC locations in addition to a variety of other community sites.

Washington County Consortium

CAPITAL Center 1522, 503-533-2767

Provides vocational training and job placement services to low income adults in Washington County with the goal of helping them become economically self-sufficient.

Student Services

Bookstore

Full-time bookstores are located at the Sylvania, Rock Creek and Cascade campuses, while part-time bookstores serve Southeast Center and Washington County Workforce Training Center.

Cascade Campus: Student Center, 503-978-5267

Rock Creek Campus: Building 2, 503-614-7209

Southeast Center: South Mall, 503-788-6261

Sylvania Campus: Bookstore building is north of the Performing Arts Center, 503-977-4910

Hours vary, so check the schedule of classes or call for hours.

Tri-Met bus tickets and bus passes may be purchased at any bookstore.

The bookstore accepts VISA, Discover and Mastercard. Checks are accepted for the amount of purchase only and checks must be drawn on a local bank and imprinted with current information. When paying by check, you must show one of the following: two pieces of identification: your PCC membership card, check guarantee card, Oregon drivers license or Oregon I.D. There is a service charge for all returned checks.

Textbooks will be available and may be purchased one week before each term. You should be familiar with the bookstore refund policy at time of purchase. It is posted at all bookstores. A refund may be mailed when circumstances warrant, but allow at least four weeks for processing. Book buy-back times will be posted at each store.

Business Office

The college business offices accept payments for tuition, PE and library fines, work orders and miscellaneous charges. Checks, Discover, MasterCard and VISA are accepted. Current PCC students may cash checks up to a \$10 maximum per day with:

1. Check drawn on student's own account and is a local, bank imprinted check
2. Oregon drivers license or Oregon I.D. card
3. PCC membership card

There is a \$10 service charge on all returned checks.

Child Care

Child care is often a major concern to students, and PCC can help in a variety of ways. Limited on-campus child care is available. Child care services offers resources and referrals which help you find and evaluate the quality of care, arranges financial assistance if you meet specific qualifications, and provides information about selecting care.

Child Care Services

Child care resource and referral provides referrals for both on-campus and off campus child care. Referrals include child care centers, family child care providers, school-age programs, Head Starts, and pre-schools located within the Tri-County area.

Consumer education provides parents with a wide range of materials developed to help in the planning and selection of developmentally appropriate child care.

All services are available by calling 503-977-4366, and are offered at no charge to students.

Child Care Subsidy Program

Each campus has a program that provides financial assistance for school related child care expenses. Students should contact the campus office where they are taking the majority of their classes.

Cascade and SE Center Students, 503-978-5018

Rock Creek and WCWTC Students, 503-614-7437

Sylvania Students, 503-977-4366

On-Campus Care

Cascade Child Care

A Federally sponsored Head Start program is located on the Cascade Campus. Contact Cascade Student Services or call 503-283-1267 for eligibility information.

Rock Creek Child Care

Evening child care serves ages four–12 on Monday through Thursdays from 5:30–10 p.m. Hourly rates affordable and pre-registration is encouraged to assure a place. Activities include arts and crafts, play time, reading and quiet time. For more information, contact the Rock Creek Family Resource Center at 503-614-7388.

Sylvania Child Care Center

The Child Development Center on the Sylvania Campus is operated by the Consumer and Family Studies department. The primary purpose of the Center is to provide a laboratory educational experience for students in PCC's Early Childhood Education program. As a benefit of the educational program, available space in the fully licensed Center is offered to student parents and college staff who pre-register. Programs include short-hour care for 14 month to six year olds, full day care for three and four year olds, preschool for four year olds, and a parent-child cooperative for three year olds. Type of care varies depending on the program.

For more information contact the Child Development Center in HT C220 or call 503-977-4424.

Cooperative Education

Cascade Campus: Student Services Bldg., Room 125, 503-978-5600

Rock Creek Campus: Bldg. 5, Room 115d, 503-614-7243

Sylvania Campus: CC Bldg., Room 221, 503-977-4559, 503-977-4558 or 503-977-4475

Cooperative education is an exciting supervised work experience program that enhances your educational program or provides an opportunity to explore career options before declaring a major. Students enrolled in cooperative education combine their classroom studies with related work experience that earns them college credit and in some cases earn them pay for their work.

Cooperative Education is an elective or a requirement in most professional and technical programs. You may enroll for a variable number of credits depending on the number of hours you work per week. In some cases, students who are already working may convert eligible employment into a cooperative education experience. The College must approve your training sites and the learning objectives developed by you and your supervisor.

If you are interested in exploratory cooperative education you must meet certain requirements and receive approval from a cooperative education specialist. Eligibility for other training experiences depends on the requirements of your major. In addition to job sites within the continental United States, you may be eligible to be placed in approved international cooperative education sites.

To earn cooperative education credit through an international placement, the work site must be inspected by a qualified representative of the College, the work experience must be supervised and a specific set of learning objectives must be agreed upon in writing.

Portland Community College provides equal opportunity in education and employment. The College is committed to a policy of non-discrimination based on sex, age, handicap, color, religion or national origin. Equal Employment Opportunity guidelines are followed and students are referred on a non-discriminatory basis for all possible cooperative education, practicum or clinical experience placements.

For more information, contact the Cooperative Education office at your campus.

Counseling Services

Sylvania Campus: College Center, room 216, 503-977-4531

Rock Creek Campus: Building 5, Room 115, 503-614-7300

Cascade Campus: Student Services Building, Room 129, 503-978-5271

Portland Community College provides a comprehensive program of counseling services designed to assist students in solving problems and in developing academic and personal potential. Professional counselors are available at the Cascade, Rock Creek, and Sylvania campuses. They help in matters such as career development and exploration, learning problems and study skills, and assessment of abilities, interests and values. Counselors can also help with family, personal and social concerns.

Career Resource Center

Sylvania Campus: College Center, room 216, 503-977-4470

Rock Creek Campus: Building 5, Room 115, 503-614-7335

Cascade Campus: Student Services Building, Room 129, 503-978-5600

The Career Resource Centers provide services to students and the community. Resource materials provide current career and job market information to those making initial career decisions or looking for a career change. Computer-assisted programs in career assessment and exploration, personality assessment and resume preparation are available. The centers also offer Internet access with web pages and bookmarks on career exploration and college choices. College catalogs, local career trend newspapers, and videos are available to help with the college, career and job research process.

All centers are open during the day Monday–Friday with some evening hours. Please call the campus you wish to visit in advance for its hours.

Food Services

The college offers weekday food services at Sylvania, Southeast, Cascade and Rock Creek. Saturday service is available at Rock Creek, Southeast and Sylvania.

Please refer to the schedule of classes for more specific operating information.

Health Services and Insurance

Portland Community College provides no health services on its campuses. Emergency medical treatment is available by calling 503-977-4444.

PCC students of any age are not insured by the college for health and accident. However, students who are registered for six or more credit hours may purchase student health insurance on a voluntary basis. The application form and brochure detailing the coverage and its cost are available at your campus in the information center.

Housing

Portland Community College does not provide housing for students attending the college. However, information regarding housing in the Portland area can be obtained through an Associated Students of Portland Community College office. These offices also provide listing services for landlords seeking tenants and for students who need roommates.

Job Placement

Cascade Campus: Student Services Building 123, 503-978-5290

Rock Creek Campus: Bldg. 5, Room 115b, 503-614-7452 or 503-614-7325

Sylvania Campus: College Center, Room 221, 503-977-4474 or 503-977-4475

The Office of Student and Graduate Job Placement is a job referral service for Portland Community College students and graduates at all campuses. It is designed to provide equal opportunity to job leads at any time during college and upon graduation. Services include employer contact to develop job openings, campus recruiting for employers, direct assistance to students through workshops and seminars, and personal help for resume writing, interviewing techniques and job search development.

If you are currently enrolled and need a job to help pay for school, check the part-time job listings posted at each college campus. All campuses receive the identical job listings daily.

Graduate placement representatives are available during scheduled hours at each campus. They will help you develop a competitive resume and graduate placement file, and aid in seeking a full-time position in your field of study.

Portland Community College provides equal opportunity in education and employment. The College is committed to a policy of non-discrimination based on sex, age, handicap, color, religion or national origin. Equal employment opportunity guidelines are followed and students are referred on a non-discriminatory basis.

Learning Assistance

Free learning assistance for PCC students is available day and night hours at Alternative Learning Centers at each campus and at the Math Lab at Sylvania. Tutoring, self-help materials, videos, computer-aided instruction, word processing, and individualized credit options provide alternative learning opportunities in math, English, and other courses.

Cascade Campus: Student Services Building 112, 503-978-5263

Rock Creek: Building 2 Room 245, 503-614-7219

Sylvania Campus: Alternative Learning Center (English) College Center 204, 503-977-4540; Math Lab: College Center 204a, 503-977-4353

Library and Media Centers

The Portland Community College Library program combines library and media services and makes a wide variety of print and non-print materials available to students, faculty, staff and the community. One hundred-eleven thousand books, subscriptions to 1,157 current periodicals, and a variety of media are available. The Library maintains a film and video collection of over 5,000 programs.

There are libraries on the three comprehensive campuses. New facilities at Cascade and Sylvania have combined seating of over twelve hundred and include both small group and individual study spaces.

The libraries use technology to deliver information and assist instruction. Each library is on the college fiber optic network and accesses the Internet for both periodical indexing and full-text. Facilities for multimedia production and viewing are available.

Reference service and instruction are available on a one-to-one basis and through individually tailored classroom orientations. Materials not available in the libraries may be secured through interlibrary loan or through reciprocal borrowing agreements with academic libraries in PORTALS.

Your PCC membership card will be barcoded for checking out library materials. Protect it like a credit card, since you are responsible for any items borrowed on that card.

Hours for the library vary by season and campus.

Multicultural Center

Sylvania Campus: CC 202, 503-977-4112

The Multicultural Center supports the efforts of multi-racial students in achieving academic and personal success. The Center is a central place that nurtures learning and the achievement of personal and educational goals through cultural enrichment, peer tutoring, advising, and mentorship. It offers one-on-one tutoring, information and referral services, sponsors educational and cultural workshops, events and activities, and assists new and returning students in their adjustment to college. It is open to all students, who are encouraged to drop in for more information.

The Center is dedicated to developing multicultural student leaders and raising awareness of issues related to race and culture on campus. It is open Monday through Friday with varying hours each term based on student availability. Please come by or call to confirm hours.

Faculty, staff and students are encouraged to use the center for peer tutoring, study groups, and cultural resources. We invite your participation in the cultural events and activities sponsored by the Multicultural Center.

Traffic and Parking Information

All vehicles parked on a PCC campus between 7 a.m. and 10 p.m. Monday through Friday must display a current PCC parking permit on their rear view mirror. Permits are not required for off-campus classes. The vehicle operator is responsible for complying with PCC Traffic and Parking Regulations available upon request from any campus parking office.

Permits

To obtain a permit, you must show evidence of enrollment. Permits are available at any campus business office or by calling 503-977-4703. Permit fees are reversed only if the permit is returned to the parking or business office by the drop deadline.

Term parking permits	Fee per term
All Day Permit (valid 7 a.m.–10p.m.)	\$25
Evening Only Permit (valid 4 p.m.–10 p.m.)	\$18
Carpool Permit (valid 7 a.m.–10 p.m.)	
(2 people)	\$13
(3 or more people)	free
Motorcycle Permit	free

Other parking permits	Fee
Monthly Permit (valid 7 a.m. –10 p.m.)	\$10
One-Day Permit (valid 7 a.m.– 10 p.m.)	\$2

Parking areas for individuals with a disability are available at all locations. Vehicles using these designated areas must display a valid state-issued disabled license plate or placard and a valid PCC parking permit.

Carpool Parking

A carpool is two or more PCC students or employees with similar schedules, sharing the use of a vehicle. Carpooling is encouraged by providing close in parking areas and reduced parking rates (see fees above). A special registration process is required for all carpools. Holders of these permits may park in the special carpool parking areas as well as the general parking areas.

Alternative Transportation

PCC offers a variety of alternatives to traditional campus parking, such as carpool matching assistance (in conjunction with ASPCC), a free campus to campus shuttle with stops downtown and surrounding areas, and a limited number of discounts toward purchase of a Tri-Met Bus Pass. Additionally, we offer bicycle parking racks and trip planning assistance.

Women's Resource Centers

Cascade Campus: Penn Hall 101, 503-978-5249

The Women's Resource Center on the Cascade Campus is dedicated to providing a supportive, comfortable, and safe environment to all PCC students. The center offers programs to support the personal and academic growth of both women and men. It is a place to gain information and encouragement, providing a connection with employment and social services in the community.

Project Independence, a tuition free program for displaced homemakers and single parents, is offered fall, winter and spring terms. Students receive personal attention in building self confidence, clarifying values, exploring careers, making decisions, setting goals, and self assessment. They leave with a specific plan for training or employment.

The Women's Resource Center offers many other workshops and seminars to students and to the community. A support group, "Women as Winners", is offered each term. In addition, math tutoring, community resource counseling, and parenting classes are available by appointment. Please call for more information.

Sylvania Campus: College Center Room 259, 503-977-8101

The Women's Resource Center on the Sylvania Campus supports the efforts of women as they strive to achieve academic, personal and economic success. It offers information and referral services, sponsors educational workshops and symposiums, and is a bridge for women returning to school after an absence, as well as for those first entering college. The Center is open to all students, who are encouraged to drop in for information, to check the activities and events board and to use the free resource library. It is run primarily by volunteer advocates—students, staff and faculty—giving students the opportunity to develop leadership, organizational and service skills. The Center is open Monday through Friday, with varying hours each term based on volunteer availability. Please come by or call to confirm hours.

Rock Creek Campus, Building 5/201, 614-7432

Located at Rock Creek, the Women's Resource Center offers information and referral sources on available support services to all male and female students on campus. Information may be found on scholarships available, childcare agencies, community support services as well as instructional support aids. The Center sponsors workshops with themes related to work, school and family, and provides counselor led support groups for students returning to or just starting school for the first time.

The Center supports "New Directions", a career planning, personal development and job search skills course for single parents and displaced homemakers, which is tuition free. This class is offered fall and spring in the evening, winter, during the day, and is open to both men and women. An Education To Work scholarship program, through the Department of Transportation, provides financial and academic support to women and minorities who are interested in the construction trades. There is also an evening childcare program, Monday through Thursday from 5pm to 10pm for children ages 4 to 12.

The services provided by the Center are available to all students; however, since the hours vary by term, students are encouraged to call or drop by to confirm open times.

Student Activities

The college encourages activities that complement the instructional program by giving you opportunities for leadership, representation in college decision making, and by offering participation in social, cultural and recreational activities. Student activities, organizations and programs are open to all students. Information is available at Associated Students of Portland Community College (ASPCC) offices.

Athletics

The college athletic program includes both men's and women's basketball. The programs are part of the Northwest Athletic Association of Community Colleges representing the community colleges of Oregon and Washington.

You may be enrolled at any PCC campus and participate in a sport based at another campus. You must carry a minimum of 12 credit hours and meet all other eligibility requirements set by the NWAACC.

Men's Basketball

The team is based at the Cascade campus. Home games will be split between the Cascade and Sylvania campuses. Official practice begins in October.

Women's Basketball

The team is based at the Sylvania campus. Home games will be split between the Sylvania and Cascade campuses. Official practice begins in October.

Club Sports

A variety of club sports is offered at the campus level: bowling, volleyball, skiing, table tennis, etc. Contact your campus ASPCC for more information regarding availability and costs.

Forensics

Speech and debate opportunities are provided through an active Forensics Club on the Sylvania Campus. Contact 503-977-4274.

Galleries

There are art galleries located at the Rock Creek and Sylvania campuses. Shows are continually changing, featuring artists such as students, faculty and guest faculty. For current showings, call 503-614-7258 (Rock Creek) or 503-977-4269 (Sylvania North View Gallery.)

Intramurals

The Intramural Office organizes a variety of events, activities and tournaments open to all PCC students enrolled in at least one credit, and to all PCC faculty and staff during the academic year. To participate present a valid PCC membership card. Activities are offered at little or no cost to students. Activities offered may include racquetball, golf, weight lifting, turkey trot, basketball, mushball, volleyball, skiing and bowling. For information, call 503-977-4213 (Sylvania); 503-978-5256 (Cascade); 503-614-7261 (Rock Creek).

Student Government (ASPCC)

The Associated Students of Portland Community College (ASPCC) at Cascade, Rock Creek, Southeast and Sylvania invite you to get involved with activities, research, committees, clubs and organizations. Student council members are hired rather than elected, and are paid for their services. Other paid positions include secretary, activities assistant and sign maker. Volunteers are also encouraged to be active in clubs and committees. ASPCC provides housing referral, car pool and book buy-back exchanges.

Student Newspaper

The Bridge is the official student newspaper for Portland Community College. Published each Thursday, it provides a forum for student expression, plus on-the-job training for those interested in print journalism and advertising. Staff members must be students enrolled for at least 6 credit hours at PCC. For information, call 503-977-4181.

Theater

The drama program offers students a chance to perform and to assist in the production of plays featured each term. Plays are produced and performed at the Rock Creek and Sylvania campuses.

BASIC SKILLS

PCC is committed to providing instruction and services that provide students with the opportunity for self-improvement as well as the skills needed for success in PCC's Career and Transfer Courses and Programs. The college's Support Courses and Programs offer this opportunity in a variety of formats. Unless specifically stated in a degree or certificate program, ABE, GED, and ESL courses along with courses designated "Developmental" cannot be used to meet program requirements. See the PCC schedule of classes for classes available during a specific term.

Adult Basic Education (ABE)

Description

A non-credit program for self-improvement designed to improve basic skills for students whose abilities range from non-literate to pre-college level. Development of reading, writing, and math skills are emphasized, as well as life skills, employability, and technology. Students without a high school diploma also have the opportunity to prepare for the GED exams in the five subject areas: writing, social studies, science, literature, and math.

Prerequisites

ABE classes are open to anyone 18 or over who desire to improve basic reading, writing, and math skills at the pre-college level. Students who are 16 or 17 must first obtain an official release from high school before attending class.

To enroll, individuals must attend an Intake, Assessment, Referral, and Placement (IARP) session. The IARP sessions for both day and evening classes are held on a regular basis throughout each term. Students needing special assistance such as an interpreter, a reader, or a writer to participate in the Orientation and Intake sessions should contact the Office for Students with Disabilities (503-977-4341) at least two weeks before the session is held.

Course of Study

Upon entering an ABE class, students' reading, writing, and math abilities are assessed and individual programs of study are developed to guide them toward their personal academic goals. Large group, small group, and individualized instruction are utilized to maximize academic gains. To help with their studies, students may purchase books but are not required to do so. Daytime and evening classes are offered at all campuses and at many other locations in the community.

Courses

ABE 0741	ABE: Beginning Literacy
ABE 0742	ABE: Beginning
ABE 0743	ABE: Intermediate I
ABE 0744	ABE: Intermediate II
ABE 0745	ABE: Secondary I
ABE 0746	ABE: Secondary II
Includes preparation for the GED Test.	

The GED State Examination

The GED State Exam battery includes five tests:

Writing skills: This test is divided into two sections. Part I tests sentence structure, usage and mechanics. Part II requires students to write an essay on a topic about which adults would be expected to have general knowledge.

Social studies test: Content will include history, economics, political science, geography, and behavioral science. Reading skills that will be tested include comprehension, application, analysis, and evaluation.

Science test: Content will include life science, biology and physical sciences, earth science, physics, and chemistry. Reading skills that will be tested include comprehension, application, analysis, and evaluation.

Interpreting literature and the arts: Content will include popular literature, classical literature, and commentary about literature and the arts. Reading skills assessed include comprehension, application and analysis.

Mathematics: Content will include arithmetic (measurement, number relationships and data analysis), algebra and geometry. Skills that are tested are problem solving abilities and higher level thinking skills.

For information on the ABE program, phone 503-788-6111.

See also the "Alternative Programs," "High School Completion," "English as a Second Language," and "Developmental Education" sections in this catalog for related instruction.

Developmental Education

Cascade Campus	Southeast Center
Student Center 115	Room 169
503-978-5271	503-788-6230
Rock Creek Campus	Sylvania Campus
Building 2/212	Social Science Bldg SS 215
503-614-7215	503-977-4191

Description

Programs in developmental education help students prepare for PCC academic and professional/technical programs, and for their chosen careers. Many students already enrolled in professional/technical and transfer courses take developmental classes as required to meet program standards.

Courses in this department include reading, writing and mathematics. Also available are support services including Learning Centers and tutoring.

Classes and services are offered at Cascade, Rock Creek, Southeast Center and Sylvania. Financial aid is available for developmental education courses. For more information, contact the Financial Aid Office.

Prerequisites

For accurate placement, students are required to take reading, writing and mathematics placement tests. For specific information, contact the campus testing center nearest you.

Learning Centers

Developmental English and mathematics instruction are offered on an individualized basis through the Learning Centers at Cascade, Rock Creek and Sylvania. Instruction is available by computer, videotape, slide-tape programs, tutoring and other non-traditional teaching modes. Students may enter at any time and proceed at their own rate. Telnex courses and free learning styles seminars are available at the Cascade Center.

Tutoring

Free tutorial assistance is offered to students in many academic programs. Students may “drop-in” during any regularly scheduled tutoring time. For more information, contact the Learning Centers at Cascade, Rock Creek or Sylvania.

Developmental Education

Transfer Course

RD 116	College Vocabulary Development	3
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Developmental English

DE 20	Comprehensive Language Development	3
DE 50	Vocabulary Building	3
RD 70	Reading I	3
RD 80	Reading 80	3
RD 90	Reading 90	3
RD 95	Reading for Enjoyment	3
WR 60	Spelling I	3
WR 65	Spelling II	3
WR 70	Writing I	3
WR 80	Writing 80	3
WR 90	Writing 90	3
ALC 50	Basic English Language Skills Lab	0
ALC 51	Basic English Language Skills Lab	.5
ALC 52	Basic English Language Skills Lab	1
ALC 53	Basic English Language Skills Lab	2
ALC 54	Basic English Language Skills Lab	3

Developmental Mathematics

MTH 10B	Fundamentals of Arithmetic I	2
MTH 11B	Fundamentals of Arithmetic II	2
MTH 20	Basic Math	4
ALC 60	Basic Math Lab	0
ALC 61	Basic Math Lab	.5
ALC 62	Basic Math Lab	1
ALC 63	Basic Math Lab	2
ALC 64	Basic Math Lab	3

The following math mini-courses meet for a total of 12 clock hours each:

MTH 21C	Percentage & Statistics	1
MTH 22C	Measurements	1
MTH 23C	Introduction to Geometry	1
MTH 24C	Pre-Algebra	1
MTH 25C	Fractions	1
MTH 26C	Decimals	1
MTH 27C	Word Problems	1

Other Developmental Education courses

DE 30	Learning Skills	3
DE 40	Handwriting Improvement	2

DE 80	Applied Economics/Personal Finance	5
ALC 55	Basic Study Skills Lab	0
ALC 56	Basic Study Skills Lab	5
ALC 57	Basic Study Skills Lab	1
ALC 58	Basic Study Skills Lab	2
ALC 59	Basic Study Skills Lab	3

English as a Second Language (ESL)

Description

The ESL Program offers free classes for persons whose native language is not English. Reading, writing, conversation and American culture are stressed.

Prerequisites

ESL classes are open to U.S. citizens, immigrants and refugees who desire to improve their basic English language proficiency. Other foreign students should contact the foreign student advisor.

Course of Study

The ESL Program offered by the GED/ABE/ESL Department consists of four levels: A, B, C and D. These classes provide instruction from beginning to a high intermediate level of proficiency in English as a Second Language. ESL Special Topics may be offered to meet special needs.

ESL classes are offered at each of PCC's campuses and at a variety of community sites throughout the district. Not all levels are offered at each location every term.

There are no fees for ESL classes. Classroom sets of textbooks are provided so that students do not have to buy books. However, students may purchase textbooks for home study; all textbooks used in ESL classes are available at PCC bookstores on each campus.

All new students must be tested to be assigned to the proper class. Students must be on time for testing. Individuals who are more than fifteen minutes late will be asked to come to a later testing session. Consult the schedule for testing times.

For more information, phone 503-788-6111.

See also “Adult Basic Education (ABE)” and “General Education (GED) Preparation” sections in the PCC catalog for related instruction.

General Education (GED) Preparation

See the Adult Basic Education (ABE) section of this catalog for GED information.

Mathematics and Writing Support Courses

Mathematics

Additional information on mathematics courses may be found under “Developmental Education” and under “Mathematics” in the Transfer portion of this catalog.

Description

The mathematics support courses are designed to fulfill course requirements in career programs or prepare students for entry into College Transfer mathematics courses.

Prerequisite

For accurate placement, it is recommended that students take the ASSET mathematics placement test.

Courses

MTH 30	Business Mathematics	4
MTH 60	Introductory Algebra - First Term	4
MTH 60E	Explorations in Intro Algebra-First Term	1
MTH 61	Introductory Algebra - Part I	3 ¹
MTH 62	Introductory Algebra - Part II	3 ¹
MTH 63	Introductory Algebra - Part III	3 ¹
MTH 65	Introductory Algebra - Second Term	4
MTH 65E	Explorations in Intro Algebra-Second Term	1
MTH 70	Introduction to Intermediate Algebra	4
MTH 93	Intro to the TI Graphics Calculator	1
MTH 95	Intermediate Algebra	4

¹The sequence of MTH 61, 62 and 63 will meet the minimal graduation requirements of Portland Community College. The course work is equivalent to MTH 60 and 65.

Writing

For additional PCC writing courses and programs, see “Developmental Education” (in this section), “Technical Writing” (in the Career Courses and Programs section), and “Writing” (in the Transfer Courses and Programs section).

Description

Instruction is available in defining career goals, developing a resume and developing an understanding of the employment process and developing technical writing skills as needed for the successful completion of Career Programs and entry-level employment. These courses are designed to meet the requirements for Associate of Applied Science and Associate of General Studies Degrees and Career Certificate programs.

Contact the English Department at Cascade, Rock Creek or Sylvania for further information.

Prerequisites

There are no prerequisites for WR 95 The Resume and Employment Interview. Successful completion of WR 115 Introduction to Expository Writing or taking the writing placement examination and scoring at the level required for entry to WR 121 English Composition is required for entry into WR 117 Introduction to Technical Writing.

WR 95	The Resume and Employment Interview	1
WR 117	Introduction to Technical Writing	3

Skill Center

Cascade Campus
Fragmeier Building
503- 978-5341

The PCC Skill Center provides job related skill training to under and unemployed individuals. Computer and technical training help students update skills so they can compete for living-wage jobs. Applied math, computer applications, workplace communications, keyboarding and industrial technology are taught in this tuition free program. Job placement services help students find jobs at the completion of training.

High School Completion

Cascade Campus Student Center 115 503-978-5276	Southeast Center Room 157 503-788-6256
Rock Creek Campus Building 5/115 503-614-7300	Sylvania Campus College Center, Room 225 503-977-4473

Students 16 and over may complete studies for high school diplomas at PCC. Students under the age of 16 who wish to be considered for enrollment in PCC classes must complete the ASSET placement exam and meet with a PCC counselor. Previous high school credits will be evaluated and applied toward the diploma. Students take PCC classes to satisfy remaining high school requirements and earn simultaneous college credit, which may also be applied toward college degrees or certificates. The program must be planned with the High School Completion Office at the PCC campus the student wishes to attend. For more information, contact the PCC Admissions Office of the campus where you intend to enroll.

How to Enroll

Prior to registration, student must:

1. Be at least 16 years old.
2. Must have earned a minimum of 12 credits from an accredited high school or appropriate college course work. Students with less than 12 credits **may** be admitted on a probationary status.

3. Provide PCC with an official copy of their high school transcript mailed or hand delivered in a sealed envelope.
4. Schedule an appointment for the English and math placement test (ASSET TEST.)
5. Schedule an appointment with a PCC high school completion counselor to discuss transcript evaluation and placement test scores. At that time you will receive a copy of your remaining graduation requirements.
6. High School graduation petitions will remain valid for one calendar year.

Graduation Requirements

1. Meet the State of Oregon minimum requirements of 22 high school credits.
2. Meet the college English and mathematics competency requirements which are as follows:

Writing placement test less than 3 years old indicating placement at Writing 115 or completion of Writing 90 with a grade of "C" or better.

Reading placement test less than 3 years old indicating placement at Reading 115 or completion of Reading 90 with a grade of "C" or better.

Math placement test less than 3 years old indicating placement at Math 60 or completion of Math 20 with a grade of "C" or better.

3. Students must attend at least one complete term and satisfactorily pass a minimum of 6 college credit hours.

PROGRAMS AND COURSES

Associate of Applied Science degree are listed with specific program requirements. The credit requirements listed are guidelines for a typical student, and in some cases a student may be able to complete the requirements with fewer credits than listed. In all cases, students must complete a minimum of 90 credit hours toward the degree and must complete all specific requirements for the degree.

Each certificate lists the specific courses and credits required for completion.

Agricultural Mechanics

Rock Creek Campus
Building 2, Room 230
503-614-7210, 503-614-7331

◆ Associate of Applied Science degree - minimum of 90 credit hours; includes 72 credit hours of required program courses, WLD 117, CAS 133 and 18 credit hours of General Education. A program advisor will assist the student in selecting appropriate General Education courses. Students must meet college graduation requirements including General Education, math and English competencies. Students must meet with an advisor and declare degree before entering into the Agriculture Mechanics Program.

Career Description

The agricultural mechanic maintains, repairs and overhauls farm machinery such as pumps, hydraulic systems, tilling equipment, trucks and other mechanized, electrically powered or motor-driven equipment on farms or in farm equipment repair shops.

Program Requirements

ASSET basic skills placement test is administered through assessment centers. Students should consult the Diesel Department prior to enrolling in a course.

Course of Study

The first year offers a foundation in the field of agricultural mechanics. In the second year of the program, the students time must be divided between classroom work and field experience. Because the program is designed to meet a variety of student needs, a number of flexible features have been built into the curriculum. Students who are not working toward a degree or certificate may elect to take only courses that interest them. They may choose to spread the study time over a longer period, combining a limited number of hours each term with full-time employment.

Consult with the Diesel Department for information concerning courses, credit, class and laboratory hours per week, cooperative work experience arrangements and General Education requirements.

First and Second year class sequence may be altered dependent on class offerings.

First Term

DS 101	Engine Rebuild & Lab Procedure	12
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Second Term

DS 103	Fuel Injection Systems	6
DS 203	Fuel Injection Systems Diagnosis and Caterpillar Electronic Engine Controls	6

Third Term

DS 102	Truck Power Train	6
DS 106	Engine Diagnostic Tune-up	6

Second Year

In the second year of the Agricultural Mechanics Program, the student can take six credit hours each term from any of a combination of courses in the areas of diesel and welding. Also, six credit hours of cooperative work experience must be taken each term of the second year. Within this framework, individualized programs are arranged to suit the needs of the student.

Fourth Term

DS 104	Fundamentals of Electricity & Electronics	6
DS 280A	CE: Diesel Service Tech	variable credit

Fifth Term

DS 105	Fundamentals of Hydraulics/AC Systems	6
DS 280A	CE: Diesel Service Tech	variable credit

Sixth Term

DS 206	Brakes, Suspension and Steering	6
DS 280A	CE: Diesel Service Tech	variable credit

Alcohol and Drug Counselor

Cascade Campus
Terrell Hall, Room 231
Information: 503-978-5667
Department Chair: 503-978-5254
Practicum Supervisor: 503-978-5245

◆Associate of Applied Science degree - 97 credit hours; includes 79 credit hours of required program courses plus 18 credit hours of General Education. Consult a program advisor for assistance in planning General Education classes. Students must meet college graduation requirements including General Education, math and English competencies.

◆Prevention Specialist Program Award - 26 credit hours; includes 23 credit hours of alcohol, tobacco and other drug prevention, academic, skill training and speech courses, and 3 credit hours of supervised experiential learning.

◆Addiction Studies Certificate for persons with college degrees: 42 credit hours; includes 32 credit hours of alcohol and drug specific academic and skill training courses and 10 credit hours of practicum for 400 hours of internship. Persons with an Associates, Bachelors, Masters or higher degree from an accredited college or university may apply for admission to the Addiction Studies Certificate Program (**Pending final State approval.**)

Career Description

Alcohol and drug counselors work in public and private sector organizations to provide diagnosis, assessment, education, referral and treatment services to clients with alcohol and other drug problems. Students enter the program with a variety of educational goals: graduation, employment, professional upgrading and/or self improvement.

Program Requirements

1. Attendance at A&D Counselor program orientation session.
2. Readiness for entry into WR 121 English Composition, to be determined by ASSET placement tests.
3. Completion of AD 101 Alcohol Use and Addiction, with a grade of "C" or above.
4. Documentation of not abusing alcohol or drugs for 18 months prior to admission.
5. An advising session with a program advisor.

While participating in the program, recovering students will agree to abstain from alcohol and illicit drug use. All other students must agree to not abuse alcohol and other drugs while in the program.

Course of Study

The majority of program courses are offered in late afternoons or evenings to accommodate students working during the day. The program has been designed to update the skills of individuals currently working in alcohol and drug counseling related areas. The program also serves as an excellent means of individuals receiving alcohol and other drug specific training when their career emphasis includes,

but is not specific, to the addicted population. Corrections personnel, mental health counselors, health care workers and prevention specialists have utilized our program for professional upgrading. Individuals who would like to take specific courses without being an accepted student in the program need to consult a program advisor at 503-978-5254 or 503-978-5245 to determine their eligibility and course availability.

Certified Alcohol and Drug Counselor Examination (CADC)

The CADC is granted by the Addiction Counselor Certification Board of Oregon (ACCBO). The Alcohol and Drug Counselor program does not result in the CADC. The program does, however, meet the educational guidelines required by the CADC and provides approximately 720 practicum hours that contribute to the "supervised experience" requirement of 1000 hours for CADC Level 1.

The Certified Alcohol Drug Counselor II (Level II) now requires an Associate degree or equivalent with a minimum of 300 hours of Alcohol and Drug Abuse/Addiction Education.

Transferability

The program has an agreement with Warner Pacific College and Concordia University allowing graduates to be accepted at the junior level to work towards a bachelor degree. Portland State University and Eastern Oregon State College will also accept a portion of the program's credits for application toward a four year degree. Students interested in pursuing their four year degree should contact a representative of their college of choice. Transferability of credits to another institution is subject to the approval of that institution.

Required Courses

Students are required to attend an Admitted Students Advising upon admission to the program.

Students may enroll in AD 101, AD 102, AD 103, AD 104, AD 153, AD 184, WR 121, WR 122, PSY 239 and General Education courses prior to being accepted into either the degree or the certificate program.

Excellent writing and spelling skills are required by practicum sites. Students in both the degree and the certificate program will be expected to have achieved mastery in these areas prior to practicum placement.

Associate of Applied Science Degree Requirements

AD 101	Alcohol Use and Addiction	3
AD 102	Drug Use and Addiction	3
AD 103	Women and Addiction	3
AD 104	Multicultural Counseling	3
AD 150	Basic Counseling and Addiction	3
AD 151	Basic Counseling Skills Mastery	1
AD 152	Group Counseling and Addiction	3
AD 153	Theories of Counseling	3
AD 154	Case Management and Addiction	3
AD 155	Motivational Interviewing	3
AD 156	Ethical and Professional Issues	3
AD 184	Men & Addiction	3
AD 201	Families and Addiction	3

AD 250	Advanced Counseling and Addiction	3
AD 251	Advanced Counseling Skills Mastery	1
AD 255	Multiple Diagnoses	3
AD 280A	Practicum: Addiction	variable credit ¹
AD 280B	Practicum: Addiction - Seminar	variable credit
WR 121	English Composition	3
WR 122	English Composition	3
PSY 239	Introduction to Abnormal Psychology	3

¹Students are required to complete 18 credit hours (approximately 720 clock hours) of practicum for the Associate of Applied Science degree and a 2 credit seminar each term.

General Education Courses

Students with previous college experience need to have their transcripts analyzed to determine their General Education course requirement. Students are encouraged to take introductory psychology, speech, biology and computer courses.

Prior to graduation, students must also meet math competency requirements. This can be accomplished either by passing a placement test showing math skills at or above those required for successful completion of MTH 65, or by completing MTH 65 with a "C" grade or higher.

Addiction Studies Certificate Requirements

AD 101	Alcohol Use and Addiction	3
AD 102	Drug Use and Addiction	3
AD 104	Multicultural Counseling	3
AD 150	Basic Counseling and Addiction	3
AD 151	Basic Counseling Skills Mastery	1
AD 152	Group Counseling and Addiction	3
AD 153	Theories of Counseling	3
AD 154	Case Management and Addiction	3
AD 155	Motivational Interviewing	3
AD 156	Ethical and Professional Issues	3
AD 280A	Practicum: Addiction	variable credit
AD 280B	Practicum: Seminar	variable credit

Prevention Specialist Program Award

Career Description

Prevention Specialists serve as resource persons to assist in community alcohol, tobacco and other drug prevention efforts, as well as concurrent general prevention activities such as violence, HIV/STD and/or teen pregnancy prevention.

Certified Prevention Specialist Examination (CPS)

The CPS is granted by the Addiction Counselor Certification Board of Oregon. Alcohol and Drug prevention courses will meet the education and supervised experiential learning requirements for the certified prevention specialist examination. Consult a program advisor.

Prevention Specialist Program Award requirements

AD 101	Alcohol Use and Addicition	3
AD 102	Drug Use and Addiction	3
AD 104	Multicultural Counseling	3
AD 241	Prevention 1	3

AD 242	Prevention 2	3
AD 243	Prevention 3	3
AD 280C	Supervised Experiential Learning Practicum	3 ¹
AD 280D	Supervised Experiential Learning Practicum Seminar	2
SP 111	Fundamentals of Speech	3

¹ Students are required to complete 3 credit hours (120 clock hours) of prevention practicum which is supervised experiential learning.

Anatomy

Description

Life sciences comprise four areas of study anatomy, biology, microbiology, and health.

Work in the sciences is an important part of many college programs. Courses at PCC are organized to present basic principles and to provide a coordinated overview of the sciences as they relate to living systems.

Prerequisites

See the Course Description section of this catalog for individual Biology courses and course prerequisites.

Anthropology

Description

Anthropology is the study of people. In this discipline, people are considered in all their biological and cultural diversities, in the present as well as in the prehistoric past, and wherever people have existed. Students are introduced to the interaction between people and their environments to develop an appreciation of human adaptations past and present.

Anthropology can be a synthesizing focus for data from many fields of inquiry and has integral importance in preparing students to survive and play positive roles in our emergent transcultural world.

The general anthropology and cultural anthropology sequences are offered yearly. All other courses may be offered less frequently. The department suggests but does not require that students take cultural anthropology and field archaeology in sequential order.

Prerequisites

See the Course Description section of this catalog for individual Anthropology Courses and specific course prerequisites.

ATH 101, ATH 102, ATH 103 - These are introductions to the major subfields of anthropology as required for anthropology majors at most colleges and universities. They are also prerequisite for many upper division courses in anthropology.

ATH 207, ATH 208 and ATH 209 - Three courses designed for those students who wish to explore and understand the diversity of human sociocultural behavior from the anthropological perspective. These courses enable students to use the methods and perspectives of cultural anthropology to organize and explain their own observations of human cultural behavior. Students will be encouraged to examine the potential application of the anthropological perspective and knowledge to other fields of interest or careers they have chosen. These courses satisfy the block transfer requirements at most colleges and universities.

Apprenticeship

Cascade Campus
Southeast Center, Room 128
503-788-6105

u Associate of Applied Science degree - A minimum of 90 credit hours. Includes completion of apprenticeship, related technical education and 18 credit hours of approved General Education. Consult the Industrial Occupations Department director for assistance in program planning. Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

Portland Community College provides classes in accordance with the Apprenticeship and Training Laws for the State of Oregon. These classes present technical instruction for the trades and are intended to complement on-the-job skills for both men and women. Each apprenticeable trade has a Joint Apprenticeship Committee which outlines the procedures to become a journey person. This outline usually consists of two to five years of supervised, on-the-job experience in various aspects of the trade in conjunction with PCC class work. The training committees outline the type of supportive courses needed to prepare qualified journey persons in addition to working with PCC for related training classes. PCC employs the instructors as well as providing classroom and laboratory facilities. The following is a list of apprentice trades conducting related training classes with the PCC Apprenticeship Department: carpenters, ironworkers, stationary engineers, manufacturing plant electricians, residential and commercial electricians, limited energy electricians and HVAC and Refrigeration (Heating, Venting, Air-conditioning and Refrigeration).

Program Requirement

Students pursuing a designated and sponsored Oregon State Bureau of Labor and Industries occupation must meet entrance requirements for their chosen career.

Course of Study

At PCC more than 1500 men and women attend evening or Saturday classes as a part of their related training program. PCC provides approximately 10 percent of an apprentice's training through supportive in-class work while 90 percent of the student's training is received on the job.

Architectural Design and Drafting

Sylvania Campus
Science Technology Building, Room 208
503-977-4163

u Associate of Applied Science degree in Architectural Design and Drafting - 95 credit hours includes: 77 credit hours of Architectural Design and Drafting courses; four credit hours of physics; one credit hour of CG 209; three credit hours of ARCH 233 or ART 101. Students must complete 18 hours of General Education courses as defined in the General Education section of this catalog. Four credits of physics and three credits of ART 101 may count as General Education courses. Consult a program advisor for assistance in planning General Education classes. Department minimums for graduation: math, MTH 95 and writing, WR 121. Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

This two-year Associate of Applied Science degree program helps students develop the design and technical skills needed in the residential and commercial building design industry.

Career possibilities exist for both self-employment and working for hire. Graduates may pursue various design and drafting jobs with construction firms, architectural product manufacturers, building design firms, engineers, architects, city, county, state and federal drafting departments and corporate drafting departments. Designers are needed to develop site plans, construction details, building designs, cost estimates, specifications, plans for remodeling and additions to existing buildings. Design and drafting skills are also needed to become plans examiners, building inspectors and construction supervisors.

Program Requirements

Students new to the program must take the college's placement exams for math and English prior to program advising and registration. Students must place in MTH 60 and WR 115 before registering for beginning drafting classes or have department approval.

Course of Study

This program is designed to help students develop the skills needed in architectural design. The Architectural Design and Drafting Department should be contacted for program advising, program costs and employment opportunity information.

Consult a program advisor for information on PCC's policy on acceptance of courses taken at other colleges or high schools or the transferability of PCC courses to other colleges.

Students may transfer from Portland Community College to other colleges or universities, including PSU, to complete a bachelor's degree in Architecture. Students interested in transferring should see an Architectural Design program advisor.

General Education courses should provide the student with writing skills and computer literacy skills or be courses such as math and physics which will support future architectural

coursework. Only courses graded “C” or better will be accepted for transfer. Program advising is highly recommended.

Students must receive a grade of “C” or better in all required classes in order to receive a degree in Architectural Design and Drafting. “D” or “F” grades and “pass”/“no pass” option are not acceptable grades for department required classes to earn a degree. “Pass” grades are acceptable for Cooperative Education courses, ARCH 280.

Note: General Education requirements and a list of courses approved to satisfy those requirements will be found in the Comprehensive Degree Requirements section of this catalog.

Associate of Applied Science Degree Architectural Design and Drafting

The following is a recommended course sequence for students starting fall term. Students may start at other times and terms and should see a program advisor for a revised schedule of courses.

First Term

ARCH 111	Working Drawings 1	3
ARCH 124	Introduction to Building Systems	3
ARCH 126	Introduction to AutoCAD	3 ¹
ARCH 200	Introduction to Architecture	4
	General Education	3 ⁶

Second Term

ARCH 101	Architectural Graphics 1	3
ARCH 112	Working Drawings 2	3
ARCH 132	Building Codes	3
ARCH 136	Intermediate AutoCAD	3 ⁴
PHY 101	Physics	4

Third Term

ARCH 102	Architectural Graphics 2	2
ARCH 113	Working Drawings 3	2
ARCH 122	Structural Systems 2	4 ³
ARCH 137	Advanced Architectural AutoCAD	3 ⁷
ARCH 224	Advanced Building Systems	4

Fourth Term

ARCH 201	Design Studio 1	8
ART 101	Introduction to Art	3 ⁵
ARCH 123	Structural Systems 3	4

Fifth Term

ARCH 202	Design Studio 2	8
ARCH	Elective (see list)	2-3
	General Education	5 ⁶

Sixth Term

ARCH 203	Design Studio 3	6
CG 209	Job Finding	1
ARCH 280	CE: Architectural Design & Drafting	4
	General Education	3

ARCH Elective (see list) 2-3 ¹Recommended prerequisite: DRF 117 and CIS 120 or department approved equivalent is suggested.

²Recent high school graduates and transfer students with previous drafting course work should see a program advisor for advanced placement in the program.

³Prerequisite: MTH 60.

⁴Prerequisite: ARCH 126.

⁵ARCH 233 may be substituted.

⁶General Education of 18 credit hours is required for the degree. PHY 101 (4 cr) and ART 101 (3 cr) will count towards the 18 credit hours, leaving 11 credit hours minimum to be completed.

⁷Prerequisite: ARCH 136.

Note: MTH 95 and WR 121 must be completed prior to graduation.

List of Architectural Design and Drafting Elective Courses

ARCH 103	Architectural Graphics 3	3
ARCH 140	Introduction to Chief Architecture	3
ARCH 232	Estimating	3
ARCH 246	AutoCAD 3-D and Solid Modeling	3
ARCH 256	Advanced AutoCAD	3
ARCH 280	Co-Op Ed: Architectural Drafting	4
ID 125	Computer Drafting for Interior Designers	3
ID 133	Space Planning and Designing	3
ID 236	Lighting Design	3
ID 237	Kitchen Planning	2

Exploring Architecture

Classes which allow the subject material to be tailored to fit the individual student's needs are offered both day and evening each term. Interests such as advanced high school drafting, interior architecture, perspectives and renderings, blueprint reading, or finish your own designs can be the subject of a class with individual instruction offered for one or more students. Contact the Architectural Design Department for more information on tailoring a class to your individual needs.

Exploring Architecture and Occupational Upgrading Courses

ARCH 161	Blueprint Reading-Part 1	2
ARCH 162	Blueprint Reading-Part 2	2
ARCH 191	Special Projects 1	2
ARCH 192	Special Projects 2	2
ARCH 193	Special Projects 3	2
ARCH 246	AutoCAD 3-D and Solid Modeling	3
ARCH 256	Advanced AutoCAD	3

Art

Description

The art curriculum at PCC includes instruction in the Oregon University System. Some institutions may vary in basic design, a survey of the visual arts, art history and a variety of studio art courses. A sequence of transfer photography courses (ART 141, 142 and 143) is offered.

Prerequisites

See the Course Description (ART prefix) section of this catalog for individual Art courses and specific course prerequisites.

Audiovisual Technology

◆ One-year Certificate

Career Description

The AVT certificate prepares students for entry-level jobs in the AV industry, in positions such as Audio or Video Technician, Installer, Field Technician, Rigger, Audiovisual Systems Technician, and others. Students learn basic electronic principles and their application to selecting, installing, and operating audiovisual equipment and systems. Possible employers include AV Dealers, rental and staging companies, manufacturers representatives, educational and corporate communications departments, and service and installation companies.

All courses are offered on-line, and require students to have access to a computer and a connection to the Internet. Prospective students should check the AVT Web site to be sure they meet minimum technical requirements. Pending state approval.

Courses

AVT 101	Introduction to Audio Visual Communications Technology	3
AVT 110	Audio Technology	5
AVT 120	Video Technology	5
AVT 130	Electronics for Audiovisual	4
AVT 201	Integrated Audiovisual Systems I	3
AVT 202	Integrated Audiovisual Systems II	3

Recommended Course Sequence for Part Time Student

First Term

AVT 101	Introduction to Audiovisual Technology	3
CIS 121	Computer Concepts II	4
AVT 130	Electronics for Audiovisual	4

Second Term

AVT 110	Audio Technology	3
AVT 120	Video Technology	5

Third Term

AVT 201	Integrated Systems I	3
CIS 278	Data Communications Concepts	4

Fourth Term

AVT 202	Integrated Systems II	3
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Auto Collision Repair Technology

Rock Creek Campus
Building 2, Room 126
503-614-7229 or 503-614-7331

◆ Associate of Applied Science degree (Auto Collision Repair) - 90 credit hours; includes 72 credit hours of auto collision repair courses and 18 credit hours of General Education. Consult a program advisor for assistance in planning General Education classes. Students must meet college graduation requirements including General Education, math and English competencies.

◆ Two-year Certificate (Auto Collision Repair) - 72 credit hours of required courses.

◆ One-year Certificate (Auto Painting) - 36 credit hours; Painting I, Painting II, Painting III.

◆ One-year Certificate (Auto Collision Repair) - 36 credit hours of required courses.

Program Requirements

ASSET basic skills placement test administered through assessment centers.

Career Description

Collision repair technicians possess the skills required to return a collision damaged vehicle to its pre-accident condition. Among these skills are metal working, welding, mechanical, electrical, air conditioning, plastic repair, shaping and forming fillers, structural analysis and repair and four wheel suspension alignment.

Auto Collision Repair

AB 100	Auto Body Basic Skills	12
AB 105	Frame Analysis & Repair	12
AB 106	Panel Repair	12
AB 201	Panel Replacement	12
AB 205	Technical Skills and Collision Repair	12
AB 280A	CE: Auto Body Repair	10
AB 280B	CE: Auto Body Repair- Seminar	2

The following courses are offered and are not required courses for the certificates or the associate degree.

AB 121	Estimating	3
AB 9120	Auto Body Restoration	3

Auto Body Painting

First Term

AB 116	Auto Painting I	12
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Second Term

AB 117	Auto Painting II	12
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Third Term

AB 118	Auto Painting III	12
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Auto Body and Painting Evening Classes

AB 101	AB Basic Skills I	6
AB 102	AB Basic Skills II	6
AB 103	Panel Repair I	6
AB 104	Panel Repair II	6
AB 110	Auto Painting IA	6
AB 111	Auto Painting IB	6
AB 112	Auto Painting IIA	6
AB 113	Auto Painting IIB	6
AB 114	Auto Painting IIIA	6
AB 115	Auto Painting IIIB	6

Cooperative Work Experience

AB 280A	CE: Auto Body Repair	10
AB 280B	CE: Auto Body Repair - Seminar	2

Automotive Service Technology

Sylvania Campus
Automotive Metals Building, Room 210
503-977-4130

The PCC Automotive Service Technology Department provides flexible, career-oriented automotive repair education and training in an authentic and diverse environment. As a PCC automotive student, you may prepare for any segment of the repair industry, including dealerships, fleets and independent repair shops. Partnerships between PCC and automotive repair businesses will allow you to learn in the classroom and on the job. PCC Automotive Service Technology also provides up-grade training for technicians already in the field.

Students who graduate from PCC's automotive programs have achieved the following outcomes:

- Repair cars and light trucks with limited supervision
- Access repair information in a rapidly changing technology
- Communicate effectively with employers, customers and co-workers
- Develop strategies and processes to solve vehicle repair problems
- Perform vehicle repair to the highest professional and ethical standards

Students may achieve these outcomes in one of two programs: ASRT and ASEP.

**Both ASRT and ASEP are ASE/NATEF Certified programs.*

Associate of Applied Science

◆ Associate of Applied Science degree - 107 credit hours plus the course work to satisfy the writing and math competencies. The 107 credit hours consists of 89 automotive credits and 18 credits of General Education. Consult an advisor for

assistance in planning competency and General Education requirements. Students must meet college graduation requirements including General Education, math and English competencies.

Certificate

◆ Two-year Certificate in Automotive Service Technology - 89 credit hours

Automotive Service Repair Technology (ASRT)

In the Automotive Service Technology Program students develop the fundamental knowledge and skills necessary to maintain and repair late model automobiles. Students learn about and work on both domestic and imported vehicles.

Technician Up-grade Training

PCC Automotive provides comprehensive training to technicians already working in the field. See the Automotive department chairperson to develop a personal training plan or choose one to four **Program Awards:**

- ◆ Brakes - 20 credit hours
- ◆ Alignment - 20 credit hours
- ◆ Transmission and Drive Train - 24 credit hours
- ◆ Engine Performance - 40 credit hours

Students may receive PCC automotive credit for documented work experience. See the department chairperson for details.

Career Description

The automotive service technician maintains, diagnoses and repairs mechanical, hydraulic, fuel and electrical systems on modern automobiles and light-duty trucks. ASRT graduates find jobs in independent repair shops, dealerships and fleet maintenance facilities. Some start their own business.

Program Requirements

Applicants must take the ASSET basic skills placement test or the ENL test administered through test centers located at each campus. To begin the program, students must place into (RD 90 and WR 90) or (ENL 260, 262, and 264); place into MTH 60 or higher-level math class. Students who place below MTH 60 must successfully complete MTH 20 and be ready for MTH 60 before registering for the automotive program.

Application and Acceptance

The ASRT Program accepts new students three times a year. New students must contact the PCC Automotive Department for advising and permission forms.

Course of Study

Students may select one of six certificate or degree programs that meet their needs. The program consists of instructional modules of three weeks, each module being an intensive course in a specialized area. At the completion of each module, students are assessed according to their success in meeting course outcomes. The automotive modules consist of lecture and hands-on laboratory work. Students will have additional costs for tools and equipment.

Two-year Certificate (89 credit hours)

AM 101	Unit 1: Engine Repair I	4
AM 102	Unit 2: Electrical Systems I	4
AM 103	Unit 3: Engine Performance I	4
AM 104	Unit 4: Steering and Suspension Systems I	4
AM 105	Unit 5: Brake Systems I	4
AM 106	Unit 6: Heating and Air Conditioning Systems	4
AM 107	Unit 7: Manual Drive Train and Axles I	4
AM 108	Unit 8: Intro to Automotive Systems I	4
AM 112	Unit 12: Electrical II	4
AM 113	Unit 13: Engine Performance II	4
AM 114	Unit 14: Steering and Suspension Systems II	4
AM 115	Unit 15: Brake Systems II	4
AM 117	Unit 17: Manual Drive Train and Axles II	4
AM 122	Unit 22: Electrical III	4
AM 123	Unit 23: Engine Performance III	4
AM 124	Unit 24: Steering and Suspension Systems III	4 ¹
AM 125	Unit 25: Brake Systems III	4 ¹
AM 127	Unit 27: Automatic Transmission/Transaxle I	4
AM 133	Unit 33: Engine Performance IV	4
AM 137	Unit 37: Automatic Transmission/Transaxle II	4
AM 143	Unit 43: Engine Performance V	4
AM 153	Unit 53: Engine Performance VI	4
AM 280A	CE: Automotive Service	2-8
CG 209	Job Finding Skills	1 ²

¹Elective modules (Unit 24 and Unit 25 are required for the certificates in alignment or brake specialist.)

²Class must be completed before enrolling in cooperative education (AM 280A.)

Engine Performance Certificate (40 credit hours)

AM 101	Unit 1: Engine Repair I	4
AM 102	Unit 2: Electrical Systems I	4
AM 103	Unit 3: Engine Performance I	4
AM 108	Unit 8: Intro to Automotive Systems I	4
AM 112	Unit 12: Electrical II	4
AM 113	Unit 13: Engine Performance II	4
AM 123	Unit 23: Engine Performance III	4
AM 133	Unit 33: Engine Performance IV	4
AM 143	Unit 43: Engine Performance V	4
AM 153	Unit 53: Engine Performance VI	4

Transmission and Drive Train Certificate (24 credit hours)

AM 102	Unit 2: Electrical Systems I	4
AM 107	Unit 7: Manual Drive Train and Axles I	4
AM 108	Unit 8: Intro to Automotive Systems I	4

AM 117	Unit 17: Manual Drive Train and Axles II	4
AM 127	Unit 27: Automatic Transmission/Transaxle I	4
AM 137	Unit 37: Automatic Transmission/Transaxle II	4

Alignment Certificate (20 credit hours)

AM 102	Unit 2: Electrical Systems I	4
AM 104	Unit 4: Steering and Suspension Systems I	4
AM 108	Unit 8: Intro to Automotive Systems I	4
AM 114	Unit 14: Steering and Suspension Systems II	4
AM 124	Unit 24: Steering and Suspension Systems III	4 ¹

Brake Certificate (20 credit hours)

AM 102	Unit 2: Electrical Systems I	4
AM 105	Unit 5: Brake Systems I	4
AM 108	Unit 8: Intro to Automotive Systems I	4
AM 115	Unit 15: Brake Systems II	4
AM 125	Unit 25: Brake Systems III	4 ¹

Elective Courses

AM 109	Unit 9: Fuel Systems	4 ³
AM 141	Diagnosis & Repair	4 ³

¹Elective modules (Unit 24 and Unit 25 are required for the certificates in alignment or brake specialist.)

³ Offered on an "as needed" basis. See department chairperson for information.

Automotive Service Educational Program (ASEP)

ASEP is an educational partnership between Portland Community College and General Motors Corporation. It is a GM-specific program designed to upgrade the technical competency and professional level of the incoming GM dealership technician. The curriculum reflects current GM technology.

All ASEP students earn an Associate of Applied Science degree. Once the degree is earned, additional GM certification is granted, qualifying the graduate to do various GM specific repairs. Students must meet college requirements for graduation including General Education, math and English competencies.

Career Description

The automotive service technicians diagnose, maintain and repair the mechanical, hydraulic, pneumatic, electrical and electronic components of automobiles.

Program Requirements

To be eligible for the ASEP Program, the applicant must:

1. Be age 18 or over at the time of the first dealership work experience period (second term).
2. Be a high school graduate or have a GED equivalent.
3. Ready for Math 60 or higher and Writing 115.
4. Obtain an authorized General Motors dealer sponsor.
5. Possess a valid drivers license.
6. Have a sincere desire for a career as a GM technician.

Application and Acceptance

The ASEP Program accepts new students once a year. Contact the ASEP advisor for application materials.

Course of Study

The student spends one term on campus in the classroom and lab. The following term, student technicians work for their sponsoring GM dealership, earning a wage and gaining practical on-the-job experience as they put to use the skills learned in the classroom. The terms will alternate until completion of the program.

Technical training is provided on campus in the lab classroom and at the dealership. This includes diagnosis, service and repair of current production vehicles and the latest developments in drive train, ignition, fuel and emission control management systems. Also covered are heating, vent and air conditioning and body and chassis electrical. General Education courses from arts and humanities, mathematics, natural and physical sciences and social science provide the academic background. ASEP is an Associate of Applied Science degree program. It requires a total of 96 weeks (eight terms of 12 weeks). During "on campus" terms, the student attends classes five days per week. Each "work experience" term, the student will accrue a minimum of 480 clock hours working in the sponsoring General Motors dealership.

ASEP 101	Electrical Systems and AC	16
ASEP 102	Engine Repair & Drive Train	16
ASEP 103	Engine Performance	16
ASEP 104	Steering, Suspension, & Brakes	12
ASEP 280A	Cooperative Education	12 ¹
ASEP 280A	Cooperative Education	12 ¹
ASEP 280A	Cooperative Education	12 ¹
ASEP 280A	Cooperative Education	12 ¹

¹See advisor before enrolling in this course.

Aviation Maintenance Technology

Rock Creek Campus
Building 2, Room 230
503-614-7256
e-mail: psiechen@pcc.edu

◆ Associate of Applied Science degree - minimum of 118 credit hours; includes 100 credit hours of aviation maintenance courses and 18 credit hours of General Education. Consult the college catalog General Education course list for approved General Education courses and distribution. Students must meet college graduation requirements including General Education, math and English competencies.

◆ Two-year Certificate - minimum 100 credit hours of required aviation maintenance courses, including general airframe and powerplant courses.

◆ One-year Airframe Certificate - 64 credit hours of required aviation maintenance technology courses; includes 28 credit

hours of required general courses and 36 credit hours of required airframe courses.

◆ One-year Powerplant Certificate - 64 credit hours of required aviation maintenance technology courses; includes 28 credit hours of required general courses and 36 credit hours of required powerplant courses.

Career Description

An aircraft mechanic licensed under Part 65 of the Federal Aviation Regulations may maintain or alter aircraft within limitations specified by the regulations. The license also permits the holder to supervise other people in maintaining aircraft and to approve work for return to service. In addition, the licensed mechanic may perform 100 hour inspections. After performing 100 hour inspections or maintenance, the mechanic must certify air-worthiness or approval for return to service in a signed entry in the appropriate aircraft record.

The Aviation Maintenance Program is approved by the State Division of Vocational Education, the Veterans Administration and the Federal Aviation Administration.

The licensed AMT mechanic is considered to be a general practitioner in keeping aircraft in safe condition and may also decide to specialize in: hydraulics, pneumatics, rigging, inspection, bonded repair, corrosion control, sheet metal repair, electrical systems, avionics installation, propeller service, welding, painting, record keeping or engine service.

Program Entry-Level Requirements

All candidates for the AMT Program must take the placement tests and demonstrate competency in basic reading, writing, and mathematics **prior to program entry**.

Competency in Reading must be demonstrated by:

A. Placement test scores placing into RD 90 or higher,

B. Students not placing into RD 90 or higher will, **before program entry**, successfully complete appropriate courses so as to place into RD 90.

Competency in Writing must be demonstrated by:

A. Placement test score placing into WR 90 or higher,

B. Students not placing into WR 90 or higher will, **before program entry**, successfully complete appropriate courses so as to place into WR 90.

Competency in Math must be demonstrated by:

A. Placement tests score placing into MTH 60 or higher,

B. Students not placing into MTH 60 or higher will, **before program entry**, successfully complete appropriate courses so as to place into MTH 60.

Exception: Students who are attending only "one" class. (They are **not** an AMT Program participant)

Course of Study

The Aviation Maintenance Program is offered in a recommended sequence of 25 courses, each a three-week module. However, flexibility in program design does allow some variation in schedule. Any variation should be approved by the department representative.

The program is divided into the following three areas of study:

General: These courses contain requirements which are common to both airframe and powerplant ratings. They should be completed prior to entry into the airframe and powerplant areas.

Airframe: Students who have completed all of these courses in the airframe area and general area may receive a certificate of completion which qualifies them to take FAA tests for an Aviation Mechanics License with the Airframe Rating.

Powerplant: Students who have completed all of these courses in the powerplant area and general area may receive a certificate of completion which qualifies them to take FAA tests for an Aviation Mechanics License with the Powerplant Rating.

Aviation Maintenance Courses

(Three-week modules)

General Area Courses

AMT 101	Introduction to A&P	4
AMT 102	Aircraft Electricity I	4
AMT 203	Aircraft Electricity II	4
AMT 204	Aircraft Electricity III	4
AMT 105	Aviation CFR & Related Subjects	4
AMT 106	Aircraft Applied Science	4
AMT 107	Materials & Processes	4

Airframe Area Courses

AMT 208	Aircraft Systems	4
AMT 109	Assembly & Rigging	4
AMT 110	Aircraft Finishes & Welding	4
AMT 211	Composite Structures	4
AMT 212	Sheet Metal	4
AMT 213	Hydraulic Systems & Landing Gear	4
AMT 214	Instruments, Communication & Navigation Systems	4
AMT 115	Aircraft Structures & Inspection	4
AMT 216	AMT Practicum/Airframe	4

Powerplant Area Courses

AMT 117	Reciprocating Engine Theory & Maintenance	4
AMT 218	Powerplant Inspection	4
AMT 219	Turbine Engine Overhaul	4
AMT 120	Propellers and Engine Installation	4
AMT 121	Turbine Engine Theory and Maintenance	4
AMT 222	Reciprocating Engine Overhaul	4
AMT 123	Ignition Systems	4
AMT 124	Fuel Metering Systems	4
AMT 225	A&P Practicum/Powerplant	4

Optional Courses

AMT 126	A&P Self Study/Tutorial	4
AMT 227	A&P Makeup	4
AMT 228	A&P Shop Practice	4

Aviation Science

Rock Creek Campus
Building 2, Room 230
503-614-7246

◆ **Associate of Applied Science Degree-** Provides the opportunity to earn a degree while earning the Federal Aviation Administration (FAA) certificates needed to qualify for an entry level position as either a professional airplane or helicopter pilot. **In either case**, students must meet college graduation requirements including 18 credit hours of General Education, 9 credit hours of approved electives, and the required Math and English competencies. The associate degree allows credit transfer to some four-year schools toward a bachelor degree.

Flight classes are conducted at Hillsboro Aviation, an accredited FAA Part 141 certified flight school, located at the Hillsboro Airport. Additional fees apply for these classes; contact the Aviation Science Department for information on current flight fees.

◆ **Airplane** - 91 credit hours; in addition to the degree requirements, includes 53 credit hours of required academic, ground and flight aviation courses. An additional 8 credit hours of Certified Flight Instructor ground and flight courses earns the student a specialization in flight instruction. In either case, the student will log a minimum of 277 flight hours in airplanes by graduation and have developed the knowledge and skills necessary for the appropriate FAA pilot certificates.

◆ **Helicopter** - 90 credit hours; in addition to the degree requirements, includes 54 credit hours of required aviation courses (including designated Physics and Meteorology courses). Additional ground school and selection of the appropriate commercial flight course will result in four extra credit hours and earn the student an Instrument Specialization. In either case, the student will log a minimum of 200 flight hours by graduation and have developed the knowledge and skills necessary for the appropriate FAA pilot and instructor certificates.

Career Description

The traditional entry-level position for professional airplane and helicopter pilots is as a Certified Flight Instructor (CFI). This position offers the opportunity to gain the experience sought by companies that employ pilots in a variety of interesting, challenging positions. Career opportunities for airplane pilots include work in flight instruction, charter, corporate cargo, and airline industries. Career opportunities for helicopter pilots include flight instruction, charter, corporate, air-ambulance and external load.

Program Entry Requirements

Applicants must take the ASSET basic skills placement test administered through the campus assessment centers. Minimum ASSET test scores:

- Placement into MTH 20
- Placement into RD 90
- Placement into WR 80

Attendance at an Aviation Science orientation or individual advising required prior to commencement in the program. Please contact the Aviation Science Department for dates or appointments.

Additionally, the FAA requires a Class II Medical Certificate prior to beginning flight training. Contact the Aviation Science Department for information or go to the Office of Aviation Medicine website: <http://ame.cami.jccbi.gov/>

Course of Study

Airplane

First year students follow the same course of study regardless of program option. At the end of the first year, students must decide whether or not to add the Certified Flight Instructor specialization to their course of study.

Airplane Commercial Pilot or Commercial Pilot with Certified Flight Instructor Specialization

First Term

AVS 120	Airplane: Private Pilot Ground	4
AVS 125	Airplane: Private Pilot Flight	3
AVS 127	Introduction to Aviation	4
MTH 65	Introductory Algebra	4 ¹

¹A 4-credit Approved Elective may be substituted if student places higher than MTH 65 in the ASSET test.

Second Term

AVS 130	Instrument Ground	3
AVS 135	Airplane: Instrument Flight	3
AVS 137	Applied Aerodynamics	4
	General Education	3

Third Term

AVS 140	Airplane: Commercial Pilot Ground	5
AVS 145	Airplane: Intro to Commercial Pilot	3
AVS 147	Aircraft Systems & Structure	4
GS 109	Meteorology	4

Commercial Pilot without Flight Instructor Specialization - 91 total credit hours

Fourth Term

AVS 225	Airplane: Commercial Flight	4
AVS 227	Aviation Careers	4
AVS 237	Aviation Law and Regulations	4
	Approved Electives	3

Fifth Term

AVS 267	Economics of Flight Operations	4
	General Education	6
	Approved Electives	6

Sixth Term

AVS 255	Airplane: Pilot Performance	1
AVS 275	Airplane: Professional Pilot	3
	General Education	9
	Approved Electives	3

Commercial Pilot with Certified Flight Instructor Specialization - 99 total credit hours

Fourth Term

AVS 225	Airplane: Commercial Flight	4
	General Education	6

Fifth Term

AVS 227	Aviation Careers	4
AVS 230	Airplane: Certified Flight Instructor Ground	4
AVS 235	Airplane: Certified Flight Instructor Flight	2
AVS 237	Aviation Law and Regulations	4

Sixth Term

AVS 240	Airplane: CFII/MEI Ground	3
AVS 245	Airplane: CFII/MEI Flight	2
AVS 267	Economics of Flight Operations	4
	General Education	3
	Approved Electives	3

Seventh Term

AVS 255	Airplane: Pilot Performance	1
	General Education	6
	Approved Electives	9

Helicopter

For the Commercial Pilot program, students will select Helicopter Commercial Flight A (AVS 205). Those students interested in earning an instrument rating along with their commercial certificate will select Helicopter Commercial Flight B (AVS 215), which includes instrument training. This option, in conjunction with Instrument Ground (AVS 130), earns the student a specialization in Commercial Pilot with Instrument Rating.

Helicopter Commercial Pilot - 90 credit hours (with Instrument Rating* - 94 Credit Hours)

First Term

AVS 110	Helicopter: Private Pilot Ground	4
AVS 115	Helicopter: Private Pilot Flight	3
AVS 127	Introduction to Aviation	4
PHY 101	Fundamentals of Physics	4

Second Term

AVS 130	Instrument Ground School (*Instrument Rating Course)	3
AVS 150	Helicopter: Commercial Ground	3
AVS 155	Helicopter: Intro to Commercial Flight	3
AVS 137	Applied Aerodynamics	4
GS 109	Meteorology	4

Third Term

AVS 205	Helicopter: Commercial Flight-A	3
	or	
AVS 215	Helicopter: Commercial Flight-B (*Instrument Rating Course)	4
AVS 147	Aircraft Systems & Structure	4
WR 121	English Composition	3
	General Education	4

Fourth Term

AVS 260	Helicopter: CFI Ground	3
AVS 265	Helicopter: CFI Flight	3
AVS 227	Aviation Careers	4
AVS 237	Aviation Law and Regulations	4

Fifth Term

AVS 267	Economics of Flight Operations	4
MTH 65	Introductory Algebra (or above)	4 ¹
	General Education	5
	Approved Electives	4

¹A 4-credit Approved Elective may be substituted if student places higher than MTH 65 in the ASSET test.

Sixth Term

	General Education	9
	Approved Electives	6

Approved Electives for Aviation Science

CIS 120	Computer Concepts I	4
CIS 121	Computer Concepts II	4
PHY 101	Fundamentals of Physics	4
PSY 101	Psychology and Human Relations	3
WR 117	Introduction to Technical Writing	3
WR 121	English Composition	3
WR 214	Business Communications II	3
WR 227	Technical Writing I	3
EC 200	Principles of Economics: Intro, Institutions and Philosophies	3
EC 201	Principles of Economics: Microeconomics	3
EC 202	Principles of Economics: Macroeconomics	3
BA 101	Introduction to Business	4
BA 206	Management Fundamentals	3

The following are three-week modules in the Aviation Maintenance Technology program:

AMT 105	Aviation CFRs and Related Subjects	4
AMT 115	Aircraft Structures and Inspections	4
AMT 208	Aircraft Systems	4
AMT 214	Instruments, Comm. & Nav. Systems	4

Biology

Description

Life sciences comprise four areas of study anatomy, biology, microbiology, and health.

Work in the sciences is an important part of many college programs. Courses at PCC are organized to present basic principles and to provide a coordinated overview of the sciences as they relate to living systems.

Prerequisites

See the Course Description (BI prefix) section of this catalog for individual Biology courses and course prerequisites.

Biotechnology Laboratory Technician

Rock Creek Campus
Science and Technology, Building 7/202
503-614-7255

◆ Associate of Applied Science degree - 106 credit hours; includes 16 credit hours in Biology, 15 credit hours in Chemistry, 54 credit hours in required BIT courses. Students must meet college graduation requirements including General Education, math and English competencies.

The two-year program transfers to Portland State University towards a Bachelors of Science degree in Biology (Biotechnology certificate). Individuals who have achieved the BS degree but wish to enhance their laboratory skills and experience in order to be competitive for laboratory positions are strongly encouraged to apply for the one-year sequence leading to the AAS degree.

Career Description

Biotechnology is the application of biological science, and the use of biological organisms, processes and molecules in the development of new products and procedures. Technicians carry out the laboratory studies which provide the research as well as development for such products.

This program is designed to prepare students to work effectively "at the bench" in laboratories in a variety of settings, including university and other research institutions, biotechnology companies, pharmaceutical companies, analytical laboratories (both government and private service) and related industries. The specific duties and responsibilities of technicians, as well as the degree of independence and contribution to a team effort are variable within this field. The opportunities available to individuals are directly related to the quality of their training and experience.

The Biotechnology program focuses on the principles, practice and skills involved in a broad spectrum of critical procedures, including solution and media preparation, DNA purification and analysis, immunoassay, protein and enzyme assay, electrophoresis, chromatography, and maintenance of cells in culture. Students who have completed this program will be prepared for technical positions in a broad spectrum of biotechnology and related laboratories.

Program Requirements

ASSET basic skills placement test administered through Assessment centers. Placement into MTH 95 and WR 121 are necessary.

Application and Acceptance

The application process involves:

1. Submission of Biotechnology application form, high school and/or college transcripts, and one letter of recommendation.
2. Appointment for advising with Biotechnology faculty to evaluate planned course of study (transcripts which in-

clude college course work which will be applied to the AAS degree must be available at this session).

Enrollment is limited so students are encouraged to apply early. Application materials and specific instructions may be obtained from the Division of Science and Technology, Rock Creek campus, at 503-614-7255.

The sequence of Biotechnology courses (see Course of Study section) begins in the Fall term and continues through Summer. Applications will be accepted at any time and upon acceptance students will be placed into the next appropriate BIT sequence. For students who enter the program with the Basic Requirements completed this would be the upcoming Fall term. For incoming students who will be spending their first year working primarily on the Basic Requirements, a space will be held for the student beginning the subsequent Fall term contingent upon successful completion of the designated courses.

The Biotechnology Laboratory Technician Program reserves the right to recommend that a student who appears unsuited for this science be counseled into another area of study.

Course of Study

The Biotechnology Laboratory Technician program emphasizes the principles and practices of biochemistry and molecular biology in a working laboratory context. It is appropriate for individuals starting out in this field and preparing for entry-level laboratory positions as well as for those with strong theoretical backgrounds who wish to acquire more specific skills and experience in order to obtain a higher level position.

The program can be completed in one or two years, depending on educational background.

Two-year Program

- Students who enter the program with minimal science background should complete the Basic Requirements before enrolling in BIT courses.
- Students who wish to begin the BIT courses prior to completion of these Basic Requirements may do so, respecting individual course prerequisites. Alternative pathways to completion of the program are possible, and students should discuss these with department advisors.

One-year Program

- Students who enter the program with substantial college science background (such as a BS or BA degree in Biology or Chemistry) and have completed the Basic Requirements outlined below may complete the program in four terms (one year) as outlined in the Biotechnology sequence which follows.

Basic Requirements (first year course of study):

1. Biology: Completion of PCC or equivalent courses: BI 101, 102, and 103 (or higher level sequence BI 211, 212 and 213, strongly recommended for students planning to transfer to PSU in Biology) and BI 234 (Microbiology), with a grade of "C" or better.
2. Chemistry: Completion of PCC or equivalent courses: CH 104, 105 and 106 or CH 221, 222, and 223, with a grade of "C" or better. Students planning to transfer to PSU in Biology should take the higher level sequence.

3. WR 121, MTH 111, CAS 170, and 9 credit hours of non-science General Education, at least three of which must be in Arts and Humanities.

Biotechnology Sequence:

The first term of program-specific course work covers the fundamentals of laboratory work, and an introduction to applications of Biotechnology. The 200-level courses in the second and third terms are designed to provide an integrated and intensive laboratory experience focusing on a broad spectrum of important techniques. The fourth term is largely devoted to Work Experience, with additional course work to complement the internship.

First Term

BIT 101	Introduction to Biotechnology	3
BIT 103	Laboratory Safety I	2
BIT 104	Laboratory Safety II	2
BIT 107	Laboratory Mathematics	3
BIT 109	Basic Laboratory Techniques and Instruments	3
BIT 134	Media Preparation	1

Second Term

BIT 205	Bioseparations I	4
BIT 207	Tissue Culture I	4
BIT 211	Techniques in Molecular Biology I	5
BIT 221	Biomolecular Principles	4

Third Term

BIT 201	Applied Immunology	4
BIT 215	Bioseparations II	5
BIT 217	Tissue Culture II	4
BIT 223	Techniques in Molecular Biology II	4

Fourth Term

CG 209	Job Finding Skills	1
BIT 225	Regulatory Compliance	2
BIT 280A	Work Experience	4
BIT 289	Special Topics in Biotechnology	2

B-FIT Program

(Building Futures in Industry and Trades)

Rock Creek Campus

Building 7, Room 202

503-614-7255, 503-614-7405, 503-614-7403, 503-614-7401

◆ Certificate - 28 credit hours as outlined in the sequence of courses. **(Pending Final State Approval)**

Career Description

This program is a component of the Building Construction Technology Department. It is a two-term certificate program giving students a unique hands-on experience in many of the basic skills required to enter an apprenticeship training program or other skilled non-traditional jobs in industry. Program focus is on the construction, electrical and mechanical trades.

Program Requirements

The B-FIT Program is a pre-apprenticeship training program focusing on the needs of women and minority men who want to have careers in the construction and building trades. Students must meet the program physical requirements and place at the MTH 20, RD 90 and WR 90 level on the ASSET basic skills placement test or have instructor approval to register. It is recommended that students have a drivers license or the ability to obtain one and a high school diploma or GED to compete successfully for apprenticeship openings.

Course of Study

A series of courses structured to prepare students for entry into apprenticeship programs and other non-traditional occupations. Selected courses introduce industrial skills training in the construction, electrical and mechanical trades, trades math, physical strength training, job safety, researching industrial occupations and cooperative education work experience.

First Term

BCT 114	Introduction to Applied Construction	10
BCT 104	Construction Math	3
PE 181D	Circuit Weight Training 1-Coed	1

Second Term

BCT 115	Intro Electrical/Mechanical Trades	10
BCT 113	Contemporary Worksite Issues	2
BCT 280A	CE: Building Construction	1
PE 181E	Circuit Weight Training 2-Coed	1

Selected B-FIT courses may be applied towards the BCT one-year program award in Building Construction, or Associate of Applied Science degree program in Building Construction Technology. See Building Construction Technology advisor for details.

Building Construction Technology

Rock Creek Campus
Building 7, Room 202
503-614-7255, 503-614-7405, or 503- 614-7201 (shop)

u Associate of Applied Science degree - minimum of 90 credit hours; includes 72 credit hours of approved classes for building construction technology two year certificate and 18 credit hours of General Education. Consult a program advisor for assistance in planning General Education classes. Students must meet college graduation requirements including General Education, math and English competencies.

◆ Building Construction Two Year Certificate - minimum of 72 credit hours of approved building construction technology classes including 36 credit hours required for one-year Certificate. See course listing for details.

◆ Building Construction One Year Certificate - minimum of 36 credit hours of approved building construction technology classes. See course listing for One Year Certificate.

Career Description

Career possibilities exist for those going into business for themselves or seeking employment in the construction industry. Areas of employment include rough and finish carpentry in new construction and remodeling as well as cabinetmaking, estimating and building maintenance.

Program Requirements

Students new to the Building Construction Program must take the college's ASSET basic skills placement tests for math and writing administered through the assessment centers prior to program advising and registration. Students must be enrolled in or have completed MTH 20 or have an ASSET score of 42 or above on the Numerical Test and have enrolled in or completed WR 90 or have an ASSET score of 41 or above.

Students must complete BCT 106 Hand and Power Tool Use and Safety with a "C" or better or acquire department approval before enrolling in classes requiring the use of hand or power tools.

Students pursuing a degree must complete the course work requirements outlined in the PCC catalog under Associate of Applied Science Degree.

Course of Study

The program is designed to help students develop the technical qualifications and life skills needed to enter the construction industry as well as to help those currently in the construction trades upgrade and learn new skills.

One Year Certificate In Building Construction Technology

Students seeking a one year certificate in Building Construction Technology must take all the classes listed below. No electives may be substituted without department approval.

First Term

BCT 102	Blueprint Reading for Bldg Construction	2
BCT 103	Construction Materials and Methods I	3
BCT 104	Construction Math	3
BCT 106	Hand Tool/Power Tool Use and Safety	3

Second Term

BCT 101	Principles of Construction Surveying	3
INSP 151	1 and 2 Family Structural Code	4
BCT 127	Concrete Construction I	6

Third Term

BCT 120	Floor Framing	3
BCT 121	Wall Framing	3
BCT 122	Roof Framing I	3
BCT 123	Roof Framing II	3

Two Year Certificate In Building Construction Technology

Completion of one year certificate in Building Construction Technology and the fourth and fifth term classes listed below. Up to 12 credit hours of approved electives may be substituted for the sixth term classes listed below.

Fourth Term

BCT 126	Site Layout	3
BCT 128	Exterior Finish	6
BCT 204	Construction Estimating	2
BCT 280A	CE: Building Construction	1

Fifth Term

BCT 223	Finished Stair Construction	2
BCT 224	Drywall Installation	2
BCT 226	Finish Carpentry	2
BCT 219	Cabinetmaking I	6

Sixth Term

BCT 211	Remodeling	6
BCT 220	Cabinetmaking II	6

Building Technology Courses

BCT 100	Intro to the Construction Industry	3
BCT 101	Principles of Construction Surveying	3
BCT 102	Blueprint Reading for Bldg Construction	2
BCT 103	Construction Materials and Methods I	3
BCT 104	Construction Math	3
BCT 106	Hand Tool/Power Tool Use and Safety	3
BCT 120	Floor Framing	3
BCT 121	Wall Framing	3
BCT 122	Roof Framing I	3
BCT 123	Roof Framing II	3
BCT 126	Site Layout	3
BCT 127	Concrete Construction I	6
BCT 128	Exterior Finish	6
BCT 130	Construction Safety	3
BCT 133	Construction Materials & Methods II	3
BCT 134	Construction Scheduling w/MS Project	3
BCT 140	Construction Accounting/Quickbooks Pro I	3
BCT 150	Mechanical & Electrical Facilities	3
BCT 202	Business Principles for Construction	3 ¹
BCT 204	Construction Estimating	2
BCT 208	Concrete Construction II	6
BCT 211	Remodeling	6
BCT 213	Advanced Blueprint Reading	2 ¹
BCT 214	Advanced Construction Estimating	3
BCT 216	Cabinetry I	2 ¹
BCT 217	Cabinetry II	2 ²
BCT 218	Woodworking Projects	2 ²
BCT 219	Cabinetmaking I	6
BCT 220	Cabinetmaking II	6
BCT 221	Construction Law for Contractors	3
BCT 223	Finished Stair Construction	2
BCT 224	Drywall Installation	2
BCT 225	Construction Project Management	3 ¹
BCT 226	Finish Carpentry	2
BCT 240	Construction Accounting/Quickbooks	

Pro II	3
Construction Practice (Capstone)	4
CE: Building Construction	1 ¹
CE: Building Construction	4 ¹
CE: Building Construction	8 ¹
CE: Building Construction	12 ¹
CE: Building Construction - Seminar	1 ¹
1 & 2 Family Structural Code	4
Uniform Building Code 1	3 ¹

¹Approved electives.

²Personal enrichment classes not approved for certificate or degree in Building Construction Technology.

³Students may enroll in Cooperative Education at the completion of the first year of studies.

Students wishing to use prior courses in related disciplines such as architectural drafting, building inspection etc., in lieu of approved BCT elective, must receive approval from a BCT advisor. If approved, no more than six credit hours may be counted toward a two year certificate or degree in Building Construction Technology.

Building Construction Technology - Construction Management

◆ Associate of Applied Science degree minimum 90 credit hours of approved construction management classes includes 72 credit hours of approved classes for Construction Management two year certificate and 18 credit hours in General Education. Students must meet college graduation requirements including General Education, math and English competencies.

◆ Two-year Certificate in Building Construction Technology - Construction Management minimum 72 credit hours of approved construction management classes including 36 credit hours required for one-year certificate. See course listing for details.

◆ One-year Certificate in Building Construction Technology - Construction Management minimum 41 credit hours of approved construction management classes. See course listing for details.

Career Description

This program is an option within the Building Construction Technology Program. The program will prepare students for entry level in management and supervisory positions in the residential and commercial construction industries. Areas of employment include project management, construction management, estimating, scheduling and field supervision.

Course of Study

The program is designed to develop the technical and management skills and qualifications needed to enter the building construction management industry. The core curriculum includes construction materials and methods, cost estimating, scheduling and project management. Two-year students will also be required to enroll in 12 hours of cooperative education. During the final term of the program, students will enroll in a construction management practice capstone course which will apply all of the previous construction management coursework to "real life" construction management situations. In addition, this program will pro-

vide training for construction industry owners and their workers to learn new skills that help enhance their construction management performance. Students successfully completing a one-year certificate are eligible to take the licensing exam required by the State of Oregon Construction Contractors Board.

Program Requirements

Students new to the Construction Management Program must take the college's ASSET basic skills placement tests for math and writing administered through assessment centers prior to program advising and registration. Students must have completed MTH 20 or have an ASSET score of 42 or above on the Numerical Test and have completed WR 90 or have an ASSET score of 41 or above. Students must have completed CAS 133, or a similar course or have basic computer skills.

Students pursuing two-year certificates must complete MTH 65 and WR 121 in addition to the prescribed construction management classes. Students pursuing a degree must complete the course work requirements outlined in the PCC catalog under Associate of Applied Science Degree.

One year Certificate -Construction Management

Students seeking a one-year certificate option in construction management must take all of the classes listed below. No electives may be substituted without department approval.

First Term

BCT 100	Intro to the Construction Industry	3
BCT 102	Blueprint Reading for Bldg Construction	2 ²
BCT 103	Construction Materials & Methods I	3 ²
BCT 104	Construction Mathematics	3 ²
BCT 225	Construction Management	3

Second Term

BCT 133	Construction Materials & Methods II	3 ²
BCT 134	Construction Scheduling w/MS Project	3 ²
BCT 202	Business Principles of Construction	3
BCT 204	Construction Estimating	2 ²
INSP 151	1 & 2 Family Structural Code	4

Third Term

BCT 150	Mechanical & Electrical Facilities	3
BCT 214	Advanced Construction Estimating	3 ²
BCT 130	Construction Safety	3
BCT 221	Construction Law	3

Two -Year Certificate or Degree Options -

Construction Management

Completion of one-year certificate option in Construction Management and the fourth, fifth, sixth and seventh term classes listed below. NOTE: General Education classes listed below are for students pursuing a degree.

Fourth Term (Summer)

BCT 280D	CE: Building Construction	12 ¹
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Fifth Term

BCT 140	Construction Accounting/Quick Books Pro I	3
ARCH 122	Structural Systems 2	4
INSP 251	Uniform Building Code I	3
	General Education	3

Sixth Term

BCT 101	Construction Surveying	3
	General Education	9

Seventh Term

BCT 250	Construction Practice (Capstone)	4
BCT 213	Advanced Blueprint Reading	2
	General Education	6

Notes:

1. Students who will be, or are currently working in the construction industry during the summer, may use their job experience for meeting the Summer BCT 280D Cooperative Education requirements. However, additional journal and case study projects will be required. For more information see an advisor.
2. Class may be challenged by petitioning for course by examination.

Building Inspection Technology

Sylvania Campus
Science Technology Building, Room 208
503-977-4163

Building Inspection Programs

Associate degree programs may be completed in approximately six terms, assuming the student is enrolled on a full-time basis. These programs are described on the following pages. Career certificate programs of one-year are also offered through the Building Inspection Department. They are described as well.

Building Inspection Degrees and Certificates

Building Inspection Two-year Degrees

- ◆ Associate of Applied Science in Building Inspection Technology
- ◆ Associate of Applied Science in Building Code Administration

Students must meet college graduation requirements including General Education, math and English competencies.

Career One-year Certificates

- ◆ Structural Inspection
- ◆ Mechanical Inspection

- ◆ Plans Examiner
- ◆ 1 and 2 Family Dwelling Code combination: Structural, Mechanical & Plans Examiner.

Career Programs

Two Associate of Applied Science degrees in Building Inspection are offered. They are: Building Inspection and Building Code Administration. These two-year degrees emphasize skills to be used on the job upon completion of the degree requirements and are not designed for students intending to transfer to four-year schools. If transferability of courses is a concern, students should consult with the institution of their choice regarding transfer possibilities.

All courses and programs of study in Building Inspection require students to be prepared to take MTH 20 and WR 115 or higher-level math and writing courses. Additional skill requirements are specified through the listing of prerequisites. Students with questions about this entry-level readiness should arrange for evaluations of their skill levels through the PCC counseling department. ASSET testing designed to assist students in selecting appropriate writing and mathematics courses may be required prior to registration. Students must meet PCC's writing and math competencies prior to graduation. See Comprehensive Degree Requirements in this catalog.

Building Inspection

◆ Associate of Applied Science degree - 100 credit hours includes 52 credit hours of Building Inspection courses, 26 credit hours of Architectural Design and Drafting courses, four credit hours of CIS 120, one credit hour of CG 209, three credit hours of PSY 101, three credit hours of MSD 105. Students must complete 18 hours of General Education courses as defined under General Education. Four credits of CIS 120 and three credits of PSY 101 may count as General Education courses. Consult a program advisor for assistance in planning General Education classes. Department minimums for graduation: MTH 65 and WR 121. Students must meet college graduation requirements including General Education, math and English competencies. Only grades of "C" or better will be accepted for courses required for the associate degree except for INSP 280A and INSP 280B that need a grade of "P".

Career Description

This two-year associate of applied science degree program prepares students for a career as a building inspector or plans examiner. Check with the State Building Codes Agency for specific requirements to qualify as a building inspector.

Career possibilities exist in a number of fields, once the state certificate exams are passed. Careers are available as Commercial Structural Inspector, Commercial Mechanical Inspector, Commercial Plans Examiner, One and Two Family Dwelling Structural Inspector, One and Two Family Dwelling Mechanical Inspector, One and Two family Dwelling Plans Examiner, or all of the above.

Program Requirements

To enter this program, students must be prepared to take MTH 20 and WR 115 or higher level math and writing courses. The department should be contacted for advising.

Placement tests are available at the PCC testing centers to determine entry level skills in math and writing.

Course of Study

This program is designed to help students develop the technical and other skills needed in Building Inspections Technology. The Building Inspections Technology Department should be contacted for program advising, program costs and employment opportunity information.

Consult a program advisor for information on PCC's policy on acceptance of courses taken at other colleges or high schools or the transferability of PCC courses to other institutions.

Students may transfer from Portland Community College to other colleges or universities to complete a bachelor's degree. Western Oregon University (WOU) will accept Building Inspection Technology course credits toward their bachelor's degree in Public Policy and Administration. Students interested in transferring credits should see a Building Inspection Technology program advisor.

General Education courses should provide the student with writing skills and computer literacy skills or be courses such as math and physics. Only courses graded "C" or better will be accepted for transfer. Program advising is highly recommended.

Note: General Education requirements and a list of courses approved to satisfy those requirements can be found in the Comprehensive Degree Requirements section of this catalog.

The following is a recommended course sequence for students starting fall term. Students may start at other times and terms and should see a program advisor for a revised schedule of courses.

Associate of Applied Science Degree - Building Inspection Technology

First Term

INSP 151	International 1 & 2 Family Structural Code	4
INSP 251	Uniform Building Code 1	3
INSP 255	International Mechanical Code 1	3
INSP 102	Architectural Graphics 2	2
	General Education (and/or math & writing)	3 ³

Second Term

INSP 152	International 1 & 2 Family Mechanical Code	3
INSP 252	Uniform Building Code 2	3
INSP 256	International Mechanical Code 2	3
INSP 101	Architectural Graphics 1	2
ARCH 131	Environmental Control Systems	4
	General Education	3 ³

Third Term

INSP 202	Plans Exam - Residential	4
INSP 253	Uniform Building Code 3	3
INSP 257	International Mechanical Code 3	3
INSP 280B	CE : (1&2 Family Structure & Mechanical)	4 ²
ARCH 122	Structural Systems 2	4 ¹

Fourth Term

INSP 280B CE: (1&2 Family Plans Exam)	2 ²
INSP 280A CE: (1&2 Family Field Exam)	1 ²
ARCH 113 Working Drawings 3	2
ARCH 161 Blueprint Reading - Part 1	2 ⁴
CIS 120 Computer Concepts 1	4 ³
MSD 105 Interpersonal Communication	3
PSY 101 Psychology & Human Relations	3 ³

Fifth Term

INSP 280B CE: (B-Level Structural)	2 ²
INSP 280A CE: Field Examination	1 ²
ARCH 121 Structural Systems 1	2
ARCH 123 Structural Systems 3	4 ¹
ARCH 126 Introduction to AutoCAD	3
ARCH 162 Blueprint Reading - Part 2	2 ⁴
ARCH 231 Specifications	3

Sixth Term

INSP 201 Plans Exam - Commercial	3
INSP 280B CE: (B-Level Mechanical & Plans)	4 ²
INSP 280A CE: (Mechanical & Plans Field Exam)	2 ²
CG 209 Job Finding Skills	1
General Education	6 ³

¹ Prerequisite: MTH 60

² Cooperative Education is a variable credit course

³ General Education of 18 credit hours is required for the degree. CIS 120 (4 cr) and PSY 101 (3 cr) will count towards the 18 credit hours, leaving 11 credit hours minimum to be completed. Credits from other colleges can be used for General Education credits.

⁴ ARCH 111 may be substituted for ARCH 161 and/or ARCH 112 may be substituted for ARCH 162.

Note: MTH 65 and WR 121 must be completed prior to graduation.

Building Code Administration

◆ Associate of Applied Science degree - 97 credit hours includes 29 credit hours of Building Inspection courses, 33 credit hours of Management and Supervisory Development courses, 6 credit hours of Business Administration, four credit hours of CIS 120, three credit hours of SP 111, three credit hours of EC 216, three credit hours of WR 214, and four credit hours of MTH 243. Students must complete 18 hours of General Education courses as defined under General Education. Two of the following four courses may count as General Education courses: CIS 120 (4 cr.); SP 111 (3 cr.); EC 216 (3 cr.); and /or MTH 243 (4 cr.). Consult a program advisor for assistance in planning General Education classes. Department minimums for graduation: MTH 243 and WR 214. Students must meet college graduation requirements including General Education, math and English competencies. Only grades of "C" or better will be accepted for courses required for the associate degree except for INSP 280A and INSP 280B that need a grade of "P".

Career Description

This two-year associate of applied science degree program prepares students for a career as a building official or supervisor of building inspectors and/or plans examiners. Check with the State Building Codes Agency for specific requirements to qualify as a building official.

Careers or career advancements are available in a number of fields. Once the state building official certification exam is passed, career opportunities for building officials exist in most cities and counties in all states. Careers are also available as supervisor of structural inspectors; supervisor of mechanical inspectors; supervisor of plans examiners; supervisor of residential structural inspectors; supervisor of residential mechanical inspectors; and/or supervisor of residential plans examiner. Cities and counties in different states may use different titles other than supervisor. Titles such as manager, lead, senior, head, etc., may be used instead of supervisor.

Program Requirements

To enter this program, students must be prepared to take MTH 20 and WR 115 or high-level math and writing courses. The department should be contacted for advising.

Placement tests are available at the PCC testing centers to determine entry-level skills in math and writing.

Course of Study

This program is designed to help students develop the technical and management skills needed in Building Code Administration. The Building Inspections Technology Department should be contacted for program advising, program costs and employment opportunity information.

Consult a program advisor for information on PCC's policy on acceptance of courses taken at other colleges or high schools or the transferability of PCC courses to other institutions.

Students may transfer from Portland Community College to other colleges or universities to complete a bachelor's degree. Western Oregon University (WOU) will accept Building Inspection Technology course credits toward their bachelor's degree in Public Policy and Administration. Students interested in transferring credits should see a Building Inspection Technology program advisor.

General Education courses should provide the student with writing skills and computer literacy skills or be courses such as math and physics. Only courses graded "C" or better will be accepted for transfer. Program advising is highly recommended.

Note: General Education requirements and a list of courses approved to satisfy those requirements can be found in the Comprehensive Degree Requirements section of this catalog.

The following is a recommended course sequence for students starting fall term. Students may start at other times and terms and should see a program advisor for a revised schedule of courses.

Associate of Applied Science Degree - Building Code Administration

First Term

INSP 251	Uniform Building Code 1	3
MSD 101	Principles of Management & Supervision	3
MSD 117	Customer Relations	3
	General Education (and/or math & writing)	6 ³

Second Term

INSP 252	Uniform Building Code 2	3
CIS 120	Computer Concepts 1	4 ³
SP 111	Fundamentals of Speech	3 ⁴
MSD 105	Interpersonal Communication	3
MSD 115	Improving Work Relations	3

Third Term

INSP 201	Plans Exam-Commercial	3
INSP 253	Uniform Building Code 3	3
MSD 111	Corresponding Effectively at Work	3
MSD 121	Leadership Skill Development	3
BA 224	Human Resources Management	3

Fourth Term

INSP 151	International 1 & 2 Family Structural Code ⁴	
INSP 211	Building Department Administration 1	3
MSD 216	Budgeting for Managers	3
MSD 222	Human Resource Management: Personnel ³	
EC 216	Introduction to Labor Economics	3

Fifth Term

INSP 152	International 1 & 2 Family Mechanical Code 3	
INSP 212	Building Department Administration 2	3
INSP 280B	CE: Field Experience	2 ²
MSD 130	Creative Problem Solving	3
MSD 223	Human Resource Management: Performance & Compensation	3
WR 214	Business Communications II	3

Sixth Term

INSP 280B	CE: Field Experience	2 ²
MSD 200	Organizations & Social Responsibility	3
BA 285	Human Relations - Organizations	3
MSD 223	Statistics 1	4 ¹
	General Education	6 ³

¹ Prerequisite: MTH 95 and placement into WR 121.

² Cooperative Education is a variable credit course.

³ General Education of 18 credit hours is required for the degree. Two of the following four courses may count as General Education courses: CIS 120 (4 cr.); SP 111 (3 cr.); EC 216 (3 cr.); and/or MTH 243 (4 cr.). Credits from other colleges can be used for General Education credits.

⁴ Prerequisite: Current enrollment in or satisfactory completion of WR 121.

Building Inspection Certificates

◆ One year certificate - Structural Inspection - 51 credit hours

◆ One year certificate - Mechanical Inspection - 48 credit hours

◆ One year certificate - Plans Examiner - 57 credit hours

◆ One year certificate - 1 and 2 Family Dwelling Code combination: Structural, Mechanical & Plans Examiner - 51 credit hours

Career Description

These certificates prepare students for State Building Inspector's or Plans Examiner's certification tests, and for entry level employment as a building inspector or plans examiner. Check with the State Building Codes Agency or your advisor for specific requirements to meet eligibility requirements to take state certification exams.

Program Requirements

To enter, students must be prepared to take MTH 20 and WR 115 or higher- level math and writing courses. The department should be contacted for advising. Placement tests are available at testing centers to determine entry level skills in math and writing.

Course of Study

These certificates are intended mainly for evening students. Students may begin classes any term: fall, winter, spring, or summer. INSP 280B Cooperative Education (work experience) is available any term, but only during the day. Some courses may be offered days or weekends in addition to evenings.

One Year Structural Inspection Certificate

This certificate prepares students for B-level structural inspector or A-level if two or more years of commercial structural experience. The structural inspector is responsible for commercial building inspections.

First Term

ARCH 122	Structural Systems 2	4
ARCH 161	Blueprint Reading - Part 1	2
INSP 151	International 1 & 2 Family Structural Code	4
INSP 251	Uniform Building Code 1	3

Second Term

ARCH 162	Blueprint Reading - Part 2	2
INSP 152	International 1 & 2 Family Mechanical Code	3
INSP 252	Uniform Building Code 2	3
CG 209	Job Finding Skills	1
WR 121	English Composition	3

Third Term

INSP 253	Uniform Building Code 3	3
CIS 120	Computer Concepts 1	4
MSD 105	Interpersonal Communication	3
PSY 101	Psychology & Human Relations	3

Fourth Term

ARCH 123	Structural Systems 3	4
INSP 201	Plans Exam - Commerical	3
INSP 280A	CE: Field Examination	1
INSP 280B	CE: Field Experience	5

Note: Cooperative Work Experience totals 180 hours.

Note: MTH 60 or equivalent is a prerequisite for ARCH 122 and 123.

One Year Mechanical Inspection Certificate

This certificate prepares students for B-level mechanical inspector or A-level with two years of commercial mechanical experience. The mechanical inspector is responsible for commercial mechanical inspections.

First Term

ARCH 122	Structural Systems 2	4
INSP 151	International 1 & 2 Family Structural Code	4
INSP 255	International Mechanical Code 1	3
CG 209	Job Finding Skills	1

Second Term

INSP 152	International 1 & 2 Family Mechanical Code	3
INSP 256	International Mechanical Code 2	3
MSD 105	Interpersonal Communication	3
PSY 101	Psychology & Human Relations	3

Third Term

ARCH 161	Blueprint Reading - Part 1	2
INSP 257	International Mechanical Code 3	3
CIS 120	Computer Concepts 1	4
WR 121	English Composition	3

Fourth Term

ARCH 131	Environmental Control Systems	4
ARCH 162	Blueprint Reading - Part 2	2
INSP 280A	CE: Field Examination	1
INSP 280B	CE: Field Experience	5

Note: Cooperative Work Experience totals 180 hours.

Note: MTH 60 or equivalent is a prerequisite for ARCH 122 and 123.

One Year Plans Examiner Certificate

This certificate prepares students for B-level plans examiner or A-level with two years of commercial design experience. The plans examiner is responsible for the approval of commercial building plans.

First Term

ARCH 122	Structural Systems 2	4
INSP 251	Uniform Building Code 1	3
INSP 255	International Mechanical Code 1	3
MSD 105	Interpersonal Communication	3

Second Term

ARCH 162	Blueprint Reading - Part 2	2
INSP 252	Uniform Building Code 2	3

INSP 256	International Mechanical Code 2	3
CG 209	Job Finding Skills	1
PSY 101	Psychology & Human Relations	3

Third Term

ARCH 161	Blueprint Reading - Part 1	2
INSP 253	Uniform Building Code 3	3
INSP 257	International Mechanical Code 3	3
CIS 120	Computer Concepts 1	4
WR 121	English Composition	3

Fourth Term

ARCH 123	Structural Systems 3	4
ARCH 131	Environmental Control Systems	4
INSP 201	Plans Exam - Commercial	3
INSP 280A	CE: Field Examination	1
INSP 280B	CE: Field Experience	5

Note: Cooperative Work Experience totals 180 hours.

Note: MTH 60 or equivalent is a prerequisite for ARCH 122 and ARCH 123.

One Year One- and Two-Family Dwelling Code Combination Structural, Mechanical and Plans Examiner Certificate

This certificate prepares students for one- and- two-family dwelling code combination - residential structural inspector, residential mechanical inspector and residential plans examiner. Plans examiners are responsible for approving building plans, structural and mechanical inspectors for inspecting residential construction.

First Term

ARCH 122	Structural Systems 2	4
ARCH 161	Blueprint Reading - Part 1	2
INSP 151	International 1 & 2 Family Structural Code	4
MSD 105	Interpersonal Communication	3

Second Term

ARCH 162	Blueprint Reading - Part 2	2
INSP 152	International 1 & 2 Family Mechanical Code	3
CIS 120	Computer Concepts 1	4
PSY 101	Psychology & Human Relations	3

Third Term

INSP 280A	CE: Field Examination	1
INSP 280B	CE: Field Experience	9
CG 209	Job Finding Skills	1
WR 121	English Composition	3

Fourth Term

ARCH 123	Structural Systems 3	4
ARCH 131	Environmental Control System	4
INSP 202	Plans Exam - Residential	4

Note: Cooperative Education totals 300 hours.

Note: MTH 60 or equivalent is a prerequisite for ARCH 122 and 123.

Business Administration

Cascade Campus
Terrell Hall, 4th Floor
503-978-5352, 503-978-5232, 503-978-5501, or 503-978-5317
Rock Creek Campus
Building 2, Room 103A
503-614-7235 or 503-614-7447
Sylvania Campus
Social Science Building, Room 215, 503-977-4393

Business Administration Transfer Study

Portland Community College offers lower division baccalaureate study to allow students to transfer to a business baccalaureate degree program at a four-year college or university of the Oregon University System. The objective of this program of study is to satisfy all or most of the lower division requirements of the four-year institution and the school of business within that college or university.

Associate of Science Degree

This degree allows students to prepare for transfer and, at the same time, receive the Associate of Science degree in recognition of their community college course work. It allows more freedom in course selection than the Oregon Associate of Arts Transfer Degree, but does not guarantee that students will be accepted as having completed all lower division comprehensive and General Education requirements for a baccalaureate degree at the college or university to which they transfer.

In selecting courses, student should consult advisors at PCC and the institution to which they plan to transfer about the requirements of their baccalaureate major.

Requirements:

All candidates must meet the Comprehensive Requirements for the Associate of Applied Science, Associate of General Studies, and Associate of Science degrees as described in this catalog. In addition, all students must meet Basic Competencies in Writing and Mathematics, must complete a Health and P.E. requirement, and must meet Distribution Requirements in Arts and Humanities, Social Science, and Science/Mathematics as described in this catalog.

Elective Requirements:

Students wishing to prepare for transfer are encouraged to take the following courses:

A writing course other than WR 122 for which WR 121 is a recommended prerequisite;

Speech - SP 111;

Mathematics - MTH 243 and 244 (Statistics);

Economics - EC 200 or 203, EC 201, EC 202;

Business - BA 101 Introduction to Business;

Business - BA 205 Solving Communication Problems
with Technology;

Business - BA 211, 212, 213 Principles of Accounting

Business students should take a well-rounded program. During the first two years most coursework will be from the arts, humanities, social sciences and sciences. Once all other university lower division requirements are met, it is possible that two or three business courses could be included in addition to those listed above. These courses are listed and described in the "Business Administration" section of the Course Descriptions in this catalog.

Students should see a Business advisor/counselor for guidance regarding specific courses and prerequisites.

The Associate in Arts Oregon Transfer degree (AAOT) and Business Students:

For students planning to transfer to one of the Oregon public universities, the AAOT will insure that lower division Comprehensive and General Education requirements are met. Students wishing to earn a baccalaureate degree with a major or minor in Business Administration can incorporate certain of the above-mentioned business courses into their AAOT educational plan to fulfill all or part of the requirements for admittance to the professional school of business at the university they plan to attend. Please refer to the AAOT worksheet in this catalog for an outline of requirements; students planning to transfer in Business are encouraged to select the following:

ARTS and LETTERS Distribution Area: SP 111

SOCIAL SCIENCE Distribution Area: EC 200, 201, 203 (3-course sequence)

SCIENCE and MATH Distribution Area: MTH 243, 244

Electives: BA 101, 205, 211, 212, 213

Students planning for transfer should contact an advisor for the requirements of the college or university they plan to attend.

Business Administration Programs

Associate degree programs may be completed in approximately six terms, assuming the student is enrolled on a full-time basis. These programs are described on the following pages. Career certificate programs of one-year or less are also offered through the Business Administration Department. They are described as well.

Business Administration Degrees, Certificates and Awards

Business Administration Two-year Career Degrees

- ◆ Associate of Applied Science in Accounting
- ◆ Associate of Applied Science in Management
- ◆ Associate of Applied Science in Marketing

Students must meet college graduation requirements including General Education, math and English competencies.

Career One-year Certificates

- ◆ Accounting Clerk
- ◆ Accelerated Computerized Accounting
- ◆ Marketing

Program Award

- ◆ International Business

Areas of Concentration (no certificate or degree awarded)

- ◆ Income Tax Preparation and License Renewal
- ◆ Purchasing

Career Programs

Three Associate of Applied Science degrees in business administration are offered. They are: accounting, management and marketing. These two-year degrees emphasize skills to be used on the job upon completion of the degree requirements and are not designed for students intending to transfer to four-year schools. If transferability of courses is a concern, students should consult with the institution of their choice regarding transfer possibilities.

All courses and programs of study in business require a minimum of college entry-level competency in English and in computational skills. Additional skill requirements are specified through the listing of prerequisites. Students with questions about this entry-level readiness should arrange for evaluations of their skill levels through the PCC counseling department. ASSET testing designed to assist students in selecting appropriate writing and mathematics courses may be required prior to registration. Additional testing may be required for selected business courses. Due to the rapid changes in employment opportunities, technological advances and certifying agency regulations, business programs are subject to change.

Students must meet PCC's writing and math competencies prior to graduation. See Comprehensive Degree Requirements in this catalog.

Accounting

◆ Associate of Applied Science degree - 92-94 credit hours; includes 77-78 credit hours of required courses, three or four credit hours of business electives and 18 credit hours of General Education. Consult a program advisor for assistance in planning General Education courses. MTH 65 is required for graduation. A math competency exam is available. Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

The Associate of Applied Science Accounting Program prepares students for entry into the accounting field as bookkeepers, accounting clerks or accounting assistants who perform routine calculations, posting and typing duties, check items on reports, summarize and post data in designated books and perform a variety of other duties such as preparing invoices or monthly statements, preparing payrolls, verifying bank accounts, keeping record files and making periodic reports of business activities.

Program Requirements

College entry-level competencies in English and in computational skills. Additional skill requirements for individual business courses are listed in the course description section of this catalog.

Course of Study

The two-year Associate of Applied Science degree program includes accounting and specialty courses in addition to general business and General Education courses.

First Term

MTH 30	Business Mathematics	4 ⁷
BA 95	Introduction to Accounting	3 ⁴
OS 131	10-key on Calculators	1
WR 121	English Composition	3
CAS 170	Beginning Excel: WIN	3

Second Term

BA 211	Principles of Accounting I	3 ³
EC 200	Principles of Economics: Intro, Institutions & Philosophies	3 ¹
BA 101	Introduction to Business	4
CAS 210	Beginning WordPerfect: WIN or	3 ³
CAS 216	Beginning Word: WIN	3
BA 131	Computers in Business	4

Third Term

BA 206	Management Fundamentals	3 ³
BA 212	Principles of Accounting II	3 ³
EC 202	Principles of Economics: Macroeconomics	3 ¹
BA 205	Solving Communication Problems with Technology	4
	General Education	3

Fourth Term

BA 226	Business Law I	3
BA 213	Principles of Accounting III	3 ³
BA 228	Computer Accounting Applications	3 ³
EC 201	Principles of Economics: Microeconomics	3 ¹
	General Education	3

Fifth Term

BA 215	Basic Cost Accounting	3 ³
BA 256	Income Tax	3
BA 285	Human Relations-Organizations	3 ³
	General Education	3

Choose one of the following:

BA 210	Advanced Accounting Spreadsheet Application	3 ³
	or	
BA 280A	CE: Business Experience and	3 ³
BA 280B	CE: Business Experience - Seminar	1 ³
	or	
BA 177	Payroll Accounting	3 ³
	or	
BA 216	Accounting Problems	3

Sixth Term

BA 222	Financial Management	3 ³
BA 240	Governmental Accounting	3 ³
PHL 202	Introduction to Philosophy: Elementary Ethics	3 ⁵
	or	
PHL 209	Business Ethics	3 ⁵
	Business Elective	3-4 ²
	General Education	3

¹May choose EC 201, 202, 203 sequence in lieu of EC 200, 201, 202. For the program a maximum of two courses may count toward 18 credits of General Education.

²Choose from list of approved business electives for Business Administration programs.

³Prerequisites for business courses are listed in the course description section.

⁴Students who have completed high school bookkeeping or have had work experience with full-cycle bookkeeping responsibilities should substitute an approved business elective and start the accounting series with BA 211 in the second term. Approved business electives follow at the end of the Business Administration section.

⁵For the program a maximum of two courses may count toward 18 credits of General Education.

⁶May substitute any three-credit spreadsheet course with a CAS prefix.

⁷May substitute MTH 111B for MTH 30.

Note: Scheduling requirements may prevent all courses from being offered every term. Consultation with an advisor is critical to student's selection of courses.

Accounting Clerk Certificate Program

◆One-year Certificate - 47 credit hours as outlined in the required courses.

Career Description

This program prepares students for entry-level positions in bookkeeping. Entry-level bookkeepers perform routine tasks such as bank reconciliations, journalizing, posting, worksheets, accounts payable, accounts receivable and payroll, plus clerical duties such as typing and filing.

Program Prerequisites

College entry-level competencies in English and in computational skills. Additional skill requirements for individual business courses are listed in the Course Description section of this catalog.

Course of Study

This program and individual courses are available at several PCC locations. Please call a campus or center for further information. The program emphasizes bookkeeping and accounting specialty courses plus keyboarding, in addition to general business microcomputer applications courses.

First Term

BA 101	Introduction to Business	4
MTH 30	Business Mathematics	4 ⁴
BA 95	Introduction to Accounting	3 ²
CAS 121	Beginning Keyboarding	3 ³
WR 121	English Composition	3

Second Term

BA 211	Principles of Accounting I	3 ¹
BA 226	Business Law I	3
OS 131	10-key on Calculators	1
BA 205	Solving Communication Problems w/Technology	4

Choose three credits from the following list of CAS courses:*

CAS 210	Beginning WordPerfect: WIN	3
CAS 216	Beginning Word: WIN	3
CAS 170	Beginning Excel: WIN	3

*Other software may substitute. Consult the Business Administration Department for further information.

Third Term

BA 131	Computers in Business	4
BA 228	Computer Accounting Applications	3 ¹
BA 177	Payroll Accounting	3 ¹
BA 285	Human Relations-Organizations	3
EC 200	Principles of Economics: Intro, Institutions & Philosophies	3

¹Prerequisites for business courses are listed in the course description section.

²Students who have completed high school bookkeeping or have had work experience with full-cycle bookkeeping responsibilities should substitute an approved business elective and start the accounting series BA 211 in the second term.

³Students who can touch type should substitute an approved business elective.

⁴May substitute MTH 111B for MTH 30.

Note: Scheduling requirements may prevent all courses from being offered every term. Consultation with an advisor is critical to student's selection of courses.

Accelerated Computerized Accounting Certificate**Career Description**

This program prepares students for entry-level positions such as accounts receivable and payable clerks for service, merchandising, manufacturing and professional offices (medical and legal).

Course of Study

This program and individual courses are available at several PCC locations. The program emphasizes learning accounting skills in conjunction with computer skills.

Program Requirement

ASSET basic skills placement test.

Two Term Certificate, 30 credit hours
First Term

BA 96	Accelerated Computerized Accounting I	6
MTH 30	Business Mathematics	4 ¹
OS 131	10-Key on Calculators	1
CAS 121	Beginning Keyboarding	3 ²
	or	
CAS 210	Beginning WordPerfect: WIN	3
	or	
CAS 216	Beginning Word: WIN	3

Second Term

BA 97	Accelerated Computerized Accounting II	6
BA 177	Payroll Accounting	3
WR 90	Writing 90	3
CAS 170	Beginning Excel: WIN	3
CG 209	Job Finding Skills	1

¹ May substitute MTH 111B for MTH 30

² Students who can touch type should substitute an approved business elective.

Management

◆ Associate of Applied Science degree - 95 credit hours; includes 77 credit hours of required courses and 18 credit hours of General Education. Consult a program advisor for assistance in planning General Education classes. MTH 65 is required for graduation. A math competency exam is available. Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

A management graduate enters business as a supervisory trainee who will coordinate activities and direct personnel to attain operational goals. Management supervisors assign duties to workers and establish work schedules. They may also evaluate performance and may recommend hiring, promotions and dismissals.

Program Requirements

College entry-level competencies in English and in computational skills. Additional skill requirements for individual business courses are listed in the Course Description section of this catalog.

Course of Study

This program and individual courses are available at several PCC locations. Please call a campus or center for further information. The emphasis of the Management Program is on management principles, marketing, accounting, office management and small business management.

First Term

BA 101	Introduction to Business	4
MTH 30	Business Mathematics	4 ⁵
BA 95	Introduction to Accounting	3
CAS 121	Beginning Keyboarding	3 ³
WR 121	English Composition	3

Second Term

BA 206	Management Fundamentals	3 ¹
BA 211	Principles of Accounting I	3 ¹
BA 238	Sales	3
OS 131	10-key on Calculators	1
BA 131	Computers in Business	4

Third Term

BA 203	Introduction to International Business	3 ¹
BA 212	Principles of Accounting II	3 ¹
BA 226	Business Law I	3
BA 244	Introduction to Records Management	3
BA 250	Small Business Management	3 ¹

Fourth Term

BA 223	Principles of Marketing	3
EC 200	Principles of Economics:	
	Intro, Institutions & Philosophies	3 ⁴
	General Education	6

Choose one 3-credit course from the following:*

CAS 210	Beginning WordPerfect: WIN	3
CAS 216	Beginning Word: WIN	3
CAS 170	Beginning Excel: WIN	3

*Other software may substitute. Consult the Business Administration Department for further information.

Fifth Term

BA 205	Solving Communication Problems with Technology	4
BA 113	Business Credit Principles	3
BA 213	Principles of Accounting III	3
BA 224	Human Resource Management	3
	General Education	3

Sixth Term

BA 228	Computer Accounting Applications	3
BA 222	Financial Management	3
BA 251	Office Management	3
BA 285	Human Relations-Organizations	3
	General Education	6

¹Prerequisites for business courses are listed in the course description section.

Students who have completed high school bookkeeping or have had work experience with full-cycle bookkeeping responsibilities should substitute an approved business elective and start the accounting series with BA 211 in the second term. Approved business electives follow at the end of the Business Administration section. ³Students who can touch type should substitute an approved business elective.

⁴This course may count toward 18 credits of General Education.

⁵May substitute MTH 111B for MTH 30.

Note: Scheduling requirements may prevent all courses from being offered every term. Consultation with advisor is critical to the student's selection of courses.

Marketing

◆ Associate of Applied Science degree - 93-94 credit hours; includes 72 credit hours of required courses; 18 credit hours of General Education which includes 6 credit hours of required courses; 9-10 credit hours of electives. (Some restrictions apply: see footnote four at end of sixth term listing). Consult a program advisor for assistance in planning General Education classes. MTH 65 is required for graduation. A math competency exam is available. Students must meet college graduation requirements including General Education, math and English competencies.

◆ One-year Certificate - 44 credit hours; includes 41 credit hours of required courses and three credit hours of approved business electives.

Career Description

Marketing is a major function of business, with widely diverse job opportunities in the world of commerce, industry and merchandising. Marketing workers typically are employed in advertising, direct sales, physical distribution, purchasing, retailing, manufacturing and other commercial and industrial firms.

Program Requirements

College entry-level competencies in English and in computational skills. Additional requirements for individual business courses are listed in the Course Description section of this catalog.

Course of Study

This program and individual courses are available at several PCC locations. The program emphasis is on a diverse cross section of marketing courses. This foundation will enable students to successfully compete in the dynamic marketing environments of commerce, industry and retailing. Practical experience is provided through outside cooperative education jobs. Graduates of this program are prepared to enter marketing management training programs.

Note: While courses listed below are required, the following is merely a suggested sequence for completing the degree. Course offerings will vary for each campus. See a marketing faculty advisor for assistance in planning a schedule.

First Term

BA 101	Introduction to Business	4
CAS 121A	Beginning Keyboarding	1 ³
MTH 30	Business Mathematics	4 ⁶
WR 121	English Composition	3
	General Education	3

Second Term

BA 95	Introduction to Accounting	3 ²
BA 226	Business Law I	3
BA 285	Human Relations-Organizations	3
BA 131	Computers in Business	4
BA 223	Principles of Marketing	3

Third Term

BA 211	Principles of Accounting I	3 ¹
BA 205	Solving Communication Problems with Technology	4
EC 200	Principles of Economics: Intro, Institutions & Philosophies	3 ⁵
SP 111	Fundamentals of Speech General Education	3 ⁵ 3

Fourth Term

BA 238	Sales	3
BA 203	Introduction to International Business	3
BA 250	Small Business Management	3 ¹
CAS 210	Beginning WordPerfect: WIN	3
	or	
CAS 216	Beginning Word: WIN Business Elective	3 ⁴ 3 ⁴

Fifth Term

BA 239	Advertising	3
BA 113	Business Credit Principles	3
BA 234	International Marketing	3 ¹
BA 280A	CE: Business Experience	3 ¹
BA 280B	CE: Business Experience - Seminar Business Elective	1 ¹ 3-4 ⁴

Sixth Term

BA 249	Principles of Retailing & E-tailing	3
BA 280A	CE: Business Experience Business Elective	3 3 ⁴
	General Education	6

¹ Prerequisites for business courses are listed in the Course Description section.

²Students who have completed high school bookkeeping or have had work experience with full-cycle bookkeeping responsibilities should substitute an approved business elective and start the accounting series with BA 211 in the third term. Approved business electives are listed at the end of the Business Administration section.

³ Students who can touch type should substitute an approved business elective.

⁴ Students working toward the Marketing degree program must complete nine hours of Business electives selected from list of "Approved Business Electives for Business Administration Programs", which appears at the end of the program descriptions in this section.

⁵These courses may count toward 18 credits of General Education.

⁶May substitute MTH 111B for MTH 30.

Note: Scheduling requirements may prevent all courses from being offered every term. Consultation with advisor is critical to student's selection of courses.

Marketing Certificate Program

◆ One-year Certificate - 44 credit hours; includes 41 credit hours of required courses and three or four credit hours of approved business electives.

Career Description

Persons completing this program are prepared to enter the marketing field at entry-level positions with firms in commerce, industry and merchandising.

Program Requirements

College entry-level competencies in English and in computational skills. Additional skill requirement for individual business courses are listed in the Course Description section of this catalog.

Course of Study

This program and individual courses are available at several PCC locations. The emphasis on this program is to provide a basic understanding of the marketing environment of commerce and industry to develop a career in the field.

Note: While all courses below are required to complete the certificate, course offerings will vary for each campus. See a marketing faculty advisor for assistance in planning a schedule.

BA 95	Introduction to Accounting	3 ¹
BA 101	Introduction to Business	4
BA 131	Computers in Business	4
BA 223	Principles of Marketing	3
BA 238	Sales	3
BA 239	Advertising	3
BA 249	Principles of Retailing & E-tailing	3
BA 280A	CE: Business Experience	3
BA 280B	CE: Business Experience - Seminar	1 ¹
BA 285	Human Relations-Organizations	3
CAS 121A	Beginning Keyboarding	1 ⁵
CAS 210	Beginning WordPerfect: WIN	3 ¹
	or	
CAS 216	Beginning Word: WIN	3 ¹
MTH 30	Business Mathematics	4 ⁴
WR 121	English Composition	3
	Business Elective	3-4 ³

¹Prerequisites for business courses are listed in the Course Description section of this catalog.

²Students who have completed high school bookkeeping or have had work experience with full-cycle bookkeeping responsibilities should substitute an approved business elective.

³Approved business electives are listed at the end of the Business Administrative Program description.

⁴May substitute MTH 111B for MTH 30.

⁵Students who can touch type should substitute an approved business elective.

Note: Scheduling requirements may prevent all courses from being offered every term. Consultation with an advisor is critical to student's selection of courses.

International Business

◆ Program Award: 30-31 credit hours; includes 15 credit hours of required courses and 15-16 credit hours of restricted electives.

Career Description

The Business Administration Department confers a program award in International Business. This is not a career certificate but a program designed to enhance cultural awareness and expose the student to the international business environment in general. Students will be introduced to international law, international marketing, importing and exporting, global economics and the managerial implications of operating in a foreign environment. Courses may be offered at various locations.

Note: This program award will be issued by the Sylvania Business Division to students who begin the program Fall 1996 or later and who meet the requirements. Students should contact the Sylvania Business Division in their last term to apply for the award.

Program Requirement

ASSET basic skills placement test administered through assessment centers.

Required courses

BA 203	Introduction to International Business	3
BA 141	Introduction to International Business Law	3 ¹
BA 237	Fundamentals of Import/Export	3 ¹
BA 234	International Marketing	3 ¹
EC 230	Contemporary World Economic Issues:	
	International Economics	3
	or	
PS 205	Global Politics: Conflict & Cooperation	3
	Restricted Electives	15-16 ^{1,2}
	(see below)	

¹Prerequisites for business courses are listed in the Course Description section of this catalog.

²Restricted electives.

(See course descriptions in this catalog)

Restricted Electives (Choose 15-16 credits)

BA 101	Introduction to Business	4
BA 131	Computers in Business	4
BA 205	Solving Communication Problems	
	with Technology	4
BA 206	Management Fundamentals	3
BA 211	Principles of Accounting I	3
BA 212	Principles of Accounting II	3
BA 213	Principles of Accounting III	3
BA 222	Financial Management	3
BA 223	Principles of Marketing	3
BA 224	Human Resource Management	3
BA 226	Business Law I	3
BA 227	Business Law II	3
BA 238	Sales	3

BA 280A	CE: Business Experience	3
BA 280B	CE: Business Experience - Seminar	1
BA 285	Human Relations-Organizations	3
CAS 133	Basic Computer Skills/Microsoft Office	3
ATH 207	Cultural Anthropology: Culture Concepts	3
ATH 208	Cultural Anthropology: Cultures of the World	3
ATH 209	Cultural Anthropology: Cultural Growth & Change	3
GEO 105	Introduction to Human Cultural Geography	3
GEO 106	Introduction to Human Cultural Geography	3
GEO 107	Introduction to Human Cultural Geography	3
HST 103	Western Civilization: 1799 to the Present	3
HST 104	History of Eastern Civilization: Middle East	3
HST 105	History of Eastern Civilization: India and Subcontinent	3
HST 106	History of Eastern Civilization: Far East	3
HST 278	Russian History I	3
HUM 125	International Education	3
PHL 202	Introduction to Philosophy: Elementary Ethics	3
PS 220	U.S. Foreign Policy	3
WR 121	English Composition	3

Any modern language including English as a Non-native Language (limited to 9 credit hours)

Areas of Concentration

The Business Administration Program offers courses in income tax preparation and license renewal and purchasing for students who want to develop skills in these areas or who wish to upgrade existing skills. These areas of concentration do not offer a degree or certificate. Special care is needed to schedule courses in required sequence. Courses may be offered only once a year.

Income Tax

Area of Concentration

All preparers of individual income tax returns who charge a fee for their services are required by Oregon law to complete 80 clock hours of basic income tax instruction before taking the state licensing exam. All preparers must be at least 18 years of age and be a high school graduate or GED recipient. A minimum of 20 clock hours must be completed each year following the applicant's initial licensing in order to renew the license. This renewal program consists of advanced study of income tax law, theory and practice. Two courses are offered to provide interested individuals with an opportunity for meeting Oregon statutory education requirements:

BA 9703	Income Tax Preparation: Basic	8
BA 9706	Income Tax Preparation: Advanced	3

Purchasing

Area of Concentration

In any business organization, equipment, materials and supplies must be purchased. The purchasing function is very similar in all organizations. A purchasing agent is the individual generally responsible for securing new materials, services and goods as needed. Two courses are currently offered for either introduction to this business activity or upgrading of skills.

BA 160	Purchasing I	3
BA 161	Purchasing II	3

Approved Business Electives for Business Administration Programs

These business electives apply to all business administration degrees and certificates that have electives identified in the curriculum. Contact the business division at any PCC location for further information. Prerequisites for business courses are listed in the Course Description section of this catalog.

BA 113	Business Credit Principles	3
BA 131	Computers in Business	4
BA 141	Introduction to International Business Law	3
BA 160	Purchasing I	3
BA 161	Purchasing II	3
BA 177	Payroll Accounting	3
BA 203	Introduction to International Business	3
BA 205	Solving Communication Problems with Technology	4
BA 206	Management Fundamentals	3
BA 207	Introduction to E-Commerce	4
BA 210	Advanced Accounting Spreadsheet Application	3
BA 211	Principles of Accounting I	3
BA 212	Principles of Accounting II	3
BA 213	Principles of Accounting III	3
BA 215	Basic Cost Accounting	3
BA 216	Accounting Problems	3
BA 218	Personal Finance	3
BA 222	Financial Management	3
BA 223	Principles of Marketing	3
BA 224	Human Resource Management	3
BA 226	Business Law I	3
BA 227	Business Law II	3
BA 228	Computer Accounting Applications	3
BA 234	International Marketing	3
BA 237	Fundamentals of Import/Export	3
BA 238	Sales	3
BA 239	Advertising	3
BA 240	Governmental Accounting	3
BA 242	Introduction to Investments	3
BA 244	Introduction to Records Management	3
BA 249	Principles of Retailing and E-tailing	3

BA 250	Small Business Management	3
BA 251	Office Management	3
BA 256	Income Tax	3
BA 280A	CE: Business Experience variable credit	
BA 280B	CE: Business Experience -Seminar	1
BA 285	Human Relations-Organizations	3
BA 9235	Financial Statement Analysis I	3
BA 9236	Credit Management Case Studies	3
BA 9703	Income Tax Preparation: Basic	8
BA 9706	Income Tax Preparation: Advanced	3
CAS 105	Hard Disk Management: DOS	1
CAS 109	Beginning PowerPoint: WIN	1
CAS 122	Keyboarding for Speed and Accuracy	3
CAS 123	Production Keyboarding	3
CAS 133	Basic Computer Skills/Microsoft Office	3
CAS 170	Beginning Excel: WIN	3
CAS 170A	Beginning Excel: WIN	1
CAS 171	Intermediate Excel: WIN	3
CAS 210	Beginning WordPerfect: WIN	3
CAS 210A	Beginning WordPerfect: WIN	1
CAS 211	Intermediate WordPerfect: WIN	3
CAS 216	Beginning Word: WIN	3
CAS 216A	Beginning Word: WIN	1
CAS 230	Pagemaker: WIN	3
CAS 246	Integrated Computer Projects	4
OS 131	10-Key on Calculators	1
OS 240	Filing	3
WR 214	Business Communications II	3

Chemistry

Description

Work in the physical sciences is an important part of many college programs. Courses at PCC comprise four areas of study: chemistry, geology, general science and physics, and are organized to present basic principles and to provide a coordinated overview of the sciences as they relate to contemporary life.

Prerequisites

See the Course Description (CH prefix) section of this catalog for individual Chemistry courses and course prerequisites.

Chicano/Latino Studies

Description

Chicano/Latino Studies is the interdisciplinary study of the social, cultural, political, economic, and historical forces that shaped and continue to shape the development of the people of Mexico and other Latin American countries in the United States over the past 300 years. Emphasis is on the experience of the Chicano/Mexican-American and other Latinos as residents and citizens in the United States and not in their countries of origin or descent.

The Chicano/Latino experience pre-dates the mid-19th century. Chicanos and other Latinos living in the United States developed a rich and extensive literature, and became involved in and made major contributions to all aspects of American life.

PCC courses in this area of study are designed to transfer with full credit to the Chicano/Latino Studies Certificate program at Portland State University. They will transfer to most other colleges and universities as elective credit. Students planning to transfer to a college or university other than Portland State University should see a counselor for additional information and guidance.

Prerequisites

See the Course Description (CHLA prefix) section of this catalog for individual courses and course prerequisites.

Civil Engineering Technology

Sylvania Campus
Science Technology Building, Room 208
503-977-4163
engineering@pcc.edu

◆ Associate of Applied Science degree - All courses shown in the six-term program. Students must meet college graduation requirements including General Education, math and English competencies.

◆ One-year Certificate - All courses including communications and General Education courses shown in the first four terms.

Career Description

Civil engineering technicians work as part of a team involved in the planning, design, construction and management of environmental protection, transportation and public works facilities. They work for consulting engineering firms, government agencies and construction organizations.

Program Requirements

All students must have an advising interview with a Civil Engineering Technology (CET) faculty advisor. Students must place in WR 115 and have completed MTH 60 or equivalent. High school courses in chemistry and physics are helpful, but not required. Skill in keyboarding is highly recommended. A specific calculator is required.

For students not meeting these requirements, advising is available to assist in preparing for entrance into the program and to earn credits which will apply toward the certificate or degree once accepted into the program.

Evening Course Offerings

The Civil/Mechanical Engineering Technology Program offers some evening classes. For details regarding course offerings, schedules of classes, four-year degree potential, and employment options, make an appointment with a CMET faculty advisor.

Application and Acceptance**Full-time students**

CET is a limited enrollment program for students seeking a certificate or degree. Qualified applicants are accepted in the order in which the application process is completed. Program starts in fall and winter terms. See a program advisor for other term starts.

Job-upgrade students

Students must meet individual course prerequisites and complete an advising interview with a CET faculty advisor prior to enrollment. Admission is granted on a space-available basis after the needs of the full-time students have been met.

Continuing Education

Students of this program may transfer to various out-of-state institutions to pursue a Bachelor of Science degree in Civil or Construction Engineering Technology. Faculty advisors will provide assistance in the selection of additional course work appropriate to each student's goals.

First Term

CMET 110 Statics	4
CMET 111 Engineering Technology Orientation	4
CMET 112 Technical Algebra/Trigonometry	4
CMET 113 Engineering Technology Graphics	3

Second Term

CMET 121 Strength of Materials	4
CMET 122 Technical Engineering Physics	4
CMET 123 Technical Algebra with Analytic Geometry	4
CH 100 Fundamentals for Chemistry	4 ¹
General Education	3 ^{1,2}

Third Term

CMET 131 Applied Calculus	8
CMET 223 Project Management	3
CMET 224 Computer Aided Design II	2
WR 121 English Composition	3 ²

Fourth Term

CMET 132 Plane Surveying	3
CMET 133 Materials Technology	3
CMET 211 Environmental Engineering Technology I	4
CMET 213 Fluid Mechanics	3
General Education	3 ¹

Fifth Term

CMET 228 Construction Materials	3
CMET 212 Thermodynamics I	4
CMET 221 Environmental Engineering Technology II	4
SP 100/111 Speech Communication	3
General Education	3 ¹

Sixth Term

CMET 214 Route Surveying	3
CMET 222 Thermodynamics II	4
CMET 236 Structural Design	3
CMET 233 Computer Aided Design III	2
General Education	3 ¹

CMET 280A, Cooperative Education, can be arranged in any term after completing Term 3.

¹General Education: 18 credits are required for the AAS degree. Each of the three areas below must be covered and suggested courses are listed below. A maximum of nine credits are allowed in an area. (AAS) indicates courses required for the AAS degree.

Arts and Humanities

SP 100, Introduction to Speech Communication (AAS) **or**
SP 111, Fundamentals of Speech (AAS)

(Taking two 4-credit General Education courses will reduce the number of General Education courses shown by one.)

Social Science

EC 200 or 201 or 202, Principles of Economics
PSY 201, General Psychology

Mathematics, Natural and Physical Sciences and Computer Studies

CH 100, Fundamentals of Chemistry (AAS)
CIS 120, Computer Concepts I
MTH 243 and MTH 244, Statistics I and II
PHY 202, 203, General Physics
G 201, 202, Physical Geology

Confirm that your selections are on PCC's General Education course list.

²Communications: WR 121 is a basic competency requirement, but is not on PCC's General Education course list. (WR 115 is a prerequisite for WR 121).

WR 227, Technical Writing I, is highly recommended to all students. WR 122 or WR 214 must be taken before taking WR 227.

Forms of Recognition

Certificate: For completions of terms 1 through 4

Associate of Applied Science Degree: For completion of terms 1 through 6

Computer Applications and Office Systems

Cascade Campus	Southeast Center
Terrell Hall, 4th Floor	Room 130
503-978-5317	503-788-6200
Rock Creek Campus	Sylvania Campus
Building 3, Room 201	Social Science Building, Room 215
503-614-7447	503-977-4393

Portland Community College offers two associate degrees and two certificates of study within the Computer Applications and Office Systems department. Associate degree programs may be completed in approximately two years and the certificate program may be completed in one year, assuming the student is enrolled on a full-time basis.

Two-year Career degrees

- ◆ Associate of Applied Science in Administrative Assistant
- ◆ Associate of Applied Science in Administrative Assistant (Office Management Emphasis)

Students must meet college graduation requirements including General Education, math and English competencies.

Career Certificates

- ◆ Computer Applications and Office Systems
- ◆ Web Site Development

Marketable Skills Awards

Marketable Skills Awards are also available for those students who may not be able to complete the certificate or degree programs. These awards are designed to be obtainable in as short as one term for the beginning levels, or several terms for advanced levels. For more information contact a CAS/OS instructor.

- ◆ Beginning Word Processor
- ◆ Beginning Computer Literacy
- ◆ Computer Literacy Specialist
- ◆ Computer Applications Specialist
- ◆ Word Processing Specialist
- ◆ Spreadsheet Specialist
- ◆ Advanced Computer Literacy Specialist
- ◆ Advanced Computer Applications Specialist
- ◆ Web Page Specialist
- ◆ Office Systems Specialist

Associate of Applied Science Degree Programs

The Associate of Applied Science degrees in Computer Applications and Office Systems are Administrative Assistant, Administrative Assistant-Office Management emphasis and Legal Secretary. These applied science degrees emphasize skills to be used on the job upon completion of the degree requirements.

Forms of Recognition

Students completing the Computer Applications and Office Systems Certificate will have also completed the first year's work toward the Administrative Assistant and Administrative Assistant-Office Management associate degrees.

All courses and programs of study in CAS/OS require placement in WR 115 and MTH 20 and keyboarding by touch or CAS 121. Additional skill requirements are specified in course descriptions. Students with questions about this entry-level readiness should arrange for evaluations of their skill levels through the PCC Counseling Department. Placement examinations to assist students in selecting appropriate writing and mathematics courses are required prior to registration. Students must meet PCC's writing and math competencies prior to graduation. See academic requirements in this catalog.

Due to the rapid changes in employment opportunities, technological advances and certifying agency regulations, these programs are subject to change.

Computer Applications and Office Systems (CAS and OS)

◆ **CAS and OS Certificate** - 50–53 credit hours as outlined.

Career Description

The Computer Applications and Office Systems Certificate is intended to meet business career needs for entry-level administrative assistants, secretaries, receptionists, file clerks and data entry personnel. Workers in these positions may perform a wide variety of duties such as working with modern office technology to produce and file business documents, greeting the public, planning and scheduling, accounting and creating web pages.

Program Requirements

Placement in WR 115, MTH 20 and keyboarding by touch or CAS 121. Additional skill requirements are recommended for some Business Administration and Computer Application and Office System courses as listed in the Course Description section of this catalog.

Course of Study

Programs are located at Cascade, Rock Creek and Sylvania campuses. The program emphasis is on use of computers, document preparation and editing, filing, use of the Internet and use of current technology.

These courses are not listed in the order in which they should be completed. It is critical that you see a CAS/OS instructor or pick up a "Recommended Course Sequence" handout to use when planning your schedule. Recommended course sequence will differ from campus to campus.

Required Courses

CAS 123	Production Keyboarding*	3
CAS 246	Integrated Computer Projects*	4
OS 120	Business Editing Skills*	4
OS 131	10-Key on Calculators	1
OS 240	Filing	3
OS 245	Office Systems and Procedures*	4
BA 95	Introduction to Accounting	3
	or	

BA 96	Accelerated Computer Accounting I	6
BA 285	Human Relations-Organizations	3
BA 205	Solving Communication Prob w/Tech*	4
WR 121	English Composition	3
	General Education	3

Restricted Electives

(Select courses from this section to total 15 credits)

CAS 103	Introduction to Windows	1
CAS 104	Basic Internet Skills	1
CAS 109	Beginning PowerPoint	1
CAS 111D	Beginning Web Site Creation	3
CAS 111F	Beginning Web Site	1
CAS 122	Keyboarding for Speed and Accuracy*	3
CAS 133	Basic Computer Skills/Microsoft Office	3
CAS 140	Beginning Access	3
CAS 170	Beginning Spreadsheet	3
CAS 171	Intermediate Spreadsheet*	3
CAS 210 or 216	Beginning Word Processing	3
CAS 211 or 217	Intermediate Word Processing*	3
CAS 230	PageMaker	3

*See course descriptions for requirements for this course.

Web Site Development Certificate

◆One-year Certificate - 45-51 credit hours as outlined.

Career Description

A web site development certificate is intended to meet business career needs for entry level positions such as Web Site Developer, HTML Programmer, Web Designer, Web Producer, and Web Technologist. Specialists in these positions will be able to produce professional web sites. They will be able to communicate effectively, use key development tools, bring a business perspective to site development, and identify key design and interface issues.

Program Requirements

Students must be competent with basic composition and math skills, word processing, spreadsheet, and basic formatting skills for common office documents. Basic browser navigation, searching the web, and file management skills are also essential to be successful in this program. Recommended classes to obtain these skills: WR 121, MTH 20, BA 101, CAS 104, CAS 133, CAS 170, CAS 216, OS 120.

Course of Study

Programs are located at Cascade, Rock Creek, and Sylvania campuses. The program is targeted to students and working professionals who wish to specialize in web site creation and maintenance.

These courses are not listed in the order in which they should be completed. It is critical that you see a CAS/OS instructor or pick up a "Recommended Course Sequence" handout to use when planning your schedule. Recommended course sequences will differ from campus to campus.

Required Courses (25-28 credits)

CAS 110	Introduction to Web Graphics	1
CAS 111D	Beginning Web Site Creation	3
CAS 112	Intermediate Web Site Creation	3
CAS 246	Integrated Computer Projects	4
BA 205	Solving Communication Problems with Technology	4
BA 207	Introduction to E-Commerce	3
OS 280F	Co-op Work Experience	1-4
MM 120	Multimedia Design	2
CIS 178	Introduction to the Internet	4

Restricted Electives (14-17 credits)

CAS 111F	Beginning Web Site Creation	1
CAS 113	Enhancing Web Pages with Javascript	3
CAS 175	Introduction to Flash	3
MM 130	Multimedia Graphics Video & Audio Production	3
MM 140	Multimedia Authoring I	3
MM 230	Graphics for Multimedia	4
MM 231	Vector Graphics & Animation for the World Wide Web	3

BA Electives (choose two)

BA 95	Introduction to Accounting	3
BA 203	Introduction to International Business	3
BA 223	Principles of Marketing	3
BA 234	International Marketing	3
BA 239	Advertising	3
BA 249	Principles of Retailing and E-tailing	3

Administrative Assistant

◆Associate of Applied Science degree - 97 credit hours includes 79 credit hours of required courses and 18 credit hours of General Education. Consulting a CAS/OS instructor for assistance is critical in planning your classes. Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

An administrative assistant possesses advanced knowledge of popular software applications, excellent communications and interpersonal skills. An administrative assistant is prepared to make decisions, set priorities and establish work flow.

Program Requirement

Complete the CAS/OS Certificate.

Course of Study

The program emphasis is on communications, business software and emerging technologies.

These courses are not listed in the order in which they should be completed. It is critical that you see a CAS/OS instructor or pick up a "Recommended Course Sequence" handout to use when planning your schedule. Recommended course sequence will differ from campus to campus.

CAS/OS Certificate plus the following:

Restricted Computer Applications Electives

(Select courses from this section to total 10 credits - must be different from core classes). Not more than four CIS credits may be used as an elective.

CAS 103	Introduction to Windows	1
CAS 104	Basic Internet Skills	1
CAS 109	Beginning PowerPoint	1
CAS 111D	Beginning Web Site Creation	3
CAS 111F	Beginning Web Site Creation	1
CAS 112	Intermediate Web Site Creation	3
CAS 122	Keyboarding for Speed and Accuracy*	3
CAS 140	Beginning Access	3
CAS 170	Beginning Spreadsheet	3
CAS 171	Intermediate Spreadsheet*	3
CAS 210 or 216	Beginning Word Processing	3
CAS 211 or 217	Intermediate Word Processing*	3
CAS 230	PageMaker*	3
CIS 178	Introduction to the Internet*	4

*See course descriptions for requirements for this course.

Required Courses

OS 280F	CE: Administrative Assistant	1-4
OS 280G	CE: Administrative Assistant Seminar	1
MTH 30	Business Mathematics	4
	Writing course higher than WR 121	3
	General Education	15

Restricted Business Administration Electives

(Select courses from this section to total nine or 10 credits)

BA 101	Introduction to Business	4
BA 244	Introduction to Records Management	3
BA 251	Office Management	3
BA 206	Management Fundamentals	3
BA 224	Human Resource Management	3

*See course descriptions for requirements for this course.

Administrative Assistant Office Management

◆ Associate of Applied Science degree - 99 credit hours includes 81 credit hours of required courses and 18 credit hours of General Education. Consulting a CAS/OS instructor for assistance is critical in planning your classes. Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

Coordinates various office support services. Often supervises office support staff. Establishes short range and long range plans for the office. Requires excellent communications and organizational skills.

Program Requirement

Complete the CAS/OS Certificate.

Course of Study

The program emphasis is on communications, use of business software, Internet, emerging technologies and office management skills.

These courses are not listed in the order in which they should be completed. It is critical that you see a CAS/OS instructor or pick up a "Recommended Course Sequence" handout to use when planning your schedule. Recommended course sequence will differ from campus to campus.

CAS/OS Certificate plus the following:

Restricted Computer Applications Electives

(Select courses from this section to total six credits - must be different from core classes.)

CAS 103	Introduction to Windows	1
CAS 104	Basic Internet Skills	1
CAS 109	Beginning PowerPoint	1
CAS 111D	jBeginningWeb Site Creation	3
CAS 111F	Beginning Web Site Creation	1
CAS 112	Intermediate Web Site Creation	3
CAS 122	Keyboarding for Speed and Accuracy*	3
CAS 140	Beginning Access	3
CAS 170	Beginning Spreadsheet	3
CAS 171	Intermediate Spreadsheet*	3
CAS 210 or 216	Beginning Word Processing	3
CAS 211 or 217	Intermediate Word Processing*	3
CAS 230	PageMaker*	3
CIS 178	Introduction to the Internet*	4

Required Courses

BA 211	Principles of Accounting I*	3
BA 228	Computer Accounting Applications*	3
BA 251	Office Management	3
MTH 30	Business Mathematics	4
	Writing course higher than WR 121	3
	General Education	15

*See course descriptions for requirements for this course.

Restricted Business Administration Electives

(Select courses from this section to total 12 or 13 credits)

BA 101	Introduction to Business	4
BA 203	Introduction to International Business	3
BA 206	Management Fundamentals	3
BA 212	Principles of Accounting II	3
BA 224	Human Resource Management	3
BA 244	Introduction to Records Management	3

*See course descriptions for requirements for this course.

Computer Information Systems

Cascade Campus
Terrell Hall, 4-B
503-978-5317 or 503-978-5204
Rock Creek Campus
Building 3, Room 201
503-614-7447

Southeast Center
Room 130
503-788-6296
Sylvania Campus
Social Science Bldg,
Room 215
503-977-4287 or
503-977-4393

◆ Associate of Applied Science degree - 97 credit hours; includes 79 credit hours of CIS, business, or writing courses and 18 credit hours of General Education. Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

A wide variety of career opportunities are available to the computer information systems professional. The traditional career programmer and analyst is responsible for all phases of program design and development. Another career option is that of microcomputer specialist, who is involved in application development, troubleshooting, technical support and end user training. Local area network environments offer career opportunities in network administration. Systems analysis and database design are an integral part of most jobs involving computer information systems.

Program Requirements

The first term major course in this program (CIS 120) requires no prerequisites. However, in order to follow the recommended sequence of courses, candidates should be ready to enter WR 121 and MTH 95 (readiness can be demonstrated through placement tests or documented previous college level work). Those candidates with insufficient background to enter at this level may need to extend the time it takes to complete the program. Students with limited typing skills are strongly advised to take CAS 121A, Beginning Keyboarding. Faculty advisors will provide information regarding options to those students who may need to take preparatory course work.

Course of Study

Students in the program are able to custom build a CIS program to meet their career objectives.

The student is expected to work with an advisor in planning term by term class schedules leading toward fulfillment of all program requirements. Students should contact an advisor at the earliest opportunity.

Students who plan to work toward a bachelor degree at a four-year institution, should contact the college or university of their choice to obtain specific information on the issue of transferability. Many of the courses in the CIS Program are transferable to four-year colleges or universities. PCC has transferability agreements with some local colleges for the CIS Program. Contact an advisor for current information.

First Term

CIS 120	Computer Concepts I	4
WR 121	English Composition	3
	Business Elective	3 ⁶
	General Education Elective	6 ²

Second Term

CIS 121	Computer Concepts II	4
CIS 122	Software Design	4
CS/CIS 140	Operating Systems	4 ³
WR 214	Business Communications II	3 ¹
	Business Elective	3 ⁶

Third Term

WR 227	Technical Writing I	3 ¹
	Programming Elective	4 ⁴
CIS 179	Data Communication Concepts I	4
	General Education Elective	3
	CIS-CS Elective	4 ⁵

Fourth Term

CIS 275	Data Base Development I	4
	CIS-CS Elective	4 ⁵
	Programming Elective	4 ⁴
	General Education Elective	3

Fifth Term

CIS 244	Structured Systems Analysis	4
	CIS-CS Electives	8 ⁵
	General Education Elective	3

Sixth Term

	CIS-CS Electives	12 ⁵
	General Education Elective	3

¹WR 122 can substitute for WR 214, WR 123 can substitute for WR 227.

²Placement at MTH 111 (College Algebra) or higher is required for graduation. It is strongly recommended that eight credits of General Education be taken in the math area.

³CIS 140D, CIS 140M, CS 140U, CIS 240M or CIS 240L

⁴Programming electives must be a two-term sequence from the approved list.

Programming Sequence Elective list

- CS 161, CS 162 Computer Science sequence
- CIS 133B, CIS 233B Visual Basic sequence
- CIS 133J, CIS 233J JAVA Programming sequence
- CS 161, CIS 233J JAVA Programming sequence

⁵CIS Electives - 28 credit hours of CIS electives, 12 must be at the 200 level.

⁶Choose from business elective course list.

CIS-CS Electives and other courses approved by the CIS SAC. See a CIS faculty advisor for more information.

CIS 125D	Database Applications Development I	4
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CIS 133B	Introduction to Visual Basic Programming	4
CIS 133J	JAVA Programming I	4
CIS 140D	Operating System: Microcomputers	4
CIS 178	Introduction to the Internet	4
CIS 179	Data Communication Concepts I	4
CIS 225	End User Support	4
CIS 233B	Intermediate Visual Basic Programming	4
CIS 233J	JAVA Programming II	4
CIS 233S	Internet Web Page Scripting	4
CIS 234B	Advanced Visual Basic Programming	4
CIS 234J	Java Programming II	4
CIS 234V	Advanced Visual Basic for Programmers	4
CIS 235D	Database Applications Development II (VBA)	4
CIS 240L	Operating Systems II: Linux	4
CIS 240M	Operating Systems II: Microsoft	4
CIS 243	E-commerce Information Systems	4
CIS 276	Database Development II	4
CIS 279L	Network Administration I: Linux	4
CIS 279M	Network Administration I: Microsoft	4
CIS 280D	CE: Application Development	4 ¹
CIS 288L	Network Administration II: Linux	4
CIS 288M	Network Administration II: Microsoft	4
CIS 289M	Network Administration III: Microsoft	4
CS 133U	Introduction to C Programming	4
CS 140U	Introduction to UNIX	4
CS 160	Exploring Computer Science	4
CS 161	Computer Science I	4
CS 162	Computer Science II	4
CS 171	Assembler Language I	4
CS 234U	Advanced C++ Programming	4
CS 260	Data Structures	4
CS 271	Computer Architecture	4
EET 178	Microcomputer Systems Servicing	4

¹Normally, a maximum of four CIS 280D credits can be applied toward the CIS degree. Additional credits, up to a maximum of 8, may be applied toward the degree, but must be approved by a CIS Department Chair or with the CIS coordinator of work experience.

Business Electives course list

BA 203	Introduction to International Business	3
BA 207	Introduction to E-Commerce	3
BA 211	Principles of Accounting I	3
BA 212	Principles of Accounting II	3
BA 213	Principles of Accounting III	3
BA 215	Basic Cost Accounting	3
BA 222	Financial Management	3
BA 223	Principles of Marketing	3
BA 226	Business Law I	3
BA 227	Business Law II	3

BA 234	International Marketing	3
BA 240	Governmental Accounting	3
BA 242	Introduction to Investments	3
BA 244	Introduction to Records Management	3
BA 250	Small Business Management	3
BA 251	Office Management	3
EC 201	Principles of Economics: Microeconomics	3
EC 202	Principles of Economics: Macroeconomics	3
EC 203	Principles of Economics: Application to Economic Issues	3

One year Certificate: Computer Information Systems

◆ One-year Certificate - 47 credits as outlined in the suggested sequence of courses.

Career Description

Computer Information Systems one-year certificates are developed and utilized by individuals in a wide variety of job titles (corporate executives, department managers, small business owners, secretaries, accountants, etc.) with various job responsibilities. Typical computer information systems functions include applications design and development, software and hardware evaluation and selection, software integration, system maintenance, data management, security and integrity, documentation, training and technical support.

Program Requirements

Some classes in the program will require prospective students to show, by high school or college transcripts or PCC placement examination, that they are prepared to take WR 121 English Composition and MTH 95 Intermediate Algebra. Students with limited typing skills are strongly advised to take CAS 121A Beginning Keyboarding.

Students should consult with a program advisor prior to enrolling in microcomputer information systems courses.

Course of Study

This program is designed to prepare and upgrade the student for career positions involving the evaluation, selection and use of computer hardware and software packages. It also enables students in other disciplines to acquire skills in using the computer as a managerial, organizational and analytical tool. The one-year curriculum provides a foundation in computer system concepts with an emphasis in microcomputer applications and practical experience. All required courses in this certificate program apply toward the credits needed to obtain an Associate of Applied Science degree in Computer Information Systems.

The student is expected to work with an advisor in planning term by term schedules leading toward fulfillment of all program requirements. Students should contact an advisor at the earliest opportunity.

First Term

CIS 120	Computer Concepts I	4
WR 121	English Composition	3
MTH 95	Intermediate Algebra	4
	Business Elective	3 ¹

General Education elective from either
Arts and Humanities, or Social Science 3

Second Term

CIS 121	Computer Concepts II	4
CIS 122	Software Design	4
CIS 140	Operating Systems	4 ²
	CIS-CS Elective	4

Third Term

WR 214	Business Communications II	3 ³
	CIS-CS Electives	11

¹ See Business Elective courses list at the end of the AAS - CIS degree requirements.

²CIS 140D or CS 140U

³WR 122 can substitute for WR 214

Electives

Any CIS-CS class may be used, except CIS 100.

DRF 126	Introduction to AutoCAD	3
	or one of the following	
CAS 216	Beginning Word: WIN	3
CAS 210	Beginning WordPerfect: WIN	3
EET 178	Microcomputer Systems Servicing	4

Optional cooperative education work experience placements are available. For more information, see an advisor.

One year Certificate: Computer Information Systems: E-Commerce

◆One-year Certificate - 42 - 46 credit hours as outlined.

Career Description

A Computer Information Systems: E-Commerce certificate is intended to meet technical career needs in business and industry for positions such as Web Server Administrator, Webmaster, E-Commerce Manager, HTML Programmer, Help Desk/User Support, Web Technologist, Web Developer, Web Designer/Programmer and Web Producer. Specialists in these positions will be able to administer and manage web servers and design and program transaction-based web sites that interface to databases. They will be able to communicate effectively and use key programming, publishing, database and transaction tools. With both a business and technical perspective, they will be able to identify E-Commerce issues such as telecommunications, security and scalability.

Program Requirement

Students must have a strong CIS background before beginning this certificate. This may be accomplished by the CIS AAS degree or by equivalent industry experience.

Course of Study

Programs are located at Cascade, Rock Creek, Southeast Center, and Sylvania campuses. The program is targeted to students and working professionals who wish to specialize in web server and database programming and administration as they relate to E-Business and E-Commerce.

These courses are not listed in the order in which they should be completed. The student is expected to work with a faculty advisor in planning term by term schedules leading toward fulfillment of all program requirements.

Core Courses - Required

SP 111	Fundamentals of Speech	3
WR 227	Technical Writing I	3
CIS 225	End User Support	4
CIS 275	Database Development I	4
CIS 244	Structured Systems Analysis	4
CIS 243	E-ssentials of E-commerce	4
CIS 280D	CE: Application Development (Co-op)	1

Choose one:

BA 203	Introduction to International Business	3
BA 223	Principles of Marketing	3

plus: 20 credit hours of electives from one of these 2 tracks (areas of concentration):

A. TRACK - DESIGN

CIS 233S	Internet Web Page Scripting	4
CIS 233J	Intermediate Java Programming	4
CIS 234J	Advanced Java Programming	4
CIS 276	Database Development II	4
CAS 112	Intermediate Web Site Creation	3
CAS 113	Enhancing Web Pages w/Javascript	3
MM 130	Graphics Video and Audio Production	2
MM 230	Graphics for Multimedia	4
CIS 280D	CE: Application Development	1-2

B. TRACK - ADMINISTRATION

CIS 288I	Web Server Administration	4
CIS 179	Data Communication Concepts I	4
CIS 240 L or M	Operating Systems II	4
CIS 279L or M	Network Administration I	4
CIS 288L or M	Network Administration II	4
CIS 289M	Network Administration III	4
CIS 280D	CE: Application Development	1-2

Computer Science

Rock Creek Campus
Building 2/230
503-614-7246 or 503-614-7604

Sylvania Campus
Social Science Building 215
503-977-4393, or 503-977-4287

◆ Two-year transfer program - minimum 97 credit hours. The student must complete the required computer science courses outlined in the Course of Study. PCC's general Associate of Science degree requirements must also be met. Articulation agreements are in effect with Portland State University, Oregon State University and Oregon Institute of Technology.

Description

Computer science is a profession concerned with both the theoretical investigation and practical development of computer technology and applications. Computer scientists are concerned with the representation and storage of information, accessing, examining and transforming information, using programming languages, and designing software. The computer scientist is also involved in the development and refinement of algorithms.

Students who take computer science courses have diverse academic backgrounds, different levels of programming experience and distinct goals. Students include those transferring to a university or preparing to enter a graduate program, professionals updating their skills and those from other areas interested in augmenting their professional competencies.

Fields of Employment

The computer field has a broad base of industrial, scientific and governmental jobs suitable for the bachelor of science graduate. Computer science graduates are prepared for entry level positions in software engineering or business programming and analysis. Students may augment their course of study with specialized classes in networking, business applications development, or systems analysis through the Computer Information Systems Program (for information call 503-977-4287.)

Program Requirements

Refer to individual course descriptions in this catalog for specific prerequisites. Contact the Computer Science Department for additional information. Options will be discussed with applicants who do not meet specific course prerequisites. Computer Science Program advisors will assist students with varied academic and career backgrounds to determine their course of study.

Course of Study

The intent of the program is to provide the first and second year computer science courses that are offered at four-year colleges and universities. The following course of study is intended to meet PCC's requirements for the Associate of Science degree and provide required courses for most colleges and universities. Prior to finalizing their course of study, students should check the specific requirements of their chosen college or university.

Recommended Computer Science Core Program

Programming and Systems

CS 140U	Introduction to UNIX	4
CS 160	Exploring Computer Science	4
CS 161	Computer Science I	4
CS 162	Computer Science II	4
CS 234U	Advanced C++ Programming	4
CS 260	Data Structures	4
CS 261	Programming Systems	4

Computer Architecture

CS 171	Computer Architecture/Assembler I	4
CS 271	Computer Architecture/Assembler II	4

Mathematical Requirement

MTH 231	Elements of Discrete Math I	4
MTH 251	Calculus I	4
MTH 252	Calculus II	5
MTH 253	Calculus III	5
MTH 254	Vector Calculus	5

Science Requirement

PHY 211	General Physics (Calculus)	5
PHY 212	General Physics (Calculus)	5
PHY 213	General Physics (Calculus)	5

Other Core Requirements

WR 121	English Composition	3
WR 122	English Composition	3
SP 111	Fundamentals of Speech	3
HPE 295	Health and Fitness for Life	3

General Education Electives

Social Science	(9 credit hours)	
EC 201, EC 202 and EC 203	Recommended	9
Humanities	(9 credit hours)	
WR 227	Recommended	3

Non-major Computer Science Course

CS 133U	Introduction to C Programming	3
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Computer Software Engineering Technology

Sylvania Campus
Science Technology Building, Room 208
503-977-4163
engineering@pcc.edu

◆Associate of Applied Science degree - All courses shown in the six-term program. Students must meet college graduation requirements including General Education, math and English competencies.

◆One-year Certificate - All courses including communications and General Education courses shown in the first four terms.

Career Description

Computer software engineering technicians assist software engineers in the development and support of software for stand-alone and distributed microprocessor-based systems. They perform tasks following established standards to assure compliance with specifications. Typical software tasks may include software design, documentation, coding, testing, installation, maintenance, troubleshooting and customer support. In addition, technicians may support microprocessor hardware and software combinations performing tasks such as microcomputer and network installation, maintenance, troubleshooting and systems administration.

Graduates are employed in positions with varied job titles including computer or software technician, software developer, programmer, junior software engineer, build technician, technical support technician, maintenance programmer, technical writer, systems administrator, systems support specialist, or customer support specialist. This wide variety in job titles is due to the varied skill sets of graduates which include training in operating system environments such as Microsoft Windows™ and UNIX, digital electronics, and software development.

Program Prerequisites

All students must have an advising interview with a Computer Software Engineering Technology (CSET) faculty advisor. Students seeking a certificate or degree must place in WR 121 and MTH 111C. Skill in keyboarding and experience using integrated office software including word processor, spreadsheet, database and communications is highly recommended.

For students not meeting these requirements, advising is available to assist in preparing for entrance into the program and to earn credits which will apply toward the certificate or degree once accepted into the program.

For students with previous work experience in software or electronics who desire advanced placement, a CSET faculty advisor will determine placement.

Application and Acceptance

Full-time Students

CSET is a limited enrollment program for students seeking a certificate or degree. Two groups of students start each year. Day students start fall term and a late afternoon and evening group starts winter term. Qualified applicants are accepted in the order in which they complete the application process. Applications for the next year are accepted until the program is filled. Accepted applicants must attend the program orientation prior to the start of the fall or winter term.

Job-upgrade students

Students must meet individual course prerequisites and complete an advising interview with a CSET faculty advisor prior to enrollment. Admission is granted to part-time students on a space-available basis after the needs of the full-time students have been met.

Program Progression

To advance from term to term within the program, certificate and degree seeking students must have successfully completed the prior term's course work by receiving a grade of "C" or above in all required courses. All first year courses must be completed before progressing to the second year.

Faculty advisors will be assigned to each student to provide guidance toward an orderly progression through the program and to assist in other ways as appropriate. Students are required to work with their advisor in planning term-by-term schedules and in fulfilling the total program requirements. Students with academic problems must contact their advisor at the earliest opportunity.

Continuing Education

Students of this program may transfer to Oregon Institute of Technology to pursue a Bachelor of Science degree in Computer Engineering Technology, Software Engineering Technology or Industrial Management. Faculty advisors will provide assistance in the selection of additional course work appropriate to each student's goals.

First Term

CST 106	Windows for Technicians	3
CST 115	Introduction to Software Engineering in C++	4
EET 178	Microcomputer Systems Servicing	4
WR 121	English Composition	3 ³
MTH 111C	College Algebra for Math, Science and Engineering	5 ²

Second Term

CST 206	Windows System Administration	3
CST 116	Software Engineering in C++	4
EET 176	Digital Fundamentals I	3
MTH 231	Elements of Discrete Mathematics I	4 ²
	General Education	3 ²

Third Term

CST 140	UNIX Systems & Script Programming	4
CST 211	Data Abstraction in C++	4
EET 177	Digital Fundamentals II	3
	Writing Elective	3 ³
	General Education	3 ²

Fourth Term

CST 240	UNIX Systems Administration	4
CST 126	Software Methodology	4
EET 241	Microcomputer Systems I	4
WR 227	Technical Writing I	3 ³

Fifth Term

CST 250	80x86 Assembly Language Programming	4
CST 256	Software Engineering in C	4
CST 258	Windows Programming	4
	Technical Elective	4 ¹

Sixth Term

CST 263	Multi-tier Architecture	
	Software Development	3
CST 266	Advanced Software Engineering in C	4
CST 268	Advanced Windows Programming	4
	Technical Elective	4 ¹
	General Education	3 ²

¹Technical electives may be any one of the following sequence pairs:

CST 280A	CE: Computer Software Tech (taken two consecutive terms)	8
	or	
CST 270	Special Projects: Analysis and Design	4

CST 272 Special Projects: Implementation 4
or
A two course sequence taken from CS or
CIS after completion of CST 126, CST 240,
and EET 241 and with the approval of a
CSET faculty advisor.

³General Education: 18 credits of General Education are required for the AAS degree. Each of the three areas listed below must be covered and suggested courses are listed. A maximum of nine credits is allowed in any one area. (AAS) indicates courses required for the AAS degree. (OIT) indicates courses required for students transferring to Oregon Institute of Technology.

Arts and Humanities

SP 111, Fundamentals of Speech (OIT)

Social Science

PSY 201, General Psychology (OIT)

Mathematics, Natural and Physical Sciences - Computer Studies

MTH 111C, College Algebra for Math, Science and Engineering (AAS) (OIT)

MTH 231, Elements of Discrete Mathematics I (AAS)(OIT)

MTH 112, Elementary Functions (OIT)

MTH 251 & 252, Calculus I, II (OIT)

PHY 211, 212, 213 General Physics (Calculus) (OIT)

Confirm that your selections are on PCC's General Education course list.

³WR 121 is a comprehensive graduation requirement. A second writing course, either WR 122 or WR 124, is required before taking WR 227. None of these writing courses are on PCC's list of approved General Education courses. OIT requires WR 121, 122 and 227.

Consumer and Family Studies

Sylvania Campus
Health Technology Building, Room 318
503-977-4217 or 503-977-4218

See also:

Consumer and Family Studies programs and courses are offered under the subject headings of:

Early Childhood Education

Interior Design

Parent Education

Textiles (HEC 250) is now offered as a component of Interior Design.

Counseling and Guidance

Description

Counseling and guidance (CG) courses are offered for:

1. Individuals in the process of developing a new career or thinking of a career change and
2. Individuals who would like to assess and strengthen personal skills to maximize the college learning experience, career opportunities and the lifelong learning process.

Counseling and Guidance courses are offered at each PCC location and in the community. Consult the counseling department or the schedule of classes with respect to the courses and workshops being offered during a given term.

Prerequisites

With the exception of CG 111A College Learning and Study Skills, CG 280A and CG 280B Exploratory Cooperative Education, there are no prerequisites. However, students are encouraged to consult a counselor prior to enrolling in a course or workshop.

Courses

The following courses (CG 100A - CG 280B) may be transferable to a four-year institution. Consult the counseling department or the receiving institution with respect to the transferability and application of credit.

CG 100A	College Survival and Success	3
CG 100B	College Survival and Success	2
CG 100C	College Survival and Success	1
CG 101	Positive Family Relations I	1
CG 102	Positive Family Relations II	1
CG 111A	Study Skills for College Learning	3
CG 111B	Study Skills for College Learning	2
CG 111C	Study Skills for College Learning	1
CG 130	Today's Careers	2
CG 140A	Career Development	3
CG 140B	Career Development	2
CG 140C	Career Development	1
CG 143	Career Development: Students with Disabilities	1
CG 144	Intro to Assertiveness	1
CG 145	Stress Management	1
CG 146	Value Clarification	1
CG 147	Decision Making	1
CG 209	Job Finding Skills	1
CG 280A	CE: Career Exploration	variable credit
CG 280B	CE: Career Exploration - Seminar	1

The one credit courses listed below consist of a total of 10 - 12 lecture/discussion hours each. These courses may be offered in a one or two day workshop or over the full term.

CG 0690	Stopping Test Anxiety	1
CG 0693	Confidence Building	1

Criminal Justice

Cascade Campus, Terrell Hall 4B

Program Advisors:

Patricia Barnett 503-978-5236

Ken Moore 503-978-5629

Program Division Office 503-978-5430

◆ Associate of Applied Science - 90 credit hours; includes 60 credit hours of required courses, 12 credit hours of elective courses and 18 credit hours of required General Education courses. Consult a program advisor for assistance in planning General Education courses. Students must meet college graduation requirements including General Education, math and English competencies.

Students who plan to transfer to a four-year institution should contact that institution for transfer information, as well as consult a program advisor.

◆ One-year Certificate - Juvenile Corrections - Successful completion of the 47 credit hours of required courses.

Career Description

Persons in the criminal justice field may work in a municipal, county, state or federal law enforcement organization or corrections system. Other positions requiring law enforcement education are available at all levels of government and in private industry. Duties range from crime prevention programs to investigative and uniform patrols. Technical skills such as data processing and criminalistics are used to support overall criminal justice operations.

Program Requirements

Students entering into the Criminal Justice program must demonstrate through transcribed record or by appropriate ASSET test score the ability to be placed in:

Reading 90, or above

Writing 90, or above

Math 20, or above

Criminal Justice Associate of Applied Science Degree

Criminal Justice *Required Courses and Credits:

(60 credits required)

*CAS 133	Basic Computer Skills/MS Office	3
*CJA 100	Intro to Professions in Criminal Justice	3
*CJA 111	Intro to Criminal Justice System-Police	3
*CJA 112	Intro to Criminal Justice System-Courts	3
*CJA 113	Intro to Criminal Justice System-Corrections	3
*CJA 210	Arrest, Search, & Seizure	3
*CJA 211	Civil & Ethical Issues for Criminal Justice Practitioners	3
*CJA 212	Criminal Law	3
*CJA 225	Criminal Justice & The United States Constitution	3
*CJA 243	Narcotics & Dangerous Drugs	3

*CJA 280A	Cooperative Education: Criminal Justice	3 ¹
*HPE 295	Health and Fitness for Life	3
*PS 203	State and Local Government	3
*PSY 215	Human Development	3
*PSY 239	Intro to Abnormal Psychology	3
*SOC 206	General Sociology: Social Problems Conformity & Deviance	3
*SP 100	Intro to Speech Communication	3
	or	
*SP 111	Fundamentals of Speech	3
*WR 121	English Composition	3
*WR 122	English Composition	3
*WR 228	Police Report Writing	3

¹Department approval required prior to registration

Criminal Justice Electives: (12 credits required - select 4 classes from the list below)

CJA 213	Evidence	3
CJA 214	Criminal Investigation	3
CJA 215	Forensic Science & Criminalistics	3
CJA 217	Interviewing & Interrogation	3
CJA 218	Criminal Justice Perspectives of Violence & Aggression	3
CJA 222	Intro to Juvenile Process	3
CJA 228	Theory and Structure of Organized Crime	3
CJA 260	Intro to Correctional Institutions	3
CJA 261	Intro to Probation & Parole	3
CJA 263	Intro to Corrections Casework	3
CJA 264	Intro to Management of Public Safety	3

Prerequisite:

Students must pass all prerequisites with a grade of "C" or higher in order to enroll in any CJA courses with a "200" or higher designator, except for CJA 222.

Suggested Electives related to specific areas:

Law Enforcement and/or Forensics:

CJA 213	Evidence
CJA 214	Criminal Investigation
CJA 215	Forensic Science & Criminalistics
CJA 217	Interviewing & Interrogation

Corrections:

CJA 260	Intro to Correctional Institutions
CJA 261	Intro to Probation and Parole
CJA 263	Intro to Corrections Casework
CJA 264	Intro to Management of Public Safety

Specializations:

CJA 222	(Juvenile Law)
CJA 228	(Federal Law e.g. FBI, CIA, & DEA)

Juvenile Corrections Certificate

Career Description

The statewide Juvenile Corrections one-year certificate was developed at the request of the Oregon Youth Authority (OYA) to provide entry-level workers to fill positions in the juvenile detention facilities mandated by Ballot Measure 11. The primary focus of juvenile corrections is rehabilitation. An effective juvenile corrections program not only holds youth offenders accountable for their past actions, but also provides opportunities for reformation. In OYA facilities juvenile clients receive the treatment and education needed to change their attitudes and build the knowledge and skills which provide a basis for leading a productive, law-abiding life. Because the quality of the employee's abilities in providing treatment is key to the success of the rehabilitation effort, juvenile corrections employees need a unique core of skills and knowledge in psychology and treatment as well as a basic education in criminal justice. This skill core must include an understanding of the psychological, developmental and sociological issues which are present within the juvenile correctional system. Students who obtain this certificate will be eligible to apply for work at any OYA facility as a Group Life Coordinator 2.

Course of Study

The courses in this certificate program have been designed in conjunction with both the needs and the authority of the OYA.

Required Courses

CJA 113	Intro to Criminal Justice Systems - Corrections	3
CJA 222	Intro to Juvenile Process	3
CJA 263	Intro to Corrections Casework	3
CJA 280A	Cooperative Education:Criminal Justice	3 ¹
PSY 201	General Psychology	3 ²
PSY 202	General Psychology	3 ²
PSY 203	General Psychology	3 ²
PSY 215	Human Development	3
PSY 222	Family and Intimate Relationships	3
PSY 239	Intro to Abnormal Psychology	3
SOC 206	General Sociology: Social Problems - Conformity & Deviance	3
AD 101	Alcohol Use and Addiction	3 ³
AD 150	Basic Counseling and Addiction	3 ³
AD 151	Basic Counseling Skills Mastery	1 ³
WR 121	English Composition	3
CAS 133	Basic Computer Skills/MS Office	3
MTH 60	Introductory Algebra-First Term	4

¹Department permission required prior to registration.

² Students are required to select two of the three courses: PSY 201, 202, or 203.

³Students must contact Susan Garber at 503-978-5245 in order to enroll.

Culinary Assistant Training

Sylvania Campus
Amo DeBernardis Building, Room 110
503-977-4305

◆ One-year Certificate - Three terms; 45 credit hours.

Career Description

The Culinary Assistant Training Program is designed for students with disabilities who have significant barriers to employment. Students will develop entry level job skills in food service and clerical occupations. The program also focuses on the acquisition of work habits and behaviors necessary to maintain competitive employment.

Program Requirements

An interview with the program coordinator is required prior to enrollment. Qualified students will have a documented disability, the ability to work semi-independently and have some previous paid or unpaid work experience.

Course of Study

Students can enroll for one to three terms at any time during the school year. Students work with co-workers at Sylvania Campus to learn the specific job skills in their work area. Individualized training and assistance in maintaining positive work habits are provided by the program coordinator. Classroom sessions focus on developing work related communications and social skills, customer services skills, career exploration and job search activities. The program coordinator also provides six hours of individualized job development activities with each student.

Courses

HR 107	Culinary Assistant Training	15
HR 108	Culinary Assistant Training	15
HR 109	Culinary Assistant Training	15

Dance

Description

The Performing Arts Department offers various dance technique, theory and performance courses designed for students interested in exploring dance at the beginning through intermediate level. All technique courses emphasize correct alignment and movement principles, improved kinesthetic awareness and appreciation of dance as a performing art. Performance opportunities for dance students may include class presentations or participation in dance or musical theater productions.

Dance classes may be transferable to four-year institutions as Arts and Humanities, Dance or elective credit. Students should check transferability of specific dance courses with the institution to which they are planning to transfer.

Although a physical exam is not required, students are advised to seek approval from their personal physician before entering into a regular program of vigorous physical activity as is found in dance courses.

It is the student's responsibility to advise the dance faculty of any health condition which may limit or affect a student's ability to participate safely and successfully in the course. In some instances an instructor may recommend an alternative activity program/class or a statement from the student's physician.

Special Fees

Students will pay one \$4 service fee per term for classes requiring showers/towels/lockers. Locks and towels must be turned in at the end of the term. If these items are lost, students will be charged \$4.

Prerequisites

See the Course Description (D prefix) section of this catalog for individual Dance courses and course prerequisites.

Contact the Physical Education, Fitness and Dance Department for additional dance classes.

Dental Assisting

Sylvania Campus
Health Technology Building 206
503-977-4236

◆ One-year Certificate

PCC offers a one-year certificate program that is accredited by the Commission on Dental Accreditation.

Career Description

The dental assistant is a professional member of the dental team, working with and assisting the dentist during clinical procedures. Traditional duties and responsibilities include: preparing and mixing dental cements and bases, preparing the operatory, sterilizing procedures, exposing and processing x-rays, operating air, water and suction devices and passing instruments to the dentist. PCC students are clinically prepared in the areas of expanded functions (EFDA) such as coronal polishing, placing rubber dam, taking impressions, pouring study models and amalgam polishing. Suture removal, coronal cement removal and fabrication of temporary crowns are taught to laboratory competency.

Dental assistants also teach oral health principles and must be prepared to assume office management responsibilities. Basic computer skills are necessary to be competitive.

Program Requirements

ASSET reading placement test administered through assessment centers. Students must show evidence of having begun or completed the immunization series for Hepatitis B as well as evidence of immunity to measles. Tetanus immunization and T.B. testing are also required.

Application and Acceptance

Applications are accepted from January 1, until 45 students have been accepted for entry the following fall term. Application forms may be obtained from and should be submitted along with high school and college transcripts, if any, to:

Dental Sciences Department
Sylvania Campus, HT 206
Portland Community College
P.O. Box 19000
Portland, Oregon 97280-0990

For additional information call 503-977-4908 or 503-977-4236, or check the website [HTTP://spot.pcc.edu/hfs/](http://spot.pcc.edu/hfs/)

Course of Study

The 47 credit hours prepare the student for job entry with State and National certification in dental radiology, basic dental assisting and expanded function dental assisting.

Students enrolled in the Dental Assisting Program will be required to wear safety glasses, face masks, latex gloves and other protective clothing during all laboratory procedures that produce airborne particulate matter, or expose the students to patients during dental procedures. Safety policies, procedures and protocols are followed according to OSHA regulations to ensure a safe learning environment in the laboratories and clinics.

First Term

HE 120	Health in the Dental Workplace	2
DA 110	Clinical Procedures I	2
DA 111	Clinical Procedures I Lab	2
DA 120	Dental Radiology I	1
DA 121	Dental Radiology I Lab	2
DA 130	Dental Materials I	1
DA 131	Dental Materials I Lab	2
DA 140	Integrated Basic Science I	3
DA 160	Pharmacology	1

Second Term

DA 112	Clinical Procedures II	1
DA 113	Clinical Procedures II Lab	3
DA 118	Expanded Duties I	1
DA 122	Dental Radiology II	1
DA 123	Dental Radiology II Lab	2
DA 132	Dental Materials II	1
DA 133	Dental Materials II Lab	2
DA 142	Integrated Basic Science II	2
DA 150	Dental Office Procedures I	2

Third Term

DA 114	Clinical Procedures III	1
DA 115	Clinical Procedures Lab III	5
DA 119	Expanded Duties II	1
DA 125	Dental Radiology III Lab	2
DA 135	Dental Materials III Lab	2
DA 152	Dental Office Procedures II	2
DA 156	Ethics and Jurisprudence	1
DA 145	Dental Health Education	2

Dental Hygiene

Sylvania Campus
Health Technology Building, Room 206
503-977-4236

◆ Associate of Applied Science degree which includes 19 credit hours of prerequisites and 97 specific dental hygiene credits for a total of 116 credits. Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

The dental hygienist is a licensed dental health care professional who specializes in periodontal therapy and oral health education. A broad-based education in biological sciences and humanities as well as dental sciences and clinical techniques prepares the graduate for work in private practice and community settings. In the dental office, the hygienist assesses the patient's oral health, treats periodontal (gum) disease and provides follow-up care. In addition, the hygienist provides a variety of preventive services including the application of sealants to children's teeth, nutrition counseling and oral health education to individuals and community groups.

Program Requirements

1. High school graduation or GED, and computer literacy.
2. The following courses or their equivalents are **required** to be considered for application to the Dental Hygiene program:
 - a. WR 121 English Composition, 3 cr.
 - b. MTH 65 Algebra II, 4 cr., or higher
 - c. Human Anatomy and Physiology sequence with lab, 8 cr.
 - d. Microbiology with lab, 4 or 5 cr.
3. Students must show evidence of having begun or completed the immunization series for Hepatitis B as well as evidence of immunity to measles. Tetanus immunization and T.B. testing are also required.

Students enrolled in the Dental Hygiene Program will be required to wear safety glasses, latex gloves, face masks and protective clothing during all laboratory and clinic activities that produce airborne particulate matter, or expose students to patients during dental procedures. Safety policies, procedures and protocols are taught and followed according to OSHA regulations to provide a safe learning environment.

Application and Acceptance

Applications are accepted each year from December 1 to April 15 only. Twenty students and twelve alternates will be selected based upon specific admissions criteria. Further information can be obtained from the Dental Sciences Department or the Health Professions Advising Office:

Dental Sciences Department
Sylvania Campus, HT 206
Portland Community College
P.O. Box 19000
Portland, Oregon 97280-0990

For additional help, call 503- 977-4236 or

503-977-4908 or check the website [HTTP://spot.pcc.edu/hfs/](http://spot.pcc.edu/hfs/)

Course of Study

The Dental Hygiene Program offers a two-year curriculum that is accredited by the Commission on Dental Accreditation. The program of study prepares students for the National Board written examination and regional licensure examinations.

Computer skills: Students must have acquired basic computer skills in word processing or the Internet. It is recommended that this preparation be taken prior to entry.

*Electives must include one course of speech, sociology and psychology.

Recommended:

SP 111	Fundamentals of Speech	3
SOC 204	General Sociology: Sociology in Everyday Life	3
PSY 101	Psychology and Human Relations	3

First Term

DH 101	Dental Hygiene Theory I	4
DH 104	Dental Hygiene Practice I	3
DH 113	Dental Anatomy	2
DH 113L	Dental Anatomy Lab	1
DH 121	Dental Health Education	2
	Speech Elective*	3

Second Term

DH 102	Dental Hygiene Theory II	2
DH 105	Dental Hygiene Practice II	3
DH 127	Medical Emergencies	1
DH 128	Oral Histology	2
CH 102	Organic Chemistry Principles	5
	Psychology Elective*	3

Third Term

DH 103	Dental Hygiene Theory III	2
DH 106	Dental Hygiene Practice III	3
DH 109	Dental Radiology I	2
DH 109L	Dental Radiology I Lab	1
DH 129	Oral Pathology	3
DH 246	Pharmacology	3
	Sociology Elective*	3

Summer Term

DH 100	Special Dental Hygiene Practice	1 or 2
FN 225	Nutrition	4

Fourth Term

DH 201	Dental Hygiene Theory IV	2
DH 204	Dental Hygiene Practice IV	5
DH 208	Community Dental Health Education	1
DH 210	Dental Radiology Lab II	1
DH 212	Radiographic Interpretation	1
DH 228	Oral Anatomy	2
DH 229	Local Anesthesia	2
DH 260	Periodontology I	2

Fifth Term

DH 202	Dental Hygiene Theory V	2
DH 205	Dental Hygiene Practice V	5
DH 230	Dental Materials	2
DH 250	Public Health	2
DH 252	Community Dentistry I	1
DH 261	Periodontology II	2

Sixth Term

DH 203	Dental Hygiene Theory VI	3
DH 206	Dental Hygiene Practice VI	5
DH 232	Nitrous Oxide Sedation	2
DH 236	Ethics & Jurisprudence	1
DH 253	Community Dentistry II	2

Dental Laboratory Technology

Sylvania Campus
Health Technology Building, Room 206
503-977-4236

◆ Associate of Applied Science degree - 78 credit hours of basic DLT courses plus 18 credit hours of approved General Education courses and PCC requirements in writing and math competencies. Students must meet college graduation requirements including General Education, math and English competencies.

◆ Two-year Certificate in Dental Laboratory Technology - 78 credit hours of basic DLT courses.

◆ Skill upgrade courses are offered in three areas:

- Basic denture fabrication
- Crown and bridge
- Ceramics

Call 503-977-4236 for additional information.

Career Description

The dental laboratory technologist is a professional member of the dental team and is considered the "artist" of that group. Using an order from a dentist, the technician designs and fabricates dental replacements such as crowns, bridges, den-

tures and orthodontic appliances. In the process, the technician carves complex structures and designs in wax, casts and finishes a variety of metals, and duplicates tooth form and color in acrylic resin or porcelain materials.

Program Requirements

1. GED or high school graduation.
2. ASSET reading placement test administered through assessment centers.
3. Satisfactory performance on manual dexterity tests including a wax carving.
4. Students must show evidence of having begun or completed the immunization series for Hepatitis B as well as evidence of immunity to measles. Tetanus immunization and TB testing are also required.

Students enrolled in the Dental Laboratory Technology Program will be required to wear safety glasses or goggles and face masks during procedures that produce airborne particulate matter. Additional protective wear and gear may be required. Safety policies, procedures and protocols are taught and reinforced throughout the curriculum according to industry standards and OSHA regulations to provide a safe learning environment.

Application and Acceptance

Applications are accepted at any time. Enrollment is limited, so students are encouraged to apply early. Application forms may be obtained from and should be submitted along with high school and college transcripts, if any, to:

Dental Sciences Department
Sylvania Campus, HT 206
Portland Community College
P.O. Box 19000
Portland, Oregon 97280-0990

For additional information call 503-977-4236 or 503-977-4908 or check the website [HTTP://spot.pcc.edu/hfs/](http://spot.pcc.edu/hfs/)

Course of Study

PCC offers a two-year program that is accredited by the Commission on Dental Accreditation.

First Term

DT 101	Dental Technology Lab I	6
DT 120	Dental Anatomy	2
DT 141	Denture Techniques I	2
DT 151	Science of Dental Materials I	2
MTH 20	Basic Math (or higher level math courses)	4

Second Term

DT 102	Dental Technology Lab II	6
DT 142	Denture Techniques II	2
DT 152	Science of Dental Materials II	3
HE 125	First Aid & Industrial Safety	3

Third Term

DT 103	Dental Technology Lab III	6
DT 143	Denture Techniques III	2
SP 100	Introduction to Speech Communication	3

Fourth Term

DT 204	Dental Technology Lab IV	6
DT 253	Science of Dental Materials III	2
DT 270	Inlay Casting, Crown and Bridge	3
DT 275	Dental Laboratory Management	2
DT 276	Dental Laboratory Management Lab	1

Fifth Term

DT 205	Dental Technology Lab V	6
DT 254	Science of Dental Materials IV	2
DT 272	Dental Ceramics	3

Sixth Term

DT 206	Dental Technology Lab VI	6
DT 271	Partials, Clasp and Bar	2
DT 284	Dental Specialties	2
DT 285	Dental Seminar	2

Diesel Service Technology

Rock Creek Campus
Building 2, Room 107
503-614-7210 or 503-614-7331

◆ Associate of Applied Science degree - Minimum of 90 credit hours; includes minimum of 72 credit hours of required diesel courses, CAS 133, WLD 217 and 18 credit hours of General Education. Consult a program advisor for help in planning General Education classes. Students must meet college graduation requirements including General Education, math and English competencies.

◆ Two-year Certificate - Minimum of 72 credit hours of required diesel courses and three credits of WLD 217 and CAS 133.

◆ One-year Certificate - Minimum of 36 credit hours of required diesel courses and three credits of WLD 217 or CAS 133.

Students may be required to complete additional course work in reading, writing and mathematics for completion of one and two year certificates.

Career Description

The diesel service technician repairs and maintains diesel engines and component support systems.

Program Requirements

ASSET basic skills placement test administered through assessment centers.

Course of Study

The program is designed to prepare students for entry-level positions in diesel service technology. Training is varied to give students a broad understanding and background in the different phases of the diesel service industry. Students have additional cost for tools and books. In addition, the program offers industry upgrade courses.

The following courses may be taken in any sequence

DS 101	Engine Rebuild and Lab Procedures	12
DS 102	Truck Power Train	6
DS 103	Fuel Injection Systems	6
DS 104	Fundamentals of Electricity & Electronics	6
DS 105	Fundamentals of Hydraulics/AC Systems	6
DS 106	Engine Diagnostic Tune-up	6
DS 107	Live Equipment and Lab	6
DS 202	Heavy Duty Power Train	6
DS 203	Fuel Injection System Diagnosis and Caterpillar Electronic Engine Controls	6
DS 204	Diesel Starting, Charging & Electronic Control Systems	6
DS 205	Mobile and Hydrostatic Hydraulics	6
DS 206	Brakes, Suspension and Steering	6

Cooperative Education

DS 280A	CE: Diesel Service Technology Field Experience	variable credit
DS 280B	CE: Diesel Service Technology - Seminar	1

The following courses are offered for industry upgrade:

DS 9100	Truck Technology	1
DS 9101	Truck Technology (Lab)	2
DS 9102	Truck Transmissions	2
DS 9103	Fuel Injection Systems	2
DS 9104	Fundamentals of Electricity	2
DS 9105	Fundamentals of Hydraulics	2
DS 9106	Heavy Duty Truck Engine Tune-up	2
DS 9107	Automotive Diesel Engine Tune-up	2
DS 9108	Caterpillar Diesel Engine Tune-up	2
DS 9109	Diesel Electronic Control System	2
DS 9110	Mixer Truck Hydraulics	2
DS 9112	Small Marine Diesel Engine Preventive Maint and Tune-up	2
DS 9113	Caterpillar Diesel Engine Tune-up	2
DS 9114	Detroit Diesel Engine Tune-up	2
DS 9201	Diesel Engine Rebuild	2
DS 9202	Truck Power Train	2
DS 9205	Mobile Hydraulics	2
DS 9206	Truck Air Brakes	2

Drafting Technology and Design

Sylvania Campus
Science Technology Building, Room 208
503-977-4163

◆ Associate of Applied Science degree - 91 credit hours includes 68 credit hours of Drafting Technology and Design required courses, 18 credit hours of General Education, 4 credit hours of math, and 1 credit hour Job Finding Skills. Consult a program advisor for assistance in planning General Education classes. Department minimums for graduation are MTH 65 and WR 121. Four credit hours of PHY 101 and three credit hours of PSY 101 may count as General Education courses.

Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

Design drafters are skilled technicians who interpret engineering data to produce sketches, plans and detailed working drawings used in manufacturing and construction. Career opportunities exist for drafters in many areas including: product design, electronic schematic, sheet metal layout, structural steel detailing, special tools and fixtures and machine design. The job market and advancement opportunities are good for graduates with an Associate of Applied Science degree. Graduates are found working for manufacturing firms, construction companies, engineering firms, city, state and federal agencies or they may be self-employed. Advancement to positions of designer, drafting supervisor, or engineering technician are possible.

Program Requirements

Students new to the program must take the college's placement examination for math and English prior to program advising and registration. Students must place in MTH 60 and WR 115 before registering for first term drafting classes. Program advising and placement is required prior to registration.

For acceptance into the second year program the student must have completed MTH 65 or equivalent, WR 115 and the first year required courses.

Consult a program advisor for information on PCC's policy for acceptance of courses taken at other colleges or high schools or the transferability of PCC courses to other institutions. Some institutions may grant transfer credit toward a Bachelor Degree.

General Education courses should provide the student with writing skills and computer literacy skills or be courses such as math and physics which will support future coursework. Program advising is highly recommended.

Course of Study

This program is designed to assist students in acquiring the knowledge and skills required of drafters and designers. The program and courses are developed with the advice and support of an advisory committee.

Both day and evening courses are offered. Contact a program advisor for curriculum variations.

Students must receive a grade of "C" or better in all required classes in order to receive a degree in Drafting Technology and Design. "D" or "F" grades and "pass"/"no pass" option are not acceptable grades for department required classes to earn a degree except for DRF 280 Cooperative Education, where a "pass" grade is accepted.

Note: General Education requirements and a list of courses approved to satisfy those requirements will be found in the Comprehensive Degree Requirements section of this catalog.

Modern CAD (Computer Aided Drafting) labs provide the opportunity for CAD skill development using a variety of CAD software.

In addition to the degree requirements, students are required to meet the PCC communications and computations requirements by completing WR 121 and MTH 65.

Drafting Technology and Design

First Term (Must be able to enter MTH 60 and WR 115)

DRF 117	Drafting Fundamentals 1	3 ¹
DRF 126	Introduction AutoCAD	3
DRF 161	Industry Orientation	2
PSY 101	Psychology and Human Relations	3 ²
	General Education	3 ³

Second Term

DRF 133	Intermediate Drafting	4
MCH 134	Introduction to Machine Manufacturing	4
DRF 136	Intermediate AutoCAD	3
MTH 65	Introductory Algebra II	4

Third Term

DRF 135	Advanced Drafting	4
DRF 158	Geometric Dimensioning & Tolerancing	3
DRF 246	AutoCAD 3-D and Solid Modeling	3
PHY 101	Fundamentals of Physics	4 ²
	General Education	3 ³

Fourth Term (Must have completed MTH 65 and WR 115)

	CAD Elective (see program advisor)	3 ⁴
DRF 240	Casting and Molding Design/Drafting	3
DRF 244	Drafting Math and Problem Solution	4
DRF 253	ElectroMechanical Design/Drafting	4
CG 209	Job Finding Skills	1

Fifth Term

	CAD Elective (see program advisor)	3 ⁴
DRF 241	Structural Steel Detailing	3
DRF 251	Kinematics Drafting	3
DRF 254	Drafting Design and Problem Solution	4
	General Education	3 ³

Sixth Term

DRF 250	Fluid Power Design/Drafting	3
DRF 260	Tool and Fixture Design/Drafting	2
DRF 262	Machine Design Drafting	3
DRF 280	CE: Drafting	3
	General Education	3 ³

Note: MTH 65 and WR 121 must be completed prior to graduation.

¹ Recent high school graduates and transfer students with previous drafting course work should see a program advisor for advance placement in the program.

² Counts toward General Education requirement.

³ General Education of 18 credit hours is required for the degree. PSY 101 (3 credits) and PHY 101(4 credits) will count towards the 18 credit hours, leaving 11 credit hours minimum to be completed.

⁴ See course description for a list of CAD electives

Early Childhood Education

Sylvania Campus
Health Technology Building, Room 318
503-977-4217
If Spanish is your first language contact 503-977-4853

- ◆ Associate of Applied Science
- ◆ Level I Certificate
- ◆ Level II Certificate

Career Description

Teachers and home care providers of young children, ages birth through five, plan the environment and develop suitable learning experiences and work closely with families in child care situations. They also supervise play and physical needs of small children, organize daily activities, keep records of children's progress and confer with parents. Early childhood graduates may also work in related fields such as child care resource and referral.

Portland Community College's ECE articulation agreement with Portland State University allows for up to 80 transfer credits toward PSU's Child and Family Studies degree when students are accepted into their program.

Program Requirements

1. ASSET basic skills placement test administered through assessment centers.

2. An initial advising/information session with an Early Childhood Education Program faculty advisor.
3. Students entering into the ECE Program must demonstrate through transcribed record or by appropriate ASSET test scores the ability to be placed into WR 115 for Level I course work, placement into WR 121 for Level II course work, and completion of WR 121 for AAS degree classes. Math 20 is a prerequisite for Environments, Nutrition, and Administration.
4. Practicum students must meet State of Oregon Child Care Personnel general requirements and must show evidence of immunity to measles and have a current Oregon food handlers card. Attendance at pre-enrollment information sessions is required for all levels of practicum.

Course of Study

The Early Childhood Education Program is planned as a career lattice to accommodate the part time as well as the full time student. The Level I Certificate provides entry level child care skills. The Level II Certificate meets the minimum requirements for child care teacher in an Oregon licensed child care facility. The Associate of Applied Science degree, qualifies a student to become a head teacher in a child care facility licensed by Oregon Childcare Division. The National Association for Education of Young Children's (NAEYC) minimum suggested training for teachers is also an AAS degree in ECE. All required courses and competencies mastered for each certificate apply to the next step.

At the certificate levels, students may focus on infant and toddler, early childhood, or both areas. Classes may apply toward a CDA credential.

Program Requirements

Exit requirements for all Certificates (Level I and II) in Early Childhood Education and the AAS degree in Early Childhood Education are as follows: Students must receive a grade of "C" or better in every required early childhood education class in order to receive a certificate or degree. Students must meet practicum competencies for each level of certificate or degree. Students may retake classes in order to meet the grade requirement with the exception of ECE Practicum I (ECE 160, ECE 150, ECE 161-166, ECE 151-156) and ECE Advanced Practicum (ECE 250, ECE 251-259) seminar and lab classes. These classes may be re-enrolled in only once after student receives a grade of less than "C." SAC approval is required for any student desiring to attempt any ECE course for the third time.

A minimum of three credits and a maximum of six credits in practicum Lab I are required for the Level I Certificate. A minimum of two and a maximum of four additional practicum lab credits are required for a Level II Certificate. Credits required depend on individual student competency as evaluated by ECE instructors. Students must enroll in Practicum seminar each term they take Practicum I, II or Advanced Practicum.

Integrating Theory and Practice I and II require WR 121, and completion of Level II Certificate course work.

Certificate and Degree Requirements
Level I Certificate (22-25 credits)

Level I Certificate requires WR 115 or its equivalent.

Core Courses Required are (12 credits)

ECE 226	Child Development	3
	or	
ECE 100	Basic Child Development	3
ECE 102	Guidance of Young Children	3
ECE 103	Early Childhood Observation	3
HE 112	First Aid and Emergency Care	1 ¹
HE 262	Children's Health Nutrition and Safety	3

Courses required in addition to 12 core credits

ECE 110	Infant/Toddler Environments	3
ECE 113	Early Childhood Materials and Activities	3

Practicum I (Seminar):

ECE 150	Infant/Toddler Seminar	1 ²
ECE 160	Early Childhood Seminar	1 ²

Practicum I:

ECE 153-156	Infant/Toddler Practicum I	3-6
	or	
ECE 163-166	Early Childhood Practicum I	3-6

A minimum of three credits and a maximum of six practicum lab credits are required to meet beginning competency levels. Credits required depend on individual student competence as evaluated by ECE instructors.

¹Or current Infant/Child First Aid and CPR cards.

² Students must enroll in Practicum Seminar each term they take Practicum.

Level II Certificate (38-44 credits)

This certificate requires achievement of a Level I Certificate, MTH 20 and WR 121 and completion of ECE 226 Child Development, plus the courses listed below.

(ECE 100 Basic Child Development may be used as an elective for this certificate.)

ECE 101	Child, Family, Community	3
PSY 240	Interpersonal Awareness and Growth Techniques	3
ECE 200	The Professional in Early Childhood Education	3
ECE 150	Infant/Toddler Practicum I (Seminar)	1
	and	
ECE 152-156	Infant/Toddler Practicum I	2-6
	or	
ECE 162-166	Early Childhood Practicum I	2-6
	and	
ECE 160	Early Childhood Practicum I (Seminar)	1
	ECE Elective	3

¹A minimum of three credits and a maximum of six credits are required for the Level I Certificate. A minimum of two and a maximum of four additional practicum credits are required for a Level II Certificate. Credits required depend on individual student competency as evaluated by ECE instructors.

²or current Infant/Child First Aid and CPR cards.

Associate of Applied Science in Early Childhood Education (90 credits)

A.A.S. degree course work prerequisites:

This degree requires achievement of Level I and II Certificates plus the courses listed below.

Note: WR 121 is a prerequisite for ECE 270, 271, 250 and ECE 251-259.

ECE 270	Integrating Theory and Practice I	3
ECE 271	Integrating Theory and Practice II	3
ECE 273	Team Building and Supervision	3
ECE 250	Advanced Practicum - Seminar	2-4 ¹
ECE 251-259	Advanced Practicum Lab	6-10 ¹
	Electives - ECE related	variable credit
	Specified General Education Courses	21 ²

¹A minimum of six lab credits are required, although a student may take a maximum of 10 lab credits to achieve competence. Competence is evaluated by ECE instructors. Seminar (2 credits) is taken each term with Advanced Practicum Lab.

²These credits include WR 121 plus 18 credit hours of college required General Education courses.

PCC requires math competency for AAS degree.

ECE and Related Electives:

ECE 100	Basic Child Development	3
ECE 175A	Infant/Toddler Caregiving: Growth & Development	1
ECE 175B	Infant/Toddler Caregiving: Group Care	1
ECE 175C	Infant/Toddler Caregiving: Social/Emotional Growth	1
ECE 175D	Infant/Toddler Caregiving: Family Provider Relationships	1
ECE 190-192	Reading and Conference in Child Development	1-3
ECE 199	Special Topics	2-5
ECE 201	Nutrition in ECE	2
ECE 233	Cultural Diversity in ECE	3
ECE 234	Children w/Special Needs in ECE	3
ECE 235	Music and Movement in ECE	3
ECE 236	Language and Literacy in ECE	3
ECE 237	Science and Math in ECE	3
ECE 238	Administration of Early Childhood Programs	3
ECE 239	Helping Children & Families Cope with Stress	3
ECE 241	Exploring the Child Development Associate	1
ECE 274	Expanded Curriculum Pre K, Kindergarten and Mixed Age Classrooms	3
ECE 299	Special Topics in ECE	3
CIS 120	Computer Concepts I	4

Economics

Description

Economics is the study of how societies allocate their scarce resources. It examines individual and social action related to the use of limited resources toward the production, distribution and consumption of goods and services.

Prerequisites

See the Course Description (EC prefix) section of this catalog for individual Economics courses and course prerequisites.

Students wishing to complete a sequence have a choice of beginning with EC 200 or EC 201, but must complete nine hours including EC 201 Microeconomics and EC 202 Macroeconomics.

Education

Cascade Campus
Terrell Hall
503-978-5526, 503-978-5229 or 503-978-5317

Includes:

Instructional Assistant: Special Education
Library/Media Assistant
Teacher Relicensing
Elementary Education Transfer

Career Description

Mission statement: The Education programs are based upon principles that emphasize value clarification, personal development, potential growth and understanding learning styles. Students will apply these principles to their future employment.

The programs train and educate students through relevant and clearly specified curriculum. The students receive practical training in the schools and private industry.

The programs are designed for persons of all ages, races, cultures and economic backgrounds. The programs value diversity and realize that diverse populations in the field of Education bring rich, diverse perspective, depth and breadth into the school and private industry.

Program Goals

1. Programs value diversity and will provide information, discussion and implement diverse principles.
2. Programs develop classes to provide personal and individual growth.
3. Programs provide training in the local schools and private industry.
4. Programs provide skill training and education in their specific areas.
5. Program leaders will support students during classes and office hours.

Instructional Assistant: Special Education

Cascade Campus
Terrell Hall
503-978-5526, 503-978-5229 or 503-978-5317

◆ One-year Certificate Instructional Assistant, Special Education - 48 credit hours.

Education courses may be applied to the 90 credit hours required for an Associate of General Studies degree. PCC has an articulation agreement with PSU that states that the Instructional Assistant Certificate Program together with an Associates in General Studies degree at PCC will articulate to PSU. After admittance to the Liberal Arts and Science department at PSU the student will have junior status. See a program advisor for entrance into the program.

Career Description

The PCC Instructional Assistant and Special Education Program prepares students on a personal level to resolve everyday challenges and to professionally support teachers in planning, presenting and evaluating instruction and learning. Practicums (field experience) are arranged with local school districts.

The instructional assistant's responsibilities may include the following:

1. Working under the supervision of a teacher.
2. Assisting small group instruction in reading, math, spelling, etc.
3. Assisting individual students in the above academic areas and self-help skills, daily living skills, physical therapy and other skills depending on the functioning level of the student.
4. Following behavior programs as directed by the teacher.
5. Preparing and assembling materials. The particular responsibilities assigned to an assistant depend on the program and personnel in each school.

Employment opportunities are excellent in Portland and in surrounding areas as a result of the present legislative support for equal education for students with special needs (IDEA). The PCC Instructional Assistant and Special Education Program is designed for persons of all ages, races, cultures and economic backgrounds. The program values diversity in the field of education.

Program Requirements

Students in the Instructional Assistant Program at PCC are required to demonstrate competencies in:

Writing; Reading; Mathematics

Computer literacy (students must complete CAS 121 and CAS 133 or pass competencies)

Students must demonstrate these competencies prior to being admitted into the program by passing appropriate placement tests, or successful completion of the courses listed below. Placement test scores must be high enough to qualify students for enrollment in WR 121 and MTH 60. Students

born after 1957 are required to provide proof of immunization against measles. Students will also be required to be fingerprinted and criminal background check as a security measure. Admission to the program requires an interview process.

Course of Study

PCC offers a 48 credit hour certificate with emphasis on field experience in public or private elementary and secondary schools. The program has three goals: 1) to train students to work with special needs students in an academic or vocational environment; 2) to allow students to progress toward teacher certification at a four-year institution; and 3) to provide exploratory experiences for students who are considering regular or special education as a career.

Required Courses

Fall

ED 205	Tutoring Principles and Practices	5
ED 209	Practicum	3
ED 216	Practicum: Seminar	1
ED 251	Overview of Exceptional Learners	3
PSY 101	Psychology and Human Relations	3

Winter

ED 258	Multicultural Education	3
ED 210	Practicum	3
ED 216	Practicum: Seminar	1
ED 252	Behavior Management	3
ED 268	Intro to Developmental Disabilities	3
HE 112	First Aid and Emergency Care	1
ED 290	Strategies for Teaching English Language Learners	3

Spring

ED 102	Displays & Graphics for Educators	3
ED 136	Computers in Education	3
ED 224	Foundations in Education	3
ED 211	Practicum	3
ED 216	Practicum: Seminar	1
ED 269	Introduction to Teaching the Learning Disabled Student	3

Suggested Courses

ED 298C	Special Projects in Education	3
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Library/Media Assistant

Cascade Campus
Terrell Hall
503-978-5526, 503-978-5229, 503-978-5317

◆ Teacher Relicensing - Many of the library courses can be used for teacher relicensing. For specific information contact an education advisor, 503-978-5526 or 503-978-5229.

◆ One-year Certificate Library/Media Assistant - 45 credit hours.

Education courses may be applied to the 90 credit hours required for an Associate of General Studies. See a program advisor for help in program planning.

Career Description

The library/media assistant works in all aspects of library and media center operations. Areas of concentration include: 1) basic library skills such as technical processing, circulation procedures and reference materials, 2) knowledge of children's literature and literature sharing techniques, 3) planning and production of educational media including displays, desktop publishing and multimedia programs, 4) operation of audio-visual equipment, 5) using the internet for researching information, e-mail, graphic resources and distance learning, 6) office skills such as word processing, data base and spreadsheets, 7) computer operation using various types of software.

Graduates qualify for jobs in school libraries, public libraries and some private libraries. Employment opportunities are good to excellent throughout the metropolitan area.

Program Requirements

Students in the Library/Media Program at PCC are required to demonstrate competencies in:

Writing

Reading

Computer literacy (students must complete CAS 121 and CAS 133 or pass competencies)

Students must demonstrate these competencies prior to being admitted into the program by passing appropriate placement tests, or successful completion of the courses listed below. Placement test scores must be high enough to qualify students for enrollment in WR 121. Students born after 1957 are required to provide proof of immunization against measles. Students will also be required to be fingerprinted and criminal background check as a security measure. Admission to the program requires an interview process.

Course of Study

PCC offers the following two options:

1. A One-year Certificate program that develops skills used in school, public and private libraries, and media centers. Two terms of practicum are included.
2. An Associate of General Studies degree. Students take a combination of 45-60 credit hours from Option One, plus 18 credit hours of General Education in order to complete the 90 credit hours necessary to receive an associate degree. Students completing the two-year option have varied experiences in the field of libraries, media centers, and audio-visual departments. Each student's program must be approved by the Education Department.

Fall

ED 102	Displays and Graphics for Educators	3
ED 109	Library Procedures	3
ED 112	Introduction to Childrens Literature	3
ED 136	Computers in Education	3
ED 224	Foundations in Education	3
ED 209	Practicum	3 ¹
HE 112	First Aid and Emergency Care	1

Winter

ED 103	Desktop Publishing for Educators	3
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ED 114	Reference Materials	3
ED 171	Computers in Education II	3
ED 210	Practicum	3 ¹
ED 260	Multicultural Literature for Children and Young Adults	3

Spring

ED 104	Multimedia for Educators	3
ED 111	Selection of Library Materials	3
ED 115	Storytelling	2
ED 171	Computers in Education II	3
ED 206	Seminar: Advanced Education Techniques	3
ED 211	Practicum	3 ¹

¹Only two of the three practicums are required.

Program Requirements

Students should see an education program faculty member for advice on the following programs.

Teacher Relicensing

503-978-5229, 503-978-5526, 503-978-5317

Teachers may use Portland Community College courses for relicensing. Oregon Teacher Standards and Practices Commission should be contacted for specific requirements as these may vary for each individual case (1-503-378-3586). A PCC Education Program advisor will be glad to help in developing a relicensing plan. Courses numbered 101 or higher may generally be used for relicensing. Some recommended courses are:

ED 102	Displays and Graphics for Educators	3
ED 104	Multimedia for Educators	3
ED 112	Introduction to Children's Literature	3
ED 136	Computers in Education	3
ED 171	Computers in Education II	3
ED 205	Tutoring Principles and Practices	5
ED 209	Practicum	3
ED 251	Overview of Exceptional Learners	3
ED 252	Behavior Management	3
ED 258	Multicultural Education	3
ED 260	Multicultural Literature for Adolescents and Young Adults	3
ED 268	Introduction to Developmental Disabilities	3
ED 269	Introduction to Teaching the Learning Disabled Student	3
ED 290	Strategies for Teaching English Language Learners	3

Other courses may be suitable for relicensing depending on Oregon Teacher Standards and Practices Commission recommendations (1-503-378-3586).

For advising with recertification and relicensing call 503-978-5526, 503-978-5229, or 503-978-5317.

Elementary Education Transfer

Students planning a career in teaching are allowed to take up to nine (9) credit hours from the following classes as General Electives without having to be admitted into the program:

ED 209	Practicum	3
ED 251	Overview of Exceptional Learners	3
ED 252	Behavior Management	3
ED 258	Multicultural Education	3
ED 269	Introduction to Teaching the Learning Disabled Student	3

However, students will still be expected to meet the same prerequisite in writing and be in good academic standing. It is recommended that students interested in Elementary Education pursue an Associate of Arts, Oregon Transfer degree, transferable to four-year public universities and colleges in Oregon. For more detailed information, please see an Education advisor.

Other Recommended Electives

ED 136	Computers in Education	3
ED 205	Tutoring Principles and Practices	5
ED 209	Practicum	3
ED 112	Introduction to Children's Literature	3
ED 251	Overview of Exceptional Learners	3
ED 252	Behavior Management	3
ED 258	Multicultural Education	3
ED 260	Multicultural Literature for Children and Young Adults	3
ED 268	Introduction to Developmental Disabilities	3
ED 269	Introduction to Teaching the Learning Disabled Student	3
ED 290	Strategies for Teaching English Language Learners	3
ED 298C	Special Projects in Education	3

Outdoor School

ED 214	Practicum: Outdoor School	3
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Portland Community College, in conjunction with Northwest Regional Educational Service District (NWRES) and Multnomah Educational Service District (MESD) Outdoor School, offers the following Outdoor School experience.

PCC students gain experience while working with sixth grade students in an outdoor school setting. Students must complete the following requirements:

1. Attend two evening classes at NWRES or MESD held by the Outdoor School staff.
2. Spend one week at an Outdoor School camp.
3. Meet with the Outdoor School staff and the PCC staff.

For more information about the Outdoor School experience, contact either the Education Department or the NWRES or MESD Outdoor School Department.

Electrical Trades

Cascade Campus
Southeast Center, Room 128
503-788-6105

PCC is an approved training agent for continuing education for journey person electrical license renewal through the State of Oregon Electrical Licensing Division.

◆ Associate of Applied Science degree - 90 credit hours; includes 18 credit hours of General Education and 50 credit hours of related technical study. 22 credits will be granted for journey status (journey card is evidence). Degree candidates must meet the comprehensive requirements for writing and mathematics.

Program Requirements

Students should see the program chairman for advising assistance. Placement in MTH 20 and WR 115 are recommended.

Career Description

The electrician is a person who installs, maintains and repairs wiring, electrical equipment and fixtures. They ensure that work is in accordance with relevant codes. These are Oregon licensed occupations and a person must meet State standards to practice these occupations. Please contact the Building Codes Agency at 503-378-3115 or 503-378-3380 in Salem for specific licensing requirements.

Course of Study

PCC offers an opportunity to enter various apprenticeship programs. Students must prepare for and meet standards to fulfill their complete on-the-job training program.

TE 9061	National Electrical Code	3
TE 9083	National Electric Code II	3
TE 9120	Programmable Logic Controllers, Hand Held	2
TE 9121	Intermediate Programmable Controllers, PC Based	2
TE 9126	Basic Programmable Controllers, PC Based	2
TE 9127	Advanced PLC's PC Based	2
TE 9145	Electrical Motor Controls	2
TE 9146	Adjustable Speed Drives	2
TE 9605	OSHA 30 HR Safety Training	3
TE 9610	Electrical I: 1st Year, 1st Term	3
TE 9611	Electrical II: 1st Year, 2nd Term	3
TE 9612	Electrical III: 1st Year, 3rd Term	3
TE 9613	Electrical IV: 2nd Year, 1st Term	3
TE 9614	Electrical V: 2nd Year, 2nd Term	3
TE 9615	Electrical VI: 2nd Year, 3rd Term	3
TE 9616	Electrical VII: 3rd Year, 1st Term	3
TE 9617	Electrical VIII: 3rd Year, 2nd Term	3
TE 9618	Electrical IX: 3rd Year, 3rd Term	3

TE 9619	Electrical X: 4th Year, 1st Term	3
TE 9620	Electrical XI: 4th Year, 2nd Term	3
TE 9621	Electrical XII: 4th Year, 3rd Term	3
TE 9631	LME Electrical I	3
TE 9632	LME Electrical II	3
TE 9633	LME Electrical III	3
TE 9634	LME Electrical IV	3
TE 9693	NEC for Restricted Energy	3
TE 9076	NEC: Limited Maintenance Electricians	4

Electronic Engineering Technology

Sylvania Campus
Science Technology Bldg. Room 208
503-977-4163
engineering@pcc.edu

◆ Associate of Applied Science degree - All courses shown in six-term program. Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

Electronic Engineering Technology (EET) is concerned with the theory and practice of applied electronics engineering. Emphasis is placed on the practical application of engineering knowledge. To apply electronics engineering knowledge requires a thorough background in mathematics and science. EET graduates possess a combination of theoretical and practical understanding and require minimal on-the-job training to become productive.

Graduates of an associate degree program in EET are called engineering technicians and find employment in circuits and systems testing, product development, prototype construction and testing, circuit and systems modification, systems operation and manufacturing.

Graduates of a bachelor of science degree program in EET are called engineering technologists. They have additional background and function in industry as component and system designers, field engineers, marketing specialists, sales engineers, component and systems test engineers, production engineers, manufacturing engineers and process control specialists.

Associate and baccalaureate EET graduates are expected to have good communication skills and be capable of creative problem solving, working independently and in teams. They should have extensive knowledge of both the hardware and software of electronic systems.

Employers of engineering technicians and engineering technologists include research and development laboratories, electronic equipment manufacturers, public utilities, colleges and universities, government agencies, medical laboratories and hospitals, electronic equipment distributors, semiconductor manufacturers and manufacturing and processing industries that use electronic control equipment.

Program Prerequisites

All students must have an advising interview with an Electronic Engineering Technology (EET) faculty advisor. Placement in MTH 95 and WR 115 is required. Basic computer skills in the Windows™ operating system, word processing and spreadsheets are required.

Application and Acceptance

Full-time students

EET is a limited enrollment program for students seeking a degree. A day program starts in the fall and a compressed work week and evening program starts in the winter. Qualified students are accepted in the order in which the application process is completed.

Job-upgrade students

Students must meet individual course prerequisites and complete an advising interview with an EET faculty advisor prior to enrollment. Admission is granted on a space available basis after the needs of the full-time students are met.

Continuing Education

Students of this program may transfer to the Oregon Institute of Technology (OIT) to pursue a Bachelor of Science degree in Electronics, Computer, or Laser Optical Engineering Technology. Faculty advisors will provide assistance in the selection of additional coursework appropriate to each student's goals.

First Term

EET 101	Intro to Electronic Technology	1
EET 111	Electrical Circuit Analysis I	5
EET 178	Microcomputer Systems Servicing	4
MTH 95	Intermediate Algebra	4
WR 121	English Composition	3

Second Term

EET 121	Electrical Circuit Analysis II	5
EET 176	Digital Fundamentals I	3
MTH 111C	College Algebra/Math, Science & Engineering	5
	Writing Elective	3 ⁵
	General Education Elective	3 ¹

Third Term

EET 131	Electrical Circuit Analysis III	5
EET 177	Digital Fundamentals II	3
EET 188	Industrial Safety	1
MTH 112	Elementary Functions	5
	General Education Elective	3 ¹

Fourth Term

EET 218	Semiconductor Devices & Circuits	5
EET 179	Digital Systems III	5
CST 109	C Programming for Electronics	4
MTH 251	Calculus I	4

Fifth Term

EET 228	RF Communications Circuits	5
EET 241	Microcomputer Systems	4 ²
EET 254	EET Seminar	1
PHY 201	General Physics	4 ³
MTH 243	Statistics I	4

Sixth Term

EET 238	Operational Amplifier Circuits	5
EET 255	Industrial Control Systems	4
PHY 202	General Physics	4 ⁴
	General Education Elective	3 ¹

Oregon Institute of Technology transfer option: Students intending to transfer to OIT with junior standing need to take MTH 252, MTH 253, and PHY 203 (or PHY 213).

¹18 credit hours of General Education are required for the AAS degree. Nine credits of General Education are satisfied by the math and physics courses listed above. Nine additional credit hours must be taken in the Social Science area and Arts and Humanities area, with at least one course from each area. SP 111, Fundamentals of Speech, is required by OIT.

²GE 275 may be substituted.

³PHY 211 may be substituted.

⁴PHY 212 may be substituted.

⁵WR 214, WR 227, or approved equivalent.

Emergency Dispatch Operator 9-1-1

Cascade Campus
Peninsula Hall, Room 2036
503-978-5424

◆ One-year Certificate - 51 credit hours of required courses, certification in the Law Enforcement Data System computer (State of Oregon) and state approved training in Emergency Medical Dispatch and Hazardous Materials Awareness.

Some course work within the Emergency Dispatch Operator 9-1-1 Program can be applied toward an Associate of General Studies degree. Students wishing to apply for a General Studies degree should consult an academic advisor.

Career Description

An emergency telecommunications dispatcher receives information from the public and from emergency services personnel (police, fire and medical), at a public safety answering point (PSAP), commonly referred to as a "9-1-1 center." The job involves operation of complex communications equipment including two-way radios, multi-line telephone systems and computers. Both emergency and non-emergency calls are handled and field personnel are dispatched to a wide variety of calls. The dispatcher must not only have a thorough knowledge of local geography but also an under-

standing of manpower needs and equipment and be able to work within the constraints of departmental policy and procedures. Dispatchers must keep accurate records of communications received and transmitted, maintain a constant status of all field operations and be able to perform simultaneous functions.

Program Requirement

ASSET basic skills placement test administered through assessment centers.

Application and Acceptance

The 9-1-1 Emergency Dispatch Operator Program (EDO) is open to all high school graduates (or equivalent) who meet the standards for employment in the 9-1-1 field, including good physical condition and high moral standards. Reading and writing skills are also important.

Students planning to apply for the Emergency Dispatch Operator 9-1-1 Program should contact the program coordinator for specific eligibility requirements and an appointment for a program advising session. Because of the unique responsibilities involved in public safety emergency communications, the Emergency Dispatch Operator 9-1-1 Program reserves the right to require that a student who appears to the department unsuited for emergency communications training and cooperative education activities be counseled into another area of study.

The Selection Process: In order to be selected into the EDO Program the following process must be successfully completed:

1. Application - An application form is available in the Medical Technology & Science Division Office, Jackson Hall, Room 117 at Cascade Campus. Application forms are also available by mail upon request. Returned application forms will be processed upon receipt of all documentation listed in the application packet. Application for admission may be made for any term, but acceptance is dependent upon space available.
2. Testing - Candidates who are applying for admission to the program should submit a copy of their ASSET scores for reading, written English and math with their application form. Additional testing may be required for admission to fall term classes (such testing will be determined by the number of applications received).
3. Oral interview - Final acceptance into the program will be determined by an interview with the program coordinator.
4. Acceptance into the program is conditional upon receipt of a satisfactory criminal history background check. Applicants will be asked to submit a fingerprint card and letter requesting criminal history information to the Oregon State Police. The cost of this background check is \$12, which is paid by the applicant. Fingerprint cards and form letters to the state police will be supplied by the college and limited fingerprinting services are available through the college.

Course of Study

The PCC 9-1-1 Emergency Dispatch Operator Program is located at the Cascade Campus, 705 N. Killingsworth, Portland, Oregon. This is a three-term, 51 credit hour intensive training program for students interested in a career in emergency telecommunications. The curriculum includes skills, knowledge and abilities that have been identified as critical

for career entry by 9-1-1 center directors, the PCC 9-1-1 Advisory Committee and professional telecommunications organizations. The three-term telecommunications sequence is designed as an introduction to emergency communications and covers the basics of call receiving, two-way radio communications and computer based dispatching and follows the national 40 hour Telecommunicator Training Program developed by the Association of Public Safety Communications Officials, Inc. Field experience through cooperative education and simulator training are integral parts of the required training for this certificate program. The public safety emergency telecommunications classes are open to all students wishing to explore this exciting and rewarding field.

Core Courses

The following courses are required of all students enrolled in the Emergency Dispatch Operator 9-1-1 Program and are open to dispatchers and to other professionals working in fields related to 9-1-1 dispatch. Enrollment is subject to course availability, class size and in the case of restricted classes, department permission. In addition, public sector organizations, such as local 9-1-1 centers, may contact the department for professional in-service courses and seminars for their professional staff.

Program Objective

The 9-1-1 Emergency Dispatch Operator Program is supported by local 9-1-1 centers and private agencies. This nine-month program is designed to teach the technical skills needed to perform successfully in emergency telecommunications.

The college certificate program has been developed cooperatively with the 9-1-1 dispatch centers in the Portland metropolitan area. The program is supported by an advisory committee made up of emergency services managers, supervisors, dispatchers and former students.

Classes are taught by professionals in the field of emergency services and public safety communications. Students observe working dispatchers throughout the training program as part of a cooperative work experience requirement. The students may have an opportunity to actually perform tasks and be evaluated in a 9-1-1 center.

The following courses may be taken in any sequence:

EM 101	Introduction to Emergency Services	4
EDO 103	Introduction to Criminal Law	3
EDO 105	Crisis Intervention	3
EDO 108	Transcription for Telecommunicators	1
EDO 109	Public Safety Emergency Telecommunications I	3
EDO 110	Public Safety Emergency Telecommunications II	3
EDO 111	Public Safety Emergency Telecommunications III	3
EDO 120	Emergency Medical Service: First Responder	3
EDO 227	Communication Center Operations I	2
EDO 228	Communication Center Operations II	2
EDO 229	Communication Center Operations III	2

EDO 280A CE: 9-1-1 variable credit
 EDO 280B CE: 9-1-1 Seminar 1¹

¹Students must register for a one credit cooperative education seminar for each cooperative education activity section. Four credits of cooperative education activities (160 hours) and three seminars are required for a one-year certificate.

Other required courses

PSY 101	Psychology and Human Relations	3
WR 121	English Composition	3
SP 100	Introduction to Speech Communication	3
CAS122	Keyboard for Speed and Accuracy	3
CIS 120	Computer Concepts I	4

Recommended Electives

The following courses are recommended to enhance student skills but are not required for the one year certificate:

CAS 121A	Beginning Keyboarding	1
CG 144	Introduction to Assertiveness	1
CG 145	Stress Management	1
	or	
PSY 190	Stress Management	3
SPA 101	First Year Spanish	4

Emergency Medical Technician

Southeast Center
 2850 S.E. 82nd Avenue, Room 128
 503-788-6205; Fax 503-788-6120

◆Associate of Applied Science degree - 100 credit hours; includes 82 credit hours of required technical courses, 18 credit hours of General Education plus college graduation requirements (see Comprehensive Degree Requirements). Consult department advisor for help in planning General Education electives.

◆One-year Certificate - 51 credit hours (required to enter the second year AAS degree program). These courses include the EMT Basic I & II, related technical courses and General Education electives.

The AAS degree (second year) includes EMT-Paramedic technical and related courses, plus General Education electives.

Career Description

The Emergency Medical Services Department offers career training for entry-level positions in emergency medical settings. Ambulance companies, fire departments, police departments, and various other industries requiring emergency medical services may employ Emergency Medical Technicians. After successful completion of all requirements for EMT-Basic, Intermediate or Paramedic training, the student is eligible to apply and take the respective state certification exams. Other emergency medical training offered includes First Responder, First Aid, CPR and EMT Continuing Education.

First Year Certificate

EMT-Basic Requirements

- ASSET placement test scores less than three years old or transcript with course completion within last five years.
 Place into WR 121, or complete WR 115 with a grade of "C" or better.
 Place into MTH 60, or complete MTH 20 with a grade of "C" or better.
 Place into RD 115, or complete RD 90 with a grade of "C" or better.
- Must have completed high school or GED.
- Must be a minimum of 18 years of age.
- Must have documented results of: TB exam (within 12 months), MMR (measles immunity) if born after 12-31-56, Tetanus (within past 10 years), Hepatitis B immunization series started, , Varicella (chicken pox), Influenza (one dose each fall/winter for students receiving placements during the flu season).

Application and Acceptance

Bring photocopies of transcripts, immunization documentation and completed application to the EMS Department for review. Incomplete applications will not be accepted. Applicants for the paramedic level must complete a departmental selection process. First Responder, EMT-Basic, EMT-Intermediate, and Paramedic courses are limited to 24 students per class. Attendance at the first class is mandatory. **No exceptions.** Students missing the first class will be dropped from the roster by the department.

Legal Limitations for EMT Certification

Applicants should be aware that the following questions are asked on the National Registry EMT-Basic and/or the Oregon EMT Application:

- Do you have or have you been diagnosed with any medical, mental, physical impairment(s), within the last 10 years that may affect your ability to perform **all** duties and functions of an emergency medical technician at that level of certification?
- Have you ever engaged in excessive or habitual use of chemical substances for other than legitimate medical purpose or been treated for addiction or dependency?
- Have you ever engaged in habitual use of alcohol or received treatment for alcoholism within the last 10 years?
- Have you ever been convicted of any misdemeanor, felony, or other crime except for minor traffic infractions, under the laws of any state or foreign country? Minor traffic violations need not be reported; felony or misdemeanor traffic crimes and any violation involving driving while impaired, intoxicated, or under the influence of any drug or alcohol **must** be reported.
- If you have been or are certified as an EMT in this or any other state, have you ever been disciplined by your employer or supervising physician, within the past 10 years (including but not limited to restricted scope of practice, suspension, letter or reprimand, etc.), in connection with inappropriate or unprofessional conduct or questionable medical care or malpractice or misconduct?

6. If you have ever been certified as an EMT or other certified or licensed health care provider, have you ever been named in a lawsuit alleging medical malpractice or misconduct?

Course of Study

The PCC Emergency Medical Services Department trains and educates the EMS professional to excel in meeting the needs of the community. EMTs respond to medical emergencies by providing immediate care and transportation to the ill and injured. This department combines classroom lectures, hands-on skill labs and appropriate cooperative clinical and field experience to provide students with cognitive, psychomotor and affective competence to function as effective EMTs.

First Year

First Term

BI 231	Human Anatomy & Physiology I	4
EMT 105	Emergency Medical Technician Basic-Part I	4
EMT 100	Intro to Emergency Medical Services	3
EMT 118	EMT Medical Terminology	3
	General Education	3

Second Term

BI 232	Human Anatomy & Physiology	4
EMT 106	Emergency Medical Technician Basic-Part II	5
EMT 116	EMT Rescue	3
EMT 280B	Cooperative Education: EMT-Seminar	1
	General Education	3*

Third Term

BI 233	Human Anatomy and Physiology III	4
EMT 115	Crisis Intervention	3
CIS 120	Computer Concepts I	4
EMT 117	Emergency Response Communication and Patient Transport	3
MTH 65	Intro to Intermediate Algebra	4
EMT 111	EMT Intermediate	9**

**EMT 111 EMT Intermediate is a stand-alone course, not required for degree or academic certificate program.

Second Year

Includes EMT-Paramedic Technical courses

Fourth Term

EMT 121	EMT Paramedic-Part 1	8
EMT 122	EMT Paramedic-Part 1 Clinical	2
HPE 295	Health and Fitness for Life	3
SP 111	Fundamental Speech	3

Fifth Term

EMT 123	EMT Paramedic-Part 2	8
EMT 124	EMT Paramedic-Part 2 Clinical	3
PSY 201A	General Psychology	3

General Education 3*

Sixth Term

EMT 125	EMT Paramedic-Part 3	4
EMT 126	EMT Paramedic-Part 3 Clinical	3
EMT 280A	Cooperative Education: EMT	6
	General Education	3*

*General Education courses must be taken from the Humanities and Social Sciences distribution lists.

Employment Skills Training

◆ Less than one year certificate requiring a minimum of 12 credits and a maximum of 44 credits.

Career Description

This certificate program is designed to provide maximum flexibility for short-term educational opportunities in order to meet individual student needs targeted at specific occupational goals. The purpose of this program is to enable students to upgrade current skills, maintain employment, and increase employability skills. Program content can be across a variety of areas of study for every approved technical program.

Program Requirements

An interview with an advisor or a faculty member within the professional technical department is required to determine the student's career goals as they relate to employability and program content. All PCC college-level courses are eligible to be included in the certificate. Developmental or basic education courses may not be included as part of the certificate. "Next steps" for continuing the educational process will be discussed and reviewed by the student, the college advisor, the department, and possibly by the employer. Subject Area Committees will determine prerequisite requirements for each Employment Skills Training Certificate.

Engineering

Sylvania Campus
Science Technology Building, Room 208
503-977-4163
engineering@pcc.edu

Programs

Chemical	Environmental
Civil	Industrial
Computer	Manufacturing
Construction	Mechanical
Electrical	Other

Career Description

Engineering is a profession in which knowledge of mathematics and natural sciences gained through study and experience is applied for the benefit of society. Engineers solve technical problems as members of project teams or as individual specialists. Work may involve research, development, planning, design, construction, manufacturing, supervision and management. Engineering is a licensed profession in all states.

Program Requirements

All students must have an advising interview with an Engineering (GE) faculty advisor. Students must place in WR 115, Introduction to Expository Writing and MTH 251, Calculus I. High school courses in chemistry, physics and microcomputer literacy are highly recommended. Students lacking these courses are encouraged to take CH 100, PHY 101 and/or CIS 120 as appropriate, prior to beginning the program.

Students lacking the necessary prerequisites may upgrade their skills by taking writing, mathematics, science and microcomputer literacy courses or by completing the first year of one of PCC's two-year engineering technology programs (civil, computer software, electronic, or mechanical). See a GE program advisor for information.

The use of a scientific, programmable, graphing calculator is required for the program.

Course of Study

PCC offers curricula equivalent to the first two years of study in chemical, civil, computer, electrical, environmental, industrial, manufacturing and mechanical engineering and construction engineering management at Oregon State University (OSU), Portland State University (PSU), the University of Portland (UP), Washington State University-Vancouver (WSUV) and Oregon Institute of Technology (OIT). Equivalent first and second year courses are also available for students interested in other majors or universities. (**Note:** All majors are not available at all the institutions listed.)

Advising guides outlining which engineering, mathematics, science and General Education courses to take for the disciplines listed above have been prepared in cooperation with OSU, PSU, UP, WSUV and OIT. Following these advising guides will prepare students to transfer for their upper division studies. It is recommended that students prepare for transfer by selecting courses that meet lower division university requirements rather than by seeking a degree. Students interested in a degree should refer to the Comprehensive Degree Requirements section of this catalog for information concerning the granting of degrees.

See the Course Description (GE prefix) section of this catalog for individual Engineering courses and course prerequisites.

English as a Non-Native Language (ENNL)

Description

These courses are located throughout the PCC district. Consult a class schedule or a campus or center for specific information. English as a Non-Native Language (ENNL) is an intensive, multi-level language program designed to develop the student's competency in listening, speaking, reading and writing English at the college level.

The following subjects may be offered based on the student's needs and program capability: ENNL - advanced supplementary writing, vocabulary building and pronunciation.

Summer and evening writing, reading and speaking classes may be offered for fewer than five lecture and five credit hours to meet program and student needs. It may take the evening student longer to complete the equivalent day program.

Program Requirements

Students enroll in 2-15 credit hours per term on the basis of a placement test and advance to higher levels as they demonstrate mastery of material. In addition to class work, free tutoring is available at each campus. Students unable to place in the ENNL Program may enroll in preparatory classes in English as a Second Language. Each level of ENNL is divided into writing, reading and speaking skill areas. See the course descriptions for individual course prerequisites.

ENL 150	Intermediate Reading	5
ENL 152	Intermediate Writing	5
ENL 154	Intermediate Speaking & Pronunciation	5
ENL 155	Intermediate Speaking	2
ENL 156	Intermediate Pronunciation	3
ENL 158	Intermediate Vocabulary Building	3
ENL 160	Upper Intermediate Reading	5
ENL 162	Upper Intermediate Writing	5
ENL 164	Upper Intermediate Speaking & Pronunciation	5
ENL 165	Upper Intermediate Speaking	2
ENL 166	Upper Intermediate Pronunciation	3
ENL 168	Upper Intermediate Vocabulary Building	3
ENL 250	Advanced Reading	5
ENL 252	Advanced Writing	5
ENL 253	Advanced Supplementary Writing	3
ENL 254	Advanced Speaking & Pronunciation	5
ENL 255	Advanced Speaking	3
ENL 256	Advanced Pronunciation	3
ENL 257	Advanced Pronunciation	2
ENL 258	Advanced Vocabulary Building	3
ENL 259	Advanced Vocabulary Building	2
ENL 260	Upper Advanced Reading	5

ENL 262	Upper Advanced Writing	5
ENL 264	Upper Advanced Speaking/Pronunciation	5
ENL 265	Upper Advanced Speaking	3
ENL 266	Upper Advanced Pronunciation	3
ENL 267	Upper Advanced Pronunciation	2
ENL 268	Upper Advanced Vocabulary Building	3

Environmental Studies

Description

Environmental Studies is an interdisciplinary field arising from the interaction of natural and social sciences necessary for understanding human influences on the environment. The environmental studies program is designed to allow students to develop the skills and interdisciplinary understanding needed to deal with environmental issues.

The environment is among the professional areas showing the strongest growth in terms of employment opportunities. Government agencies, consulting firms and industry are unable to fill their needs for professionally trained employees in the environmental area.

Program Requirements

See the requirements of individual courses in the Course Description section of this catalog.

Course of Study

Environmental Studies Program will provide students with the core courses and an Associate of Arts Oregon transfer degree, which when transferred to either Portland State University or Oregon Institute of Technology, will make it possible to earn a bachelor's degree in either environmental policy or environmental science. Each student will complete work in core environmental studies courses and in a series of foundation courses in mathematics and the natural and social sciences.

Courses for Non-Majors

ESR 171, 172 and 173 are courses designed for non-science majors. These courses meet science requirements for the Oregon Transfer Degree Program. They are designed for students not wanting to major in environmental studies, but still wishing a basic background in environmental science. (See Course Description section in this catalog)

Students with particular interest in hazardous materials should consider enrolling in the Environmental Safety and Hazardous Materials courses.

Environmental Studies Core Courses

First Year

ESR 150	Environmental Studies Orientation	1
ESR 160	Introduction to Environmental Systems	4

Second Year

ESR 201	Applied Environmental Studies: Science and Policy Considerations	4
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ESR 202	Applied Environmental Studies: Preparation for Problem Solving	4
ESR 203	Applied Environmental Studies: Project	4

Environmental Science Option

Environmental Science Foundation courses

A. Science - 46 credits

ESR 298	Special Topics in Environmental Science	1-4
MTH 243	Statistics I	4
MTH 251	Calculus I	4
MTH 252	Calculus II	4
CH 221	General Chemistry	5
CH 222	General Chemistry	5
CH 223	General Chemistry	5
BI 211	Principles of Biology	5
BI 212	Principles of Biology	5
BI 213	Principles of Biology	5
G 201	Physical Geology	4
PHY 201	General Physics	4
	or	
PHY 211	General Physics (Calculus)	5

B. Social Science - 3 credits

EC 201	Principles of Economics: Microeconomics	3
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Courses for Non-Majors

ESR 171	Environmental Science: Biological Perspectives	4
ESR 172	Environmental Science: Chemical Perspectives	4
ESR 173	Environmental Science: Geological Perspectives	4

Facilities Maintenance Technology

Cascade Campus
Southeast Center, Room 128
503-788-6105, 503-788-6239

◆Associate of Applied Science degree - 90 credit hours; includes 58 credit hours of required facilities maintenance courses, 18 credit hours of General Education and 14 credit hours of approved electives. Electives may include courses from other related professional/technical programs. Students should contact a program advisor for help in planning a course of study. Students must meet college graduation requirements including General Education, math and English competencies.

◆One-year Certificate - 45 credit hours; includes 33 credit hours of required courses, MTH 60 and WR 115* and 4 credit hours of elective courses.

Career Description

The facilities maintenance technician (FMT) installs, maintains and repairs HVAC/R and other equipment and systems where environmental quality is essential to success of the company. FMTs work in the semiconductor industry, large health care facilities and other heavy industry organizations.

Program Requirements

It is required that students test into MTH 20 and WR 115, or higher. Individual course prerequisites are listed in the Course Description section of this catalog.

Course of Study

This program will provide the student with the skills to enhance a career in facilities maintenance. It was designed by the advisory committee to meet industry requirements. Students learn the skills and concepts necessary to install, operate, maintain and repair control, piping and mechanical systems in large commercial, medical, institutional and industrial buildings. Students also learn trouble shooting skills, problem solving methods and electrical concepts. Continuous improvement techniques and effective written, verbal and electronic communications skills are stressed across the curriculum. Classes are designed in lecture and lecture/lab format to give the student a solid foundation in general maintenance skills including HVAC/R. Print reading and troubleshooting skills are emphasized.

One Year Certificate

TE 9110	Intro to Facilities Maintenance Systems	2
TE 9126	Basic Programmable Controllers (PC Based)	2
TE 9140	Intro to Chiller Systems	3
TE 9141	Water Treatment & Distribution	2
TE 9161	Introduction to Boilers	3
TE 9163	Intermediate Boilers	3
TE 9237	Refrigeration Electrical I	2
TE 9238	Refrigeration Electrical II	2
TE 9239	Refrigeration Electrical III	2
TE 9242	Refrigeration I	2
TE 9243	Refrigeration II	2
TE 9244	Refrigeration III	2
TE 9253	Natural Gas Equipment I	2
ARCH 162	Blueprint Reading-Part 2	2
CAS 133	Basic Computer Skill/MS Office	3 ¹
MTH 60	Introductory Algebra-First Term	4
PSY 101	Psychology and Human Relations	3
WR 115	Intro to Expository Writing	3 ²
	Electives	4

¹CIS 120 required for AAS candidates

²Associate degree students must take WR 121 instead of WR 115.

Associate Degree program (one year certificate courses plus the following:)

TE 9121	Intermediate Programmable Controllers (PC Based)	2
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TE 9127	Advanced Program Controllers, PC Based	2
TE 9145	Electrical Motor Controls	2
TE 9146	Adjustable Speed Drives	2
TE 9151	Pneumatic Controls	2
TE 9152	Direct Digital Control Advanced Technology	3
TE 9163	Boilers:Electrical Control Systems	3
TE 280A	Cooperative Work Experience	8
	Electives	10
	General Education	11

Fiber Optics Technology

Cascade Campus
Southeast Center, Room 128
503-788-6105

Career Description

This course of study delivers intensive "hands on" training in Industry Standard methods of termination, splicing, troubleshooting, design, maintenance and repair.

Training will include technical demonstrations, videos and classroom lecture and discussion to support practical applications. PCC's training program prepares students to enter the rapidly growing Fiber Optics field. Industry Certificate available.

Students may apply these courses as electives in the Facilities Maintenance or Industrial Technology Degree.

Courses

FOT 101	Fiber Optics I	4
FOT 102	Fiber Optics II	4
FOT 103	Fiber Optics: Inside Plant	4
FOT 104	Fiber Optics: Outside Plant	4

Fire Protection Technology

Training East
19204 NE San Rafael
503-492-6910

◆ Associate of Applied Science degree Fire Protection Technology - 101 credit hours; includes 72 credit hours of required fire science courses, 18 credit hours of General Education and 11 credit hours of approved electives. Students should contact a program advisor for help in planning a course of study. Students must meet college graduation requirements including General Education, math and English competencies.

◆ Certificates of Completion - Program certificates are available in the following courses of study. Contact the Fire Science Department for course requirements.

1. Fire Prevention and Investigation Certificate: 33 credits
2. Fire Officer Certificate (FSAB FO II Equiv.): 31 credits
3. Fire Fighter Certificate (FSAB FF II Equiv.): 56 credits
4. Emergency Service Rescue Certificate: 30 credits

All candidates for a degree must demonstrate competency in basic mathematics and writing skills: see Comprehensive Degree Requirements.

Career Description

Those training in the Fire Protection Technology Program are preparing for occupations and advancement in fire suppression, investigation, prevention, emergency management, emergency medical and rescue services, hazardous materials technology, college transfer and other educational programs.

Program Prerequisites

1. High school completion or GED test scores of 50 or above in all five subject areas.
2. Completion of Fire Science Department application package and criminal background check.
3. Completion of Fire Science Program physical fitness entrance test.

Application and Acceptance

Applications are accepted beginning in January of each year and are taken until classes are filled for entry the following September. Program prerequisites one through three, must be completed prior to acceptance.

Due to the unique responsibilities involved in the practical application of fire science and emergency response during lab periods and cooperative education assignments, the Fire Science Department reserves the right to counsel students who demonstrate unsuitable characteristics (unsafe, unethical or immoral behavior or that physically are unable to perform standard job duties) into another area of study.

Students enrolled in fire science courses will be required to use equipment designed to protect the respiratory system from the products of combustion and hazardous chemicals. This equipment includes, but is not limited to: self contained breathing apparatus (SCBA), respirators and filter mask. Students who have a health, physical, or psychological problem which may effect or be affected by the use of protective breathing equipment should contact the department prior to entering the program.

Course of Study

The PCC program is designed to correlate classroom, laboratory and field experience in public and private sector fire organizations. The program that follows is designed for students wishing to enter the fire service (pre-service) and professional fire fighters who wish to obtain an AAS degree or meet specific State of Oregon Fire Standards and Accreditation Board (FSAB) certification requirements or meet entry requirements for BA/BS programs in Fire Administration.

First Term

EM 101 Intro to Emergency Services 4

FP 111 Firefighting Skills I 5
Writing competency requirement 3
Mathematics competency requirement 3

Second Term

EMT 105 EMT Basic I 4
FP 121 Fire Science I 3
FP 122 Fundamentals of Fire Prevention 3
FP 123 Hazardous Materials Technician I 3
SP 111 Fundamentals of Speech 3
General Education 3

Third Term

EMT 106 EMT Basic II 5
FP 112 Firefighting Skills II 5
FP 201 Emergency Service Rescue 4
General Education 3

Fourth Term

FP 202 Fixed Systems and Extinguishers 3
FP 211 Building Construction for Firefighters 3
PSY 101 Psychology and Human Relations 3
FP 203A Intro to Firefighting Tactics & Strategy 3
General Education 3
Approved Fire Protection Elective 3

Fifth Term

FP 212 Fire Investigation 3
FP 133 Natural Cover/Forest Firefighting 3
FP 213 Principles of Supervision for Firefighters 3
FP 243 Laws Affecting Firefighters 1
FP 9120 Fire Codes & Related Ordinances 3
General Education 3
Approved Fire Protection Elective 3

Sixth Term

FP 280A CE: Fire Science 3
FP 242 Flammable, Explosive and Toxic Materials 3
FP 9020 Fire Department Budgets 1
FP 9050 Public Relations, Information & Education 1
FP 9070 Major Emergency Tactics & Strategy 3
Approved Fire Protection Elective 5

Firefighting Skills I and II classes are offered fall and spring terms respectively of each year. Students enrolling after fall term in the Fire Protection Program should contact a program advisor for assistance.

General Education courses must be taken from the college General Education course list and meet the requirements of the Comprehensive Degree Requirements.

Courses requiring a prerequisite are identified in the Course Description section of this catalog and in the term schedule of classes.

Fire protection and emergency medical technician courses not currently required for the AAS degree in Fire Protection Technology are approved for use as electives. Course work in criminal justice and General Education may also meet the requirements. Approval for electives must be granted by a Fire Protection Department advisor.

Fitness Technology

Sylvania Campus
Health Technology Building, Room 215
503-977-4210

- ◆ Associate of Applied Science degree - 90-94 credit hours of required fitness technology and related core courses, General Education courses, and college degree requirements.
- ◆ One-year Certificate in Fitness Technology - 54 credit hours of required fitness technology courses and related core courses.

Career Description

The fitness technologist is a professional member of the preventive health care team and will find employment in the health and fitness clubs, wellness centers, public and private recreation facilities, hospitals and corporate fitness programs. The fitness technologist performs a variety of instructional and administrative duties. Instructional duties include directing safe and effective exercise programs, conducting fitness testing and instructing clients in appropriate sport and fitness activities. Administrative duties include sales, club business operations and member retention efforts. Fitness technologists have a background in basic anatomy and physiology, applied kinesiology and fitness assessment and programming, along with training in interpersonal skills, customer relations, and fitness promotion.

Program Requirements

1. ASSET scores as follows: 40 in reading, 38 in writing, 38 in math.
2. Program advising session with a Fitness Technology advisor.

Course of Study

Students are prepared for job entry as a fitness technologist or specialist with opportunities for developing additional skills as a personal trainer or group exercise instructor. The program is designed to correlate classroom and laboratory experience with practical experience in fitness facilities in the community. At program completion, graduates are eligible to take the national Personal Trainer certifying examination given by the American Council on Exercise (ACE) or the Exercise Leader examination given by the American College of Sports Medicine (ACSM). In addition, AAS graduates, at program completion, are eligible to take the Health/Fitness Instructor certifying examination given by ACSM.

Program Transfer or Advanced Placement

Students requesting advanced placement or transfer credit must submit a written request to the Physical Education Department. Transcripts and course descriptions for all coursework should be submitted with the request. Only coursework taken within the seven years prior to enrollment will be considered for transfer or advanced placement.

Program Progression

While students may begin the Fitness Technology Program during any term in the academic year, many of the core courses include prerequisites or corequisites and follow a

sequential order. In their final term, students may enroll, with instructor permission, in the Fitness Technology practicum. Practicum students must have current First Aid and CPR certifications. These certifications must also be current at completion of the Fitness Technology Program.

To receive the Certificate in Fitness Technology

Students must have a grade of "C" or higher in the following required classes: FT 101, 102, 103, 104, 105, 106, 107, 280; BI 121, 122; HPE 295; PSY 101; SP 111; MSD 117; CAS 133; PE 281, 282A, 282B, 283, 287 and their prerequisites or co-requisites.

To receive the AAS degree in Fitness Technology

Students must have a grade of "C" or higher in the following required classes: FT 101, 102, 103, 104, 105, 106, 107; 201, 202, 203, 204, 280; BI 121, 122; HPE 295; PSY 101; SP 111; MSD 117; CAS 133; FN 225; PE 281, 282A, 282B, 283, 287; all General Education courses, and college degree requirements.

Certificate Program - Three Term Schedule

First Term

BI 121	Intro to Human Anatomy and Physiology I	4
PSY 101	Psychology and Human Relations	3
HPE 295	Health and Fitness for Life	3
MSD 117	Customer Relations	3
FT 101	Fitness Technology Seminar	2
PE 181	Beginning Weight Training	1
PE 28X*	Professional Activity and Co-Requisite*	2
	Additional Prerequisite Courses* *	3-4

Second Term

BI 122	Intro to Human Anatomy and Physiology II	4
CAS 133	Basic Computer Skills/Microsoft Office	3
FT 104	Fitness Assessment and Programming I	3
FT 103	Nutrition for Fitness Instructors	2
FT 107	Exercise Science I	3
PE 281	Professional Activities: Weight Training*	2
PE 28X	Professional Activities and Co-Requisite*	2
	Additional Prerequisite Courses* *	

Third Term

SP 111	Fundamentals of Speech	3
FT 105	Fitness Assessment and Programming II	3
FT 106	Analysis of Movement	3
FT 102	Injury Prevention and Management	2
FT 280	CE: Fitness Technology Practicum	4
PE 28X	Professional Activity and Co-Requisite*	2

* Professional Activity courses for Certificate students: **Required:** PE 281 (Professional Activities: Weight Training - 2 credit hours). Choose two from PE 282A (Professional Activities Aerobics - 1 credit hour plus 1 credit hour Co-requisite), PE 283 (Professional Activities: Mind-Body Disciplines -1 credit hour plus 1 credit hour Co-requisite), PE 287 (Professional Activities: Aquatics - 1 credit hour plus 1 credit hour Co-requisite), PE 282B (Professional Activities: Special Populations -2 credit hours).

** Additional prerequisite courses include Writing, Reading and Math courses needed to bring students to the ASSET scores or prerequisite level required for Fitness Technology core courses.

AAS Degree Program—Two Year—Six Term Schedule

First Term

FT 101	Fitness Technology Seminar	2
BI 121	Intro to Human Anatomy and Physiology I	4
HPE 295	Health and Fitness for Life	3
PE 181A	Beginning Weight Training	1
WR 121	English Composition	3
CAS 133	Basic Computer Skills/Microsoft Office	3
	Additional Prerequisite Courses**	

Second Term

FT 104	Fitness Assessment & Programming I	3
FT 107	Exercise Science I	3
BI 122	Human Anatomy and Physiology II	4
PE 281	Professional Activities: Weight Training*	2
PE 282B	Professional Activities: Special Populations*	2
	Additional Prerequisite Courses**	
	General Education	3

Third Term

FT 105	Fitness Assessment and Programming II	3
PE 28X	Professional Activities and Co-requisite*	2
CG 280A or G	Cooperative Education	1
SP 111	Fundamentals of Speech	3
MTH 65	Introductory Algebra	4
	General Education	4

Second Year

Fourth Term

FT 204	Exercise Science II	2
FT 202	Fitness and Aging	3
MSD 117	Customer Relations	3
FN 225	Nutrition	4
PE 28X	Professional Activities and Co-requisite*	2

Fifth Term

FT 103	Nutrition for Fitness Instructors	2
FT 201	Fitness Assessment and Programming III	3
FT 203	Fitness Promotion	3
PSY 101	Psychology and Human Relations	3
CG 280A or G	Cooperative Education	1
	General Education	

Sixth Term

FT 280	CE: Fitness Technology Practicum	10
FT 106	Analysis of Movement	3
FT 102	Injury Prevention and Management	2

¹ Professional Activity courses for AAS students: **Required:** PE 281 (Professional Activities: Weight Training - 2 credit hours) and PE 282B (Special Populations -2 credit hours). **Choose** two from PE 282A (Professional Activities: Aerobics plus Co-requisite - 2 credit hours), PE 283 (Professional Activities: Mind-Body Disciplines plus Co-requisite - 2 credit hours), PE 287 (Professional Activities: Aquatics plus Co-requisite - 2 credit hours).

** Additional Prerequisite Courses include Writing, Reading, and Math courses needed to bring students to the ASSET scores or prerequisite level required for Fitness Technology core courses, General Education courses, and college degree requirements.

French

The following general remarks apply to all Modern Language courses:

All students who enroll in modern language classes (including those on the waiting list) are expected to attend class the first day when material essential for successful completion of the course will be presented. Students who do not attend the first class session may be replaced by those who do attend. Students who have studied a language before and are unsure of their placement are encouraged to consult with a modern language teacher since they will not be admitted to a course if their skill level is too advanced for that course.

Description

The following applies to all French courses:

Students are encouraged, as part of their learning process, to guess, deduce, take risks, try out new structures and discover the language. The goal in all the courses is that French be learned. Students whose skill level exceeds the requirements of a given course will not be admitted to that course. Pronunciation and speaking are stressed at all levels, and regular attendance and participation are required. All courses are conducted entirely in French.

Prerequisites

See the Course Description (FR prefix) section of this catalog for individual French courses and course prerequisites.

General Science

Description

These courses provide a broad background in physical science for the non-science major. Students study and demonstrate proficiency in using basic vocabulary, identifying relationships and relating ideas in selected topics of physical science. Each course includes those topics of physics and chemistry which apply to the areas under study. The courses may be taken out of sequence.

Prerequisites

See the Course Description (GS prefix) section of this catalog for individual General Science courses and prerequisites.

Geography

Description

Geography is concerned with the uniqueness of places. What makes one place unique and different from another? What are the factors and processes, both human and physical, that account for this uniqueness? Geography is not concerned with memorization of place names (capitals, rivers etc.) lists of imports and exports or other statistical information.

Prerequisites

See the Course Description (GEO prefix) section of this catalog for individual Geography courses and course prerequisites.

Geology

Description

Work in the physical sciences is an important part of many college programs. Courses at PCC comprise four areas of study: chemistry, geology, general science and physics, and are organized to present basic principles and to provide a coordinated overview of the sciences as they relate to contemporary life.

Prerequisites

See the Course Description (GEO prefix) section of this catalog for individual Geology courses and prerequisites.

German

Description

The following general remarks pertain to all German courses:

All courses are performance oriented and conducted in German. Beginning with the first day of class, when essential materials are presented, regular attendance and participation are necessary for successful completion.

Students are encouraged to guess, experiment, deduce, take risks and to discover the language through active involvement.

All students who enroll in modern language classes (including those on the waiting list) are expected to attend class the first day when material essential for successful completion of the course will be presented. Students who do not attend the first class session may be replaced by those who do attend. Students who have studied a language before and are unsure of their placement are encouraged to consult with a modern language teacher since they will not be admitted to a course if their skill level is too advanced for that course.

Requirements

There are none for entry into the first term first year German. Course descriptions detail any prerequisites for other German courses. Students whose skill level in German exceeds the requirements for the course will not be admitted. These students should consult with one of the German instructors for proper placement.

Prerequisites

See the Course Description (GER prefix) section of this catalog for individual German courses and course prerequisites.

Gerontology

Sylvania Campus
Social Science Building, Room 217
503-977-4289

◆Associate of Applied Science Gerontology - Minimum of 90 credit hours to include one-year certificate.

◆One-year Certificate - 46 credit hours; includes 21 credit hours of core courses (required), 6 credit hours of worksite placement experience, 7 credit hours of General Education courses, and 6 credit hours of electives. Please check with the division to be sure which term each class will be offered.

Career Description

The Gerontology Certificate Program is designed for individuals who wish to secure employment in the field of aging, those already employed and/or active in the field, and those who wish to further their knowledge and skills for personal growth in this particular field. Graduates of this program will have the necessary academic preparation, some field experience, and skills to find a career in fields such as counseling the elderly, retirement planning, bereavement services, case management, housing programs, health services, education and research.

The employment outlook in the next decade is very bright. The 1998-99 edition of the Occupational Outlook Handbook (DOT) predicts an 88-119% increase in jobs which students with a certificate and/or two-year degree in gerontology will be qualified to obtain between 1995 and 2005.

Program Requirements

Candidates should be ready to enter WR 121 and MTH 65 (readiness can be demonstrated through placement tests or documented previous college level work.) Those candidates with insufficient background to enter at this level may need to extend the time it takes to complete the program. Faculty advisors will provide information regarding options to those students who may need to take preparatory course work.

Course of Study

Students may earn a one-year certificate or an Associate of Applied Science degree in Gerontology at Portland Community College. The Division of Social Science has signed an articulation agreement with Portland State University to allow the graduates of our two-year program in gerontology to transfer to Portland State University as juniors.

One year Certificate - Gerontology

The core courses provide basic knowledge about aging in several important domains. The worksite placement (field-work experience) will provide a unique opportunity for the students to work directly with older adults in different settings. Certificate candidates who are currently working in the field with aging adults and have accumulated at least 200 hours of work experience may petition to receive credit up to 120 hours toward the required hours for the practicum. Students must complete the program with a grade of "C" or better.

Core Courses: (21 credits)

AD 101	Alcohol Use & Addiction	3
PHL 205	Biomedical Ethics	3
PSY 101	Psychology and Human Relations	3
SOC 223	Sociology of Aging	3
SOC 230	Introduction to Gerontology	3
SOC 231	Sociology of Health and Aging	3
SOC 232	Death & Dying: Culture and Issues	3

Worksite Placement

SOC 280B	CE: Community Service/Action Seminar	3
SOC 280A	CE: Sociology (Worksite Placement)	6

Basic Competencies

WR 121	English Composition	3
MTH 65	Introductory Algebra	4

* Or passing a writing course for which WR 121 is listed as a prerequisite.

** Or higher, or passing the PCC competency exam for MTH 65.

If a student tests above these competencies s/he may substitute any elective from the Gerontology Certificate or Associate degree program.

Electives (at least 6 credits from the following courses:)

ART 131	Introduction to Drawing	3
SOC 213	General Sociology: Diversity in America	3
PSY 201	General Psychology	3
PSY 222	Family & Intimate Relations	3
HPE 295	Health & Physical Fitness for Life	3
BA 101	Introduction to Business	4

Choose 3 credits from the following:

CAS 210	Beginning WordPerfect: WIN	3
CAS 216	Beginning Word: WIN	3
CAS 133	Basic Computer Skills/MS Office	3

* If the student plans on completing an Associate of Applied Science-Gerontology, these classes will be required in the second year.

Note: Students must take HE 110-Cardiopulmonary Resuscitation (1 credit) or acquire training and receive a certificate of completion in the same area from a licensed public or private organization in order to complete the requirements for this certificate.

Associate of Applied Science - Gerontology

Students completing the one-year Gerontology Certificate will have also completed the first years' work toward the Associate degree in Gerontology. Students must meet college graduation requirements including General Education, math and English competencies.

All candidates must earn 18 credit hours of General Education. These credits must come from courses taken in the following categories:

1. Arts & Humanities
2. Social Science
3. Mathematics, Natural and Physical Sciences

The 18 credit hours must include at least one course from each category and no more than 9 credit hours from any one category. Two of the Social Sciences courses required in the Gerontology degree may also be used to meet the General Education requirement.

Required Courses (19 credits)

HE 112	First Aid & Emergency Care	1
HE 252	First Aid-Basics & Beyond	3
PSY 222	Family & Intimate Relations	3
SOC 204	General Sociology: Sociology in Everyday Life	3
SOC 213	Diversity in America	3
SOC 280A	CE: SOC-Worksite Placement	6

Restricted Electives (choose 10 credits)

AD 102	Drug Use & Addiction	3
AD 154	Case Management & Addiction	3
AD 156	Ethical & Professional Issues	3
FT 102	Injury Prevention & Management	2
FT 106	Analysis of Movement	2
HE 212	Women's Health	3
HE 213	Men's Health	3
PSY 201	General Psychology	3
PSY 202	General Psychology	3
PSY 203	General Psychology	3
PSY 214	Introduction to Personality	3
PSY 215	Human Development	3
PSY 231	Human Sexuality	3
PSY 232	Human Sexuality	3
SOC 205	General Sociology: Social Change & Social Institutions	3
SOC 206	General Sociology: Social Problems	3
SOC 218	Sociology of Gender	3
SP 105	Listening	3
FT 102	Injury Prevention & Management	2
FT 106	Analysis of Movement	3

Graphic Design

Sylvania Campus
Communications Technology Building, Room 102
503-977-4790, 503-977-4834, 503-977-4264

◆ Associate of Applied Science degree - 103 credit hours; includes 78 credit hours of required courses, 18 credit hours of General Education courses plus completion of MTH 65, WR 121 and college graduation requirements. Specific information on program requirements is available by contacting the Graphic Design Program office.

Career Description

Graphic Design is the art, discipline and profession of visual communication. By combining images, words and ideas graphic designers focus information toward an audience to achieve a desired goal. Graphic designers blend artistic talent, typography and computer knowledge to create advertisements, brochures, logos and identity systems, newsletters, catalogs, signage systems, web pages, magazines and books. The two-year program at PCC prepares the student for entry-level work in the highly competitive and deadline-oriented field of graphic design. Class work is designed to simulate industry situations and standards.

Program Requirements

Program advising is necessary prior to registration. Students are strongly encouraged to attend the Graphic Design Orientation meeting held the first Thursday in June at 7:00 p.m. in room CT 125 on the Sylvania campus. Students starting the program are required to test into WR 121 or above on the English placement test, and MTH 65 or above on the math placement test as minimum entry requirements.

The program begins fall term when students must successfully complete GD 120, GD 114 and PT 136 with a "B" grade or better before taking other first-year graphic design courses. Please note that some courses are only offered once during the year and enrollment is limited. Students who successfully complete all first-year graphic design courses with a "B" grade or better may proceed into the second year of the program.

Course of Study

First term design courses are taught in a hands-on, non-computer format. Beginning second term, design study is integrated with computer technology. In all classes, students study the principles and practices used to carry an idea from thumbnail sketches through layout and completed design. Both two- and three-dimensional design concepts in print and digital format are explored. At the completion of the first year, student work is assessed prior to enrollment in the second year. All second year work is directed at building a professional level portfolio.

Full-time day students can complete the program in six terms. However, many students elect to take a part-time course load and take longer than six terms to complete the program.

First Year Program

Fall Term

GD 120	Graphic Design 1	3
ART 115	Basic Design	3
ART 131	Drawing	3
PT 136	Electronic Layout-Pagemaker	3
GD 114	Introductory Typography	3
WR 121	English Composition	3

Winter Term

GD 122	Graphic Design 2	3
ART 116	Basic Design	3
GD 239	Illustration for Graphic Designers	3
GD 140	QuarkXPress Design 1	3
GD 116	Intermediate Typography	3
	General Education - Social or Physical Science	3

Spring Term

GD 124	Graphic Design 3	3
GD 240	Adobe Illustrator Design	3
ART 237	Life Drawing (or ART 117 Basic Design)	3
GD 141	QuarkXPress Design 2	3
ART 103	Introduction to Art General Education - Social or Physical Science	3

Second Year Program

Note: Successful completion of all first year Graphic Design courses with a "B" or better grade are required for placement into the final year of the program.

Fall Term

GD 221	Graphic Design 4	3
GD 249	Graphic Design Studio (or Co-op Ed internship)	3
GD 241	Adobe Photoshop Design 1	3
BA 223	Principles of Marketing (or BA 239 Advertising) General Education - Social or Physical Science	3

Winter Term

GD 222	Graphic Design 5	3
GD 243	Adobe Photoshop Design 2	3
CAS 111D	Beginning Web Site Creation	3
GD 228	Professional Studio Practices General Education elective	3*

(*from GenEd Humanities list, exclude required program courses)

Spring Term

GD 223	Graphic Design 6	3
GD 242	Combined Graphic Programs	3
GD 229	Portfolio Preparation	3

PT 244	Preparing Files for Print	3
	Elective (program related suggested)	3

To be taken at any time prior graduation: MTH 65, MTH 65E

6 credit hours of Social Science and 3 credit hours of Physical Science or 3 credit hours of Social Science and 6 credit hours of Physical Science are required for an A.A.S. degree in Graphic Design.

Co-operative work experience and internship placements are available. These are highly recommended to prepare student for graphic design industry.

Recommended Electives

ART 101	Introduction to Art	3
ART 102	Introduction to Art	3
ART 142	Introduction to Photography (darkroom)	3
ART 181	Introduction to Painting	3
ART 218	Lettering Calligraphy	2
ART 284	Watercolor I	3
PT 114	Image/ Prep	2
PT 108	Litho Press	2
SP 111	Fundamentals of Speech	3
PT 100	Survey of Graphic Communications	2

Health

Description

Life sciences comprise four areas of study anatomy, biology, microbiology, and health.

Work in the sciences is an important part of many college programs. Courses at PCC are organized to present basic principles and to provide a coordinated overview of the sciences as they relate to living systems.

Prerequisites

See the Course Description (HE prefix) section of this catalog for individual Health courses and course prerequisites.

Health Information Management

Cascade Campus
Jackson Hall Room 117
503-978-5667

◆ Associate of Applied Science degree - minimum of 90 credit hours. Students must meet college graduation requirements including General Education, math and English competencies. Consult a program advisor for help in planning General Education classes.

Career Description

Those training in the Health Information Management Program will find occupations involved in the maintenance of patient information systems in health care facilities such as clinics, hospitals, nursing homes and home healthcare. In addition, health information management professionals are employed by health maintenance organizations, insurance companies, law firms, consulting firms, health data organizations and information systems vendors. Duties include analyzing, interpreting, classifying and coding health care data and facilitating information used by others, controlling the use and release of health information, organizing and performing quality assurance studies and other research activities and supervising staff.

Program Requirements

1. High school completion or GED.
2. Classes with Health Information Management (HIM) course prefixes require ASSET scores of Reading 42, Writing 45 and math 42. Classes with Medical Professions (MP) course prefixes require ASSET scores of Reading 36, Writing 36 and math 33.
3. Students must demonstrate a working knowledge and/or background of basic computer skills including windows, keyboarding, internet and E-mail. Students not able to demonstrate a working knowledge and/or background will be required to take a required course(s) prior to admission.
4. Four credits of computer courses including windows, word processing, spreadsheet and database must be completed prior to taking any HIM courses.
5. Program advising session with a Health Information Management program advisor.

Application and Acceptance

Students will receive provisional acceptance pending receipt of evidence of immunity to measles and completion of MP 104. Students must have transportation to clinical facilities throughout the Portland metropolitan area. Admission instructions may be obtained from the medical programs specialist at 503-978-5667.

Application documents should be sent to the attention of:

Medical Programs Technical Specialist
Cascade Campus JH, 117
Portland Community College
Post Office Box 19000
Portland Oregon 97280-0990

Course of Study

Students may begin taking classes during any term. Students must receive a "C" or better in all program required courses. The program is designed to correlate classroom and laboratory experience with practical experience in health care facilities.

The program prepares students to function under administrative supervision. The program is accredited by the Commission on Accreditation of Allied Health Educational Programs (CAAHEP), in cooperation with the Council on Accreditation of the American Health Information Management Association. Graduates are eligible to take the national certification examination given through the American Health Information Management Association.

First Term

MP 111	Medical Terminology	3
MP 110	Administrative Systems	2
MP 120	Administrative Systems Lab	1
MP 140	Health Record Content 1	2
MP 182	Health Care Delivery Systems	3
SP 100	Intro to Speech Communication	3

Second Term

BI 121	Intro to Human Anatomy & Physiology I	4
MP 141	Health Record Content 2	2
MP 121	Legal & Ethical Aspects of Healthcare	2
WR 121	English Composition	3
	General Education	3

Third Term

BI 122	Intro to Human Anatomy & Physiology 2	4
MP 131	Medical Science	5
MP 105	Ancillary Information Analysis	2
MP 107	Ancillary Information Analysis Lab	1
MP 104	Professional Practice Preparation	1

Fourth Term

HIM 270	Classification Systems 1	3
HIM 281	Data Management & Analysis 1	3
HIM 283	Health Information Systems	3
MP 136	Medications	2
MP 101	Seminar I	1
HIM 292	Health Information Directed Practice 1	1
	General Education	3

Fifth Term

HIM 273	Classification Systems 2	3
HIM 282	Data Management & Analysis 2	3
HIM 293	Health Information Directed Practice 2	2
MP 102	Seminar 2	1
HIM 271	Quality Improvement in Healthcare	3
HIM 274	Quality Improvement in Healthcare Lab	1
	General Education	3

Sixth Term

HIM 275	Classification Systems 3	3
HIM 272	Health Information Management	5
HIM 277	Health Information Management Lab	2
MP 103	Seminar 3	1
HIM 294	Directed Practice 3	4
	General Education	3

History

Description

The study of history enables individuals to think historically and to analyze cause and effect relationships in human affairs. It provides insights on daily events as well as on the

broader human condition. The more that people understand about their past, the greater their perspective becomes and the more likely the present is to make sense. History is the only study of people that includes the time dimension. It is, in a way, a family's story - the story of the human race. Not all of the courses are offered every year.

Prerequisites

See the Course Description (HST prefix) section of this catalog for individual History courses and course prerequisites.

Humanities

Cascade Campus
Student Center, SC 211
503-978-5251

Description

Studying the humanities provides individuals with opportunities to explore the human experience through a variety of windows: among these are art and architecture, philosophy, literature, music, history and languages. (For example, an architectural work might be examined for elements of cultural identity: religion, economics, social order, art, political relations, gender roles and the nature of community. In the same fashion, students might select a literary text from that society to examine to what extent it expresses the time period, social change, minority or majority perspectives, or technical influences on human relations.) Humanities students examine and interpret works from the viewpoint of several disciplines to better understand the influence of cultural values and world views, forms of political and social order, basis and impact of gender roles and effect of historic and environmental events on how individuals and societies perceive and project themselves. In turn, this interdisciplinary understanding encourages students to reconsider their own society or culture and their role in it.

Program Requirements

Humanities courses at the 100 level require ASSET scores of Writing 41, Reading 42 or successful completion ("C" or higher) in the prerequisite reading and writing courses for WR 115; 200 level courses require ASSET scores of Writing 45, Reading 45 or successful ("C" or higher) completion of WR 115 and RD 115. See the Course Description (HUM prefix) section of this catalog for individual Humanities courses and course prerequisites.

Career and Personal Benefits

We see the Humanities as fundamental to any area of participation in a society. Studying the Humanities lends insight into the diverse and evolving nature of human societies and helps individuals develop critical analysis and expressive skills which assist them in examining their roles as products of history, participants in the present and shapers of the future.

Interior Design

Sylvania Campus
Health Technology Building, Room 318
503-977-4217, 503-977-4030

- ◆ Associate of Applied Science degree in Interior Design
- ◆ One-year Certificate Interior Furnishings - Completion of 40 credit hours of Core Interior Design Courses

Interior Furnishings Certificate

Career Description

This program offers a certificate in Interior Furnishings, which prepares the student for an entry-level position in an occupation involved with wholesale and retail sales of interior furnishings. Emphasis is on the planning of aesthetic interiors, products/materials and professional practice.

Not all courses are offered every term.

Program Requirements

College level reading and writing skills and basic math skills are required. Individual courses may have prerequisites which are included in the course description. A "C" grade or better is required in all coursework in this major.

Course of Study

An Interior Furnishings Certificate Program of 40 credit hours is offered.

Certificate in Interior Furnishings - Core Required

ID 131	Introduction to Interiors	3
ID 132	Planning Interiors	3
ID 120	Interior Products and Materials I	3
ID 121	Interior Products and Materials II	3
ID 122	History of Furniture-Ancient to 1800	3
ID 123	History of Furniture-1800 to Present	3
ARCH 124	Introduction to Building Systems	3
ID 133	Space Planning and Design	3
ID 135	Professional Practice in Interiors	3
ID 230	Textiles for Interiors	3
ART 131	Introduction to Drawing	3
BA 238	Sales	3
CIS 120	Computer Concepts I	4

Interior Design

- ◆ Associate of Applied Science degree in Interior Design

Career Description

This program prepares the student for an entry-level position as an interior design assistant or for more advanced placement in the wholesale or retail sales business. Emphasis is placed on a broad scope of courses which are application-oriented.

Program Requirements

Students must finish the Interior Furnishings Certificate before or concurrently with this option. College competency levels in reading, writing and basic math skills are required. Individual courses may have prerequisites which are included in the course description. A "C" grade or better is required in all coursework in this major. Pass/No Pass grades are not accepted for Interior Design coursework.

Course of Study

An Associate of Applied Science degree in Interior Design is offered which includes a total of 73 credit hours within the major and 18 credit hours of General Education as required by the institution for graduation for a total of 91 credit hours.

Associate Degree - Core plus Advanced Requirements

ID 234	Advanced Interiors	3
ID 236	Lighting Design	3
ID 240	Interior Design Internship	3
ID 125	Computer Drafting for Interior Designers	3
ID 237	Kitchen Planning	2
ART 115	Basic Design	3
ART 116	Basic Design	3
ARCH 200	Introduction to Architecture	4
ARCH 101	Architectural Graphics 1	3
ARCH 111	Working Drawings 1	3
SP 111	Fundamentals of Speech	3
	General Education	18*

*see college catalog, and meet requirements for MTH 65,
WR 121.

International Studies

Description

This is for PCC students, community leaders and representatives of business and industry who are interested in current questions of foreign policy, relations among nations, international resources and international trade.

Prerequisites

See the course descriptions section of this catalog for individual course prerequisites.

Course of Study

Credits in International Studies are transferable to most colleges and universities in Oregon. Prior to enrolling, the student should consult the receiving college or university and a program advisor concerning the transferability of credits.

Program Award (18 credit hours)

PS 205	Global Politics: Conflict and Cooperation	3
GEO 105	Introduction to Human Cultural Geography	3
BA 203	Introduction to International Business	3

EC 230	Contemporary World Economic Issues: International Economics	3
ATH 207	Cultural Anthropology: Culture Concepts	3
PS 220	U.S. Foreign Policy	3

Consult a program advisor for help in program planning.

Japanese

Description

The following general remarks apply to all Japanese courses:

Students are encouraged to guess, deduce and fully experience the language and culture. Since student learning rates differ, students need to be patient with their own and other student's progress.

These courses are performance oriented, and attendance (from the first day of the classes) as well as active participation is necessary for successful completion. All courses are conducted in Japanese.

All students who enroll in modern language classes (including those on the waiting list) are expected to attend class the first day when material essential for successful completion of the course will be presented. Students who do not attend the first class session may be replaced by those who do attend. Students who have studied a language before and are unsure of their placement are encouraged to consult with a modern language teacher since they will not be admitted to a course if their skill level is too advanced for that course.

Requirements

There are none for entry into the first term of first year Japanese. However, the student should read the Japanese course descriptions for other Japanese courses. Students whose skill level in Japanese exceeds the requirements of a given course will not be admitted. These students should talk with the instructor for appropriate placement in Japanese courses.

Prerequisites

See the Course Description (J prefix) section of this catalog for individual Japanese courses and course prerequisites.

Journalism

◆Program Award

Description

The Journalism Award Program introduces students to the media. The program explores the role of media in society, researching and collecting data, writing for the different media, and the use of visual communication. Knowledge derived from this program will enable students to analyze media and their effects, improve their researching and writing skills, and increase their ability to think critically.

Students who successfully complete J 201, 202, 203 and 204 in this program will be prepared to apply for admission into

the School of Journalism at the University of Oregon which requires these courses for entry.

All courses offered in this program meet AAOT (Associate of Arts, Oregon Transfer Degree) requirements and will transfer to any Oregon University System school.

Journalism Award Program Requirements

Students must complete 24 credit hours of approved courses to receive an award including the following:

Required Courses

Students must complete a minimum of nine credit hours from these specific Journalism courses (see Course Description section of this catalog for specific course prerequisites):

J 201	Mass Media and Society	3
J 202	Information Gathering	3
J 203	Writing for the Media	3
J 204	Visual Communication for Mass Media	3

Plus, students are required to take an additional 15 credit hours of selected courses listed below:

Elective courses

ATH 103	Intro to Cultural Anthropology	3
ART 204	History of Western Art	3
ART 205	History of Western Art	3
ART 206	History of Western Art	3
EC 200	Principles of Economics: Intro, Institutions and Philosophies	3
ENG 195	FilmStudies: Film as Art	3
ENG 196	Film Studies: Directors	3
ENG 197	Contemporary Themes & Genres	3
ENG 240	Intro to Native American Literature	3
ENG 253	Survey of American Literature	3
ENG 254	Survey of American Literature	3
ENG 255	Survey of American Literature	3
ENG 256	African American Literature	3
ENG 257	African American Literature	3
ENG 258	African American Literature	3
HST 201	History of the United States - I	3
HST 202	History of the United States - II	3
HST 203	History of the United States - III	3
HST 204	History of Women in U.S.: Colonial to 1848	3
HST 205	History of Women in U.S.: 1848-1920	3
HST 206	History of Women in U.S.: 1920 to Present	3
PHL 197	Critical Thinking: Television and the Presentation of Reality	3
PS 211	Peace and Conflict	3
PS 201	U.S. Government: Foundations & Principles	3
PS 202	U.S. Government: Institutions & Policies	3
PS 203	State and Local Government	3
PSY 216	Social Psychology	3
SOC 204	General Sociology:Sociology in Everyday Life	3

SOC 205	General Sociology: Social Change and Social Institutions	3
SOC 206	General Sociology: Social Problems	3
SOC 215	Global Studies: Social Issues and Movements	3
SP 100	Intro to Speech Communication	3
SP 140	Intro to Intercultural Communication	3
SP 237	Gender and Communication	3
SP 270	Forensics: Speech and Debate	1-3
WR 240	Creative Writing (Non-fiction)	3
WS 101	Intro to Women's Studies	3

Landscape Technology

Rock Creek Campus
Building 7, Room 202
503-614-7255

Career Degree

◆Associate of Applied Science degree in Landscape Technology.

Career Certificates

- ◆One year Certificate: Landscape Services Technician
- ◆Two year Certificate: Landscape Construction
- ◆Two year Certificate: Landscape Management
- ◆Two year Certificate: Landscape Design
- ◆Two year Certificate: Plant Propagation

Landscape Technology - AAS Degree Program

◆Associate of Applied Science degree in Landscape Technology - 95 credit hours; includes 62 credit hours of required landscape technology courses, 15 credit hours of approved landscape technology electives and 18 credit hours of General Education. PCC comprehensive requirements in English and math must also be met. Consult a program advisor with respect to program planning and degree requirements.

Career Description

Landscape students are prepared for entry level and supervisory work in landscape construction, design, landscape management, or nursery production. In the construction area, students work with landscape contractors installing landscapes. Those specializing in management work primarily in maintaining existing landscapes both private and public. Upon application and presentation of transcripts and diploma to the Landscape Contractors Board, students completing the AAS degree in Landscape Technology with a minimum 2.5 GPA will be eligible to sit for the Landscape Contractors exam. With proper licensing and experience, many students establish their own businesses in design, construction and maintenance.

Employment opportunities include work with wholesale plant growers, landscape contractors, retail nurseries, design and positions in landscape maintenance and gardening. In addition, sales positions are available at retail nurseries, garden centers and landscape and horticultural supplies.

Program Requirements

All landscape students will be required to place at or above the following ASSET scores: Writing 41, Reading 41 or completion of Upper Advanced ENNL and Numerical 42. Check the appropriate course descriptions for individual course requirements.

Landscape Technology - AAS Degree

Program requirements

77 credit hours required; 62 credit hours of required landscape courses and 15 credit hours of landscape electives (see note).

Note: Students with non-documented work experience in the landscape field required to take six credit hours of cooperative work experience as part of 15 credit hours of electives.

Degree requirements

18 credit hours of General Education and comprehensive requirements for English and math.

First Year

First Term

HOR 226	Plant Materials - Deciduous	4
LAT 104	Pesticides	3
LAT 106	Basic Horticulture	4
LAT 111	Landscape Construction Practices	3
	General Education	3

Second Term

HOR 227	Plant Materials - Evergreen	4
HOR 290	Introduction to Landscape Design	3
CSS 200	Soils and Plant Nutrition	3
LAT 236	Landscape Math	3
	General Education	3

Third Term

HOR 228	Plant Materials - Flowering	4
LAT 108	Landscape Irrigation I	3
LAT 110	Grounds Maintenance	4
	General Education	3

Electives

Students are required to complete 15 credit hours of electives, check current term's schedule for offerings.

Note: Students with non-documented work experience in the landscape field are required to take six credit hours of cooperative work experience as part of the 15 credit hours of electives.

HOR 255	Spring Annuals and Perennials	3
HOR 272	Summer Annuals and Perennials	3
HOR 291	Landscape Design Process	3
LAT 210	Plant Propagation I	3
LAT 211	Plant Propagation II	3
LAT 212	Plant Propagation III	3
LAT 214	Plant Composition I	3
LAT 219	Landscape Illustration	3

LAT 220	Landscape Construction Details	3
LAT 221	Landscape Design Problems	3
LAT 225	Water Gardens	2
LAT 227	Color Sketching	3
LAT 232	Landscape Irrigation II	4
LAT 235	Tree Care - Fall	3
LAT 240	Tree Care - Spring	3
LAT 250	Plant Diseases, Insects and Weed Identification	3
LAT 262	Native Plants of Oregon	3
LAT 268	Wetlands	3
LAT 271	Computer Aided Landscape Design	3

Second Year: Required

Fourth Term

LAT 217	Landscape Drafting	3
LAT 223	Site Surveying and Analysis	3
LAT 241	Turfgrass Cultural Practices	3
	General Education	3

Fifth Term

LAT 243	Landscape Business Operations	3
LAT 222	Landscape Site Grading	3
LAT 233	Turfgrass Identification	3
	General Education	3

Sixth Term

LAT 264	Landscape Estimating and Bidding	3
HOR 255	Spring Annuals and Perennials	3
	General Education	3

Landscape Technology - Certificate Programs

One-Year Certificate - Landscape Services Technician

38 credit hours of required landscape technology courses. Within the certificate curriculum, students will develop skills in communications, human relations, computation and industry specific technical areas.

Career Description

Students are prepared for entry level positions in sales, construction or maintenance at wholesale or retail nurseries, landscape installation companies, or landscape maintenance companies.

Program Requirements

All landscape students will be required to place at or above the following ASSET scores: Writing 41, Reading 41 or completion of Upper Advanced ENNL and Numerical 42. Check the appropriate course descriptions for individual course requirements.

Course of Study

The first year core of classes is designed to develop knowledge and skills in plant care, plant identification, soils, irrigation, basic landscape design and construction practices.

Students successfully completing this curriculum may seek entry level positions with landscape companies and will have satisfied the educational portion of requirements for application to be licensed in the State of Oregon as a landscape contractor.

First Term

HOR 226	Plant Materials - Deciduous	4
LAT 104	Pesticides	3
LAT 106	Basic Horticulture	4
LAT 111	Landscape Construction Practices	3

Second Term

HOR 227	Plant Materials - Evergreen	4
HOR 290	Introduction to Landscape Design	3
CSS 200	Soils and Plant Nutrition	3
LAT 236	Landscape Math	3

Third Term

HOR 228	Plant Materials - Flowering	4
LAT 108	Landscape Irrigation I	3
LAT 110	Grounds Maintenance	4

Two-Year Certificate - Landscape Construction

66 credit hours of required landscape courses and six credit hours of approved landscape electives and six credit hours of General Education.

Career Description

Students are prepared for work in landscape construction or management companies installing and maintaining landscapes, hardscapes (outdoor construction features) and irrigation systems.

Program Requirements

All landscape students will be required to place at or above the following ASSET scores: Writing 41, Reading 41 or completion of Upper Advanced ENNL and Numerical 42. Check appropriate course descriptions for individual course requirements.

Course of Study

Classes are designed to develop knowledge and skills in plant identification, soils, irrigation, landscape business operations, estimating and bidding and construction practices. Students successfully completing this curriculum may seek field level supervisory positions in landscape construction. Upon application and presentation of transcripts and certificate to the Landscape Contractors Board, students completing the Two Year Certificate-Landscape Construction with a minimum 2.5 GPA will be eligible to sit for the Landscape Contractors exam.

First Year

First Term

HOR 226	Plant Materials - Deciduous	4
LAT 104	Pesticides	3
LAT 106	Basic Horticulture	4
LAT 111	Landscape Construction Practices	3

Second Term

HOR 227	Plant Materials - Evergreen	4
HOR 290	Introduction to Landscape Design	3
CSS 200	Soils and Plant Nutrition	3
LAT 236	Landscape Math	3

Third Term

HOR 228	Plant Materials - Flowering	4
LAT 108	Landscape Irrigation I	3
LAT 110	Grounds Maintenance	4

Second Year

LAT 217	Landscape Drafting	3
LAT 223	Site Surveying and Analysis	3
LAT 233	Turfgrass Identification	3
LAT 241	Turfgrass Cultural Practices	3
LAT 243	Landscape Business Operations	3
LAT 222	Landscape Site Grading	3
LAT 264	Landscape Estimating and Bidding	3
LAT 232	Landscape Irrigation II	4
LAT 280	Cooperative Work Experience**	3

****Note:** Students with one year documented work experience in landscape construction may take an additional three credits of electives in lieu of cooperative work experience. Arrange with Landscape Department.

Electives

Landscape: Select six credit hours from other landscape certificates or from the landscape requirements and/or electives listed for the AAS degree in Landscape Technology.

General Education: See a landscape advisor to select six credit hours of General Education from the General Education list for AAS degrees.

Two-Year Certificate - Landscape Management

65 credit hours of required landscape courses and six credit hours of approved landscape electives and six credit hours of General Education.

Career Description

Students are prepared for work in the landscape management field maintaining residential, estate, commercial and public properties, golf courses, private and public gardens and parks.

Program Requirements

All landscape students will be required to place at or above the following ASSET scores: Writing 41, Reading 41 or completion of Upper Advanced ENNL and Numerical 42. Check the appropriate course descriptions for individual course requirements.

Course of Study

Classes are designed to develop knowledge and skills in plant identification, soils, irrigation, landscape business operations, grounds maintenance, tree care, turfgrass identification and culture and pest management. Students successfully completing this curriculum may seek field level supervisory positions in the landscape management industry.

First Year**First Term**

HOR 226	Plant Materials - Deciduous	4
LAT 104	Pesticides	3
LAT 106	Basic Horticulture	4
LAT 111	Landscape Construction Practices	3

Second Term

HOR 227	Plant Materials - Evergreen	4
CSS 200	Soils and Plant Nutrition	3
LAT 236	Landscape Math	3

Third Term

HOR 228	Plant Materials - Flowering	4
LAT 108	Landscape Irrigation I	3
LAT 110	Grounds Maintenance	4

Second Year

LAT 223	Site Surveying and Analysis	3
LAT 241	Turfgrass Cultural Practices	3
LAT 235	Tree Care - Fall	3
LAT 233	Turfgrass Identification	3
LAT 243	Landscape Business Operations	3
LAT 264	Landscape Estimating and Bidding	3
LAT 250	Plant Disease, Weed and Insect Identification	3
LAT 240	Tree Care - Spring	3
HOR 255	Annuals and Perennials	3
LAT 280A	Cooperative Work Experience**	3

Note: Students with one year documented work experience in landscape management may take an additional three credits of electives in lieu of cooperative work experience. Arrange with department.

Electives

Landscape: Select six credit hours from other landscape certificates or from the landscape requirements and/or electives listed for the AAS degree in Landscape Technology.

General Education: See a landscape advisor to select six credit hours of General Education from the General Education list for AAS degrees.

Two-Year Certificate - Landscape Design

65 credit hours of required landscape courses and six credit hours of approved landscape electives and six credit hours of General Education. Within the certificate curriculum, students will develop skills in communications, human relations, computation and industry specific technical areas. 72 credit hours of required courses are relevant to design and meeting the academic standards set by the national Association of Professional Landscape Designers.

Career Description

Students are prepared to work in the landscape design and construction fields performing design services for residential and small commercial projects. They may work for retail nurseries, landscape contractors or be self employed.



Program Requirements

All landscape students will be required to place at or above the following ASSET scores: Writing 41, Reading 41 or completion of Upper Advanced ENNL and Numerical 42. Check the appropriate course descriptions for individual course requirements.

Course of Study

Classes are designed to develop knowledge and skills in plant identification, soils, irrigation, site measurement and analysis, landscape design history and design. Students successfully completing the curriculum will have the needed skill to produce workable landscape designs.

First Year

First Term

HOR 226	Plant Materials - Deciduous	4
LAT 106	Basic Horticulture	4
LAT 111	Landscape Construction Practices	3

Second Term

HOR 227	Plant Materials - Evergreen	4
HOR 290	Introduction to Landscape Design	3
CSS 200	Soils and Plant Nutrition	3
LAT 236	Landscape Math	3

Third Term

HOR 228	Plant Materials - Flowering	4
LAT 108	Landscape Irrigation I	3
LAT 110	Grounds Maintenance	4

Second Year

LAT 217	Landscape Drafting	3
LAT 223	Site Measurement and Analysis	3
LAT 214	Plant Composition I	3
HOR 291	Landscape Design Process	3
LAT 221	Landscape Design Problems	3
LAT 222	Landscape Site Grading	3
LAT 220	Landscape Construction Details	3
LAT 243	Landscape Business Operations	3
HOR 255	Spring Annuals and Perennials	3
LAT 219	Landscape Illustration	3
LAT 232	Landscape Irrigation II	4
LAT 271	Computer Aided Landscape Design	3

Electives

Landscape: Select six credit hours from other landscape certificates or from the landscape requirements and/or electives listed for the AAS degree in Landscape Technology.

General Education: See a landscape advisor to select six credit hours of General Education from the General Education list for AAS degrees.

Two-Year Certificate - Plant Propagation

55 credit hours of required courses and six credit hours of approved landscape electives and six credit hours of General Education. Within the certificate curriculum, students will develop skills in communications, human relations, computation and industry specific technical areas.

Career Description

Certificate prepares student for career in management of wholesale nursery operations producing nursery stock. Plant production includes woody and herbaceous ornamentals, annuals and perennials.

Program Requirements

All landscape students will be required to place at or above the following ASSET scores: Writing 41, Reading 41 or completion of Upper Advanced ENNL and Numerical 42. Check the appropriate course descriptions for individual course requirements.

Course of Study

Courses provide information and training in plant propagation techniques, greenhouse operations and management, plant identification, pesticides, irrigation and soils. Business and cost analysis are included for individuals desiring to start their own nursery business.

First Year

First Term

HOR 226	Plant Materials - Deciduous	4
LAT 104	Pesticides	3
LAT 106	Basic Horticulture	4

Second Term

HOR 227	Plant Materials - Evergreen	4
CSS 200	Soils and Plant Nutrition	3
LAT 236	Landscape Math	3

Third Term

HOR 228	Plant Materials - Flowering	4
LAT 108	Landscape Irrigation I	3
LAT 280A	Cooperative Work Experience**	3

Second Year

LAT 210	Plant Propagation I	3
LAT 211	Plant Propagation II	3
LAT 212	Plant Propagation III	3
HOR 255	Spring Annuals and Perennials	3
HOR 272	Summer Annuals and Perennials	3
LAT 262	Native Plants of Oregon	3
LAT 250	Plant Diseases, Insects, and Weed Identification	3
LAT 280A	Cooperative Work Experience**	3

****Note:** Students with one year documented work experience in plant propagation may take an additional six credit hours of electives in lieu of cooperative work experience. Arrange with department.

Electives

Landscape: Select six credit hours from other landscape certificates or from the landscape requirements and/or electives listed for the AAS degree in Landscape Technology.

General Education: See a landscape advisor to select six credit hours of General Education from the General Education list for AAS degrees.

Legal Assistant -

(see Paralegal Program
in this catalog)

Literature

The prerequisite for PCC literature courses is placement into WR 121 or ASSET scores in Reading and Writing for placement into WR 121.

All PCC literature courses are transferable to four-year institutions and fulfill the block transfer agreement for the humanities in the general educational requirement for an associates degree.

Prerequisites

See the Course Description (ENG prefix) section of this catalog for individual Literature courses and course prerequisites.

Machine Manufacturing Technology

Sylvania Campus
Automotive Metals Building AM 113
503-977-4155, 503-977-4897

◆ Associate of Applied Science degree - 108 credit hours; satisfactory completion of requirements for the two-year certificate plus 18 credit hours of General Education classes.

◆ Two-year Certificate - satisfactory completion of 90 credit hours of MCH courses.

◆ One-year Certificate - satisfactory completion of 45 credit hours of MCH courses.

◆ Program Awards in:

Computer Numerical Control (CNC): Operator Level I, II, III

Mastercam: Mastercam Level I & II

Quality Control/Inspection: Mechanical Inspector, Quality Technician

Geometric Dimensioning & Tolerancing - GD&T Level I & II

Consult a program advisor for assistance in planning Program Awards, technical elective courses, General Education classes and information on the OEOE/CEU course offerings at 503-977-4525, 503-977-4155.

Career Description

Machinists operate various types of material removal equipment such as lathes, drill presses, milling machines, grind-

ers, Computer Numerical Control (CNC) machines, and Computer Assisted Machining (CAM) systems. Machinists may specialize in the operation of one type of machine or work in a shop where they are required to perform equally well on several different machines.

Program Requirements

Applicants must take the ASSET basic skills placement test administered through test centers located at each campus. To begin the program, students must place into MTH 20, or a higher-level math class. Students who place below this level can begin machining courses, but must successfully complete MTH 20 before continuing on to the second term of the Machine Technology Program. Students who place below RD 90 and WR 90 should complete these classes before entering the Machining Program. Students whose first language is not English, should take the English test through the English as a Non-Native Language (ENNL) Department. ENNL students who place into advanced writing and advanced reading are ready to begin machining courses.

Course of Study

The Machine Manufacturing Technology Program at Portland Community College has been developed specifically as Open Entry and Open Exit (OEOE.) The Machine Manufacturing Technology OEOE Program, offered as either Continuing Education Units (CEUs) or credit course, is designed to fit the need of a student or organization (take as few or as many modules as desired), and will have the following characteristics: Open Entry (enter any time during the term); Self-paced (learn at your own pace); Flexible (select your own attendance schedule); Individualized (any program can be tailor-made to fit specific needs); For college credit (may be applied to an AAS degree); and Open Exit (exit when you've met your training goals and needs). A Continuing Education Unit (CEU) is one in which the grade assigned for completion of the module is transcribed at PCC (Pass/Fail) but not transferable. A CEU module is designed for people already working in the industry. A credit course is one which can be applied towards the Associate of Applied Science (AAS) Degree Machine Manufacturing Technology at Portland Community College.

Required Core Courses

MCH 100	Machine Tool Basics	1.5
MCH 105	Blueprint Reading I	1.5
MCH 110	Blueprint Reading II	1.6
MCH 115	Geometric Dimensioning & Tolerancing	2.5
MCH 120	Machine Shop Math	2.8
MCH 125	Machine Shop Math/Speeds and Feeds	1.5
MCH 130	Machine Shop Math/Trigonometry	2.5
MCH 135	Measuring Tools	1.5
MCH 145	Layout Procedures	1.5
MCH 150	Precision Measuring Tools	1.8
MCH 160	Introduction to the Drill Press	2.5
MCH 175	Band Saws	1.5
MCH 180	Introduction to the Lathe	3.5
MCH 190	Boring on the Lathe	1.5
MCH 195	Threading on the Lathe	3.5
MCH 205	Introduction to Milling	2.5

MCH 215	Introduction to the Horizontal Mill	2.5
MCH 225	Introduction to Surface Grinding	2.0
MCH 235	Tool Sharpening	2.0
MCH 240	Cutting Tool Technology	2.0
MCH 245	Metallurgy	2.5
MCH 260	Basic Principles of CNC Programming	8.0
MCH 261	Basic Principles of CNC Operation	6.0
MCH 272	Mastercam Level I	4.0
MCH 273	Mastercam Level II	4.0

Technical Electives (Choose 23.3 Credits)

MCH 116	Advanced Topics in GD&T	2.5
MCH 117	Stacks in GD&T	2.5
MCH 134	Introduction to the Machine Shop	4.0
MCH 157	Shop Project Machine Technology I	1.5
MCH 158	Shop Project Machine Technology II	3.0
MCH 159	Shop Project Machine Technology III	4.5
MCH 170	Drill Press Project	4.5
MCH 200	Lathe Project	4.5
MCH 210	Shop Project Machine Technology IV	6.0
MCH 211	Shop Project Machine Technology V	7.5
MCH 212	Shop Project Machine Technology VI	9.0
MCH 213	Shop Project Machine Tech. VII	10.5
MCH 214	Shop Project Machine Tech. VIII	12.0
MCH 216	Mechanical Inspector	4.0
MCH 217	Quality Technician	4.0
MCH 220	Mill Project	4.5
MCH 230	Surface Grinder Project	4.0
MCH 259	CNC Programming-Lathe	4.0
MCH 262	CNC Conversational Controls	1.5
MCH 263	CNC Cycle Time Reduction	1.5
MCH 264	Related CNC Issues	1.5
MCH 265	Other CNC Machines	3.5
MCH 266	Advanced CNC Programming	3.5
MCH 267	Parametric Programming	1.5
MCH 268	CNC Programming-Mill	4.0
MCH 269	CNC Operator Program Award-Level I	6.0
MCH 270	CNC Operator Program Award-Level II	8.0
MCH 271	CNC Operator Program Award-Level III	6.0
MCH 274	Mastercam Program Award-Level I	4.0
MCH 275	Mastercam Program Award-Level II	4.0
MCH 276	Mastercam Solids	3.0
MCH 277	Mastercam CNC/CAM Project	3.0
MCH 278	CNC Operation - Mill	3.0
MCH 279	CNC Operation - Lathe	3.0
MCH 280	Cooperative Education	1.0 to 8.0
MCH 290	Machine Shop Project I-Ball Peen Hammer	2.0
MCH 291	Machine Shop Project II-Mill Stop	2.5
MCH 292	Machine Shop Project III-Parallel Clamps	3.0
MCH 293	Machine Shop Project IV-Threaded Die Wrench	2.0

MCH 294	Machine Shop Project V (Drill Vice)	2.0
MCH 295	Machine Shop Project VI(V-Block)	2.5
MCH 296	Machine Shop Project VII (Tool Makers V-Block)	2.5
MCH 297	Machine Shop Project VIII (Arbor Press)	4.5

Management and Supervisory Development

Central Portland Workforce Training Center, Room 114

503-731-6600

Washington County Workforce Training Center, Room 1506
503-533-2955

◆ Associate of Applied Science degree in Management and Supervisory Development- A minimum of 90 credit hours is required. Of this total, 45 credit hours of management and supervisory development courses must be taken including MSD 101, MSD 111, MSD 115, MSD 200, and MSD 216. Also, 27 credit hours must be taken from the restricted elective course list, including BA 211 Principles of Accounting I and CIS 120 Computer Concepts I, and 18 credit hours from the General Education course list. In addition, WR 121 and your choice of MTH 63, or MTH 65 must be completed with a "C" grade or better within five years prior to receiving the Associate of Applied Science degree. Students must meet college graduation requirements for General Education.

◆ Advanced Certificate in Management and Supervisory Development - A minimum of 45 credit hours is required. Of this total, 36 credit hours from the management and supervisory development course areas, including MSD 101, MSD 111, MSD 115, MSD 200 and MSD 216. In addition to these 36 credit hours, nine credit hours must be selected from the restricted elective course list. This must include BA 211 Principles of Accounting I and CIS 120 Computer Concepts I.

◆ Program award in Management and Supervisory Development - 18 credit hours of management and supervisory development courses are required: six credit hours of core courses, MSD 101, and MSD 111, and 12 credit hours from other MSD offerings.

◆ Program award in Quality Assurance - 18 credit hours to include MSD 285A, MSD 117, MSD 295A, MSD 287, and six hours of selected MSD credit. Select from the following: MSD 151A, MSD 163A, MSD 168, MSD 153B, MSD 164A, MSD 175A, MSD 195A, MSD 161, MSD 192A, or MSD 166B.

Career Description

The Institute for Management and Professional Development (IMPD) offers a comprehensive program designed for adults desiring to increase their personal and professional skills and knowledge and/or to continue private or public sector managerial/supervisory careers. By interacting with instructors who are currently practicing managers or consultants, participants develop a practical knowledge of cutting edge professional skills that will prepare them for future success. To accommodate most employees' schedules, most courses are offered in the evenings, on Saturdays and over the Internet.

This is not intended primarily as a transfer program, however, bachelor degree articulation agreements are in place with Marylhurst and Warner Pacific as well as other area colleges and universities. If you wish to transfer this program to a four-year institution, it is advised that you contact them as early as possible to ensure a smooth transition.

Program Requirement

ASSET basic skills placement test administered through assessment centers is recommended but not required.

Course of Study

The management and supervisory development courses are offered throughout the Portland Community College district both on and off campus and through distance learning. Management classes can be customized on a credit or non-credit basis to run on your business site and held at your location. "Achieve Global" training classes are also available. Credit may be obtained for projects or other learning experiences at work. For specific information on transferability or for program information, contact the Institute for Management and Professional Development.

Program Outcomes

Graduates from the Management and Supervisory Development program should be able to:

Lead themselves and a group through continuous change

Communicate a full range of thoughts and emotions with confidence and skill.

Course Categories

Core

MSD 101	Principles of Management and Supervision	3
MSD 111	Corresponding Effectively At Work	3

Human Behavior

MSD 105	Interpersonal Communication	3
MSD 107	Organizations & People	3
MSD 115	Improving Work Relations	3
MSD 117	Customer Relations	3
MSD 121	Leadership Skill Development	3
MSD 130	Creative Problem Solving	3
MSD 200	Organizations and Social Responsibility	3

Specialty

MSD 295A	Management Effectiveness	3
MSD 295B	Management Effectiveness	2
MSD 201	Productivity Management	3
MSD 202	Training the Employee	3
MSD 204	Labor - Management Relations	3
MSD 206	The Troubled Employee	3
MSD 210	Public Relations	3
MSD 212	Work Analysis and Improvement	3
MSD 214	Safety and Security Management	3
MSD 216	Budgeting for Managers	3
MSD 218	Introduction to Manufacturing Control	3
MSD 222	Human Resource Management: Personnel	3
MSD 223	Human Resource Management:	

	Performance and Compensation	3
MSD 240	Strategic Planning	3
MSD 279	Project Management	3
MSD 280A	CE: Management/Supervisory Development	3
MSD 280B	CE: Management and Supervisory Development - Seminar	1
MSD 285A	Fundamentals of Total Quality Management	3
MSD 287	Data Analysis for Quality Improvement	3
MSD 298	Trends in Management and Supervision	variable credit

Management Workshops

The Institute for Management and Professional Development offers various special interest one credit workshops. The following is a list of commonly offered workshops:

MSD 148	Asserting Yourself in the Workplace	1
MSD 189	Coaching and Assisting Other Employees	1
MSD 160A	Communication Styles	1
MSD 157	Conflict Management	1
MSD 162	Coping with Angry Feelings and Angry People	1
MSD 161	Customer Relations	1
MSD 151	Dealing with Difficult People	1
MSD 198B	Exploring 7 Habits of Highly Effective People	1
MSD 180A	Goal Setting and Productivity	1
MSD 187	Humor in the Workplace	1
MSD 193A	Leadership Skill Development	1
MSD 198A	Male/Female Communication Style Difference	1
MSD 196A	Professional Writing Skills	1
MSD 192A	Project Management	1
MSD 193	Self Esteem the Key to Success	1
MSD 159	Stress Control	1
MSD 174	Time Management	1

Note: A maximum of 9 workshops may be used towards a program award, certificate, or degree.

Restricted Electives

For the completion of the Associate of Applied Science degree in Management/Supervisory Development, students must complete 27 credit hours of Restricted Electives. These elective courses are restricted to the business, computer, and/or professional areas. Mandatory courses include BA 211 Principles of Accounting I and CIS 120 Computer Concepts I. The remainder of the 27 credits may be chosen from the above mentioned areas as well as Economics courses, HPE 295 Health and Fitness for Life, HE 125 First Aid and Industrial Safety and Math 30 Business Mathematics.

General Education

For the completion of the Associate of Applied Science degree in Management/Supervisory Development, students must complete 18 credit hours of General Education courses. See the Catalog listing of General Education courses.

Mathematics

Transfer Mathematics.

Non-transfer courses may be found in the Basic Skills section of this catalog.

Description

Courses in mathematics are offered for students who will transfer to four-year institutions, who are completing requirements for professional/technical programs, or who are taking courses for personal enrichment.

Course of Study

The intent of the program is to provide most of the same freshman and sophomore mathematics courses that are offered at four-year colleges and universities. Students should check the specific requirements of the institution to which they plan to transfer prior to finalizing their course of study at Portland Community College.

Program Requirements

All courses have prerequisites. Students are expected to attend the first day of class and must be able to justify their placement in the math course for which they are enrolled. Justification may be by any of the following criteria:

1. A grade of "C" or better in all prerequisite courses. Prerequisites for individual mathematics courses are included in the course descriptions. (Self-placement brochures may be used to indicate retention of prerequisite materials.)
2. Articulation agreement with their high school.
3. Placement testing in the testing center using ASSET test.
4. Course instructor's approval.

Mathematics Transfer Courses

MTH 108	Matrices	1
MTH 109	Conic Sections	1
MTH 111A	College Algebra for Liberal Arts	4
MTH 111B	College Algebra for Business, Management, Life and Social Science	5
MTH 111C	College Algebra for Math, Science and Engineering	5
MTH 112	Elementary Functions	5
MTH 116	Calculus Preparation	5
MTH 191	Math Tutoring Pre-100 level courses	3
MTH 192	Math Tutoring 100 level courses	3
MTH 193	Math Tutoring 200 level courses	3
MTH 211	Foundations of Elementary Math I	3
MTH 212	Foundations of Elementary Math II	3
MTH 213	Foundations of Elementary Math III	3
MTH 231	Elements of Discrete Mathematics I	4
MTH 241	Calculus for Management, Life and Social Science	4
MTH 243	Statistics I	4
MTH 244	Statistics II	4

MTH 251	Calculus I	4
MTH 252	Calculus II	5
MTH 253	Calculus III	5
MTH 254	Vector Calculus I	5
MTH 256	Differential Equations	5
MTH 261	Applied Linear Algebra I	5

Mechanical Engineering Technology

Sylvania Campus
Science Technology Building, Room 208
503-977-4163
engineering@pcc.edu

◆ Associate of Applied Science degree - All courses shown in six-term program. Students must meet college graduation requirements including General Education, math and English competencies.

◆ One-year Certificate - All courses including communications and General Education courses shown in the first four terms.

Career Description

Mechanical engineering technicians work as part of a team involved in the planning, design, and fabrication of mechanical systems. They work for manufacturing, energy, facilities management, consulting and construction firms.

Program Requirements

All students must have an advising interview with a Mechanical Engineering Technology (MET) faculty advisor. Students must place in WR 115 and have completed MTH 60 or equivalent. High school courses in chemistry and physics are helpful, but not required. Skill in keyboarding is highly recommended. A specific calculator is required.

For students not meeting these requirements, advising is available to assist in preparing for entrance into the program and to earn credits which will apply toward the certificate or degree once accepted into the program.

Evening Course Offerings

The Civil/Mechanical Engineering Technology Program offers some evening classes. For details regarding course offerings, schedules of classes, four-year degree potential, and employment options, make an appointment with a CMET faculty/advisor.

Application and Acceptance

Full-time students

MET is a limited enrollment program for students seeking a certificate or degree. Qualified applicants are accepted in the order in which the application process is completed. Program starts in fall and winter terms. See a program advisor for other term starts.

Job-upgrade students

Students must meet individual course prerequisites and complete an advising interview with a MET faculty advisor prior to enrollment. Admission is granted on a space-available basis after the needs of the full-time students have been met.

Continuing Education

Students of this program may transfer to Oregon Institute of Technology to pursue a BS degree in Mechanical or Manufacturing Engineering Technology. Faculty advisors will provide assistance in the selection of additional course work appropriate for each student's goals.

First Term

CMET 110 Statics	4
CMET 111 Engineering Technology Orientation	4
CMET 112 Technical Algebra and Trigonometry	4
CMET 113 Engineering Technology Graphics	3

Second Term

CMET 121 Strength of Materials	4
CMET 122 Technical Engineering Physics	4
CMET 123 Technical Algebra with Analytic Geometry	4
CH 100 Fundamentals of Chemistry	4 ¹
General Education	3 ^{1,2}

Third Term

CMET 131 Applied Calculus	8
CMET 223 Project Management	3
CMET 224 Computer Aided Design II	2
WR 121 English Composition	3 ²

Fourth Term

CMET 215 Manufacturing and Robotics	3
CMET 133 Materials Technology	3
CMET 211 Environmental Engineering Technology	14

CMET 213 Fluid Mechanics	3
General Education	3 ¹

Fifth Term

CMET 226 Dynamics	3
CMET 212 Thermodynamics I	4
CMET 221 Environmental Engineering Technology	14
SP 100/111 Speech Communication	3
General Education	3 ¹

Sixth Term

CMET 235 Machine Design	3
CMET 222 Thermodynamics II	4
CMET 236 Structural Design	3
CMET 233 Computer Aided Design III	2
General Education	3 ¹

CMET 280A Cooperative Education can be arranged in any term after completing Term 3.

¹General Education: 18 credits are required for the AAS degree. Each of the three areas below must be covered and suggested courses are listed below. A maximum of nine

credits are allowed in an area. (AAS) indicates courses required for the AAS degree. (OIT) indicates courses required for students transferring to Oregon Institute of Technology.

Arts and Humanities

SP 100, Introduction to Speech Communication (AAS) or
SP 111, Fundamentals of Speech (AAS) (OIT)

(Taking two 4-credit General Education courses will reduce the number of General Education courses shown by one.)

Social Science

EC 200 or 201 or 202 Principles of Economics (OIT)

PSY 201, General Psychology (OIT)

Mathematics, Natural and Physical Sciences and Computer Studies

CH 100, Fundamentals of Chemistry (AAS)(OIT)

CIS 120, Computer Concepts I (OIT) (MfgET)

MTH 243 and MTH 244 Statistics I and II (OIT)

MTH 254, Vector Calculus I (OIT) (MET)

MTH 256, Differential Equations (OIT) (MET)

PHY 202/212, General Physics (OIT)

PHY 203/213, General Physics (OIT) (MET)

Confirm that your selections are on PCC's General Education course list.

²Communications: WR 121 is a basic competency requirement, but it is not on PCC's General Education course list. (WR 115 is a prerequisite for WR 121).

WR 227, Technical Writing I is highly recommended to all students and required by OIT. WR 122 (required by OIT), or WR 214 must be taken before taking WR 227.

Forms of Recognition

Certificate: For completion of terms 1 through 4.

Associate of Applied Science Degree: For completion of terms 1 through 6.

OIT has a normal limit of 108 credits of community college work being applied to a Bachelor of Science in Engineering Technology degree. OIT will, however, accept more credits provided that you submit and have accepted, prior to receiving your AAS degree, a plan for the additional credits to be transferred. See a PCC Engineering Technology advisor for a suggested letter to OIT's Registrar that may be used in obtaining permission.

Medical Assisting

Cascade Campus
Jackson Hall Room 117
503-978-5667

◆ One-year Certificate - 44 credit hours of required medical assisting courses. For requirements for an Associate of General Studies degree, refer to Comprehensive Degree Requirements within this catalog.

Career Description

Those training in the Medical Assisting Program will find occupations involved with administrative and clinical aspects of health care in clinics and physicians' offices. The medical assistant performs a variety of clinical and administrative duties. Clinical duties may include: assisting physician and preparing patients for examinations and treatment; taking and recording vital signs and medical histories, performing certain diagnostic tests; preparing, administering and documenting medications; collecting and processing specimens. Administrative duties may include: scheduling and receiving patients; maintaining medical records; handling telephone calls, correspondence and reports, insurance matters, office accounts, fees and collections.

Program Requirements

1. High school completion or GED.
2. Classes with Medical Assisting (MA) course prefixes require ASSET scores of Reading 42, Writing 45, and Math 42. Classes with Medical Professions (MP) course prefixes require ASSET scores of Reading 36, Writing 36, and Math 33. Also MA 134 requires a keyboarding speed of 35 wpm with no more than three errors.
3. Students must demonstrate a working knowledge and/or background of basic computer skills including windows, keyboarding, internet and E-mail. Students not able to demonstrate a working knowledge and/or background will be required to take a course(s) prior to admission.
4. Program advising session with a Medical Assisting Program advisor.

Application and Acceptance

Students will receive provisional acceptance pending receipt of satisfactory physical examination, to include Mantoux Test, evidence of immunity to measles, evidence of initiating the immunization series to Hepatitis B, or sign a waiver and completion of MP 104 Professional Practice Prep. Students must have transportation to clinical facilities throughout the Portland metropolitan area.

Admission instructions may be obtained from the medical programs specialist at 503-978-5667. Qualified applicants are accepted in the order in which the application process is completed. Application documents should be sent to the attention of:

Medical Programs Technical Specialist
Cascade Campus JH, 117
Portland Community College
Post Office Box 19000
Portland, OR 97280-0990

Course of Study

Students may begin taking classes during any term. Students must receive a grade of "C" or better in all program required courses. The program is designed to correlate classroom and laboratory experience with practical experience in health care facilities.

Students are prepared to function under the supervision of a licensed physician. The program is accredited by the Commission on Accreditation of Allied Health Educational Programs (CAAHEP), on recommendation of the Committee on Accreditation for Medical Assistants Education. Graduates are eligible to take the national certifying examination given through the American Association of Medical Assistants.

First Term

MTH 22A	Metric Scientific Notations	1
BI 55	Human Biology	4
MP 111	Medical Terminology	3
MP 110	Administrative Systems	2
MP 120	Administrative Systems Lab	1
MA 113	Intro to Medical Reimbursement	2
MA 114	Intro to Medical Reimbursement Lab	1
MP 104	Professional Practice Preparation	1

Second Term

MP 180	Coding & Reimbursement	1
MA 123	Medical Office Clinical Procedures	3
MA 124	Medical Office Clinical Procedures Lab	2
MLT 100	Medical Office Lab Orientation	3
MP 101	Seminar 1	1
MA 125	Administrative Directed Practice	2
HE 112	First Aid & Emergency Care	1

Third Term

MP 131	Medical Science	5
MP 102	Seminar 2	1
MA 133	Clinical Directed Practice	2
MP 136	Medications	2
MP 121	Legal & Ethical Aspects of Healthcare	2
MA 134	Health Record Transcription Lab I	1
MP 103	Seminar 3	1

Fourth Term

MA 147	Specialty Directed Practice	2
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Medical Laboratory Technology

Cascade Campus
Health Professions Admissions
Jackson Hall 218
503-978-5209

◆ Associate of Applied Science degree - 111 credit hours; includes 93 credit hours of required MLT courses and 18 credit hours of General Education. Consult a program advisor for help in planning General Education courses. Students must meet college graduation requirements including General Education, math and English competencies.

The Medical Laboratory Technology Program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 8410 West Bryn Mawr Avenue, Suite 670, Chicago, IL 60631, telephone 773-714-8880.

Career Description

The medical laboratory technician performs routine clinical laboratory testing procedures to provide scientific information needed in diagnosis, prognosis and treatment of disease. Examples include: Identification of normal and abnormal blood cells such as those seen in anemias and leu-

kemias; determination of diabetic and hypoglycemic blood-glucose levels and identification of bacterial, fungal and parasitic infectious agents.

Technicians use sophisticated instrumentation for these evaluations which encompass quantitative and qualitative chemical and biological analyses of body specimens. Technicians function under the supervision of a qualified practitioner. The local metropolitan area offers very good employment opportunities and jobs are readily available in smaller communities throughout the country. Opportunities are available in hospitals, independent laboratories, research and industry for graduates of the program.

Program Requirements

Students accepted into the first year must show evidence of having begun the immunization series for Hepatitis B or sign a waiver acknowledging the risk factors involved without the immunization, and must show evidence of immunity to measles as required by law.

Technical Standards

Technical standards are the essential nonacademic requirements of the program that a student must be able to master to participate successfully in the MLT program and become employable. Examples of this program's technical standards are:

Visual Skills: A student in the MLT program must possess sufficient visual acuity and depth perception to perform and interpret laboratory assays.

Communication Skills: A student must have skills to communicate with physicians, fellow workers and patients and to follow verbal and written directions.

Manipulative skills: A student must possess adequate manual dexterity to perform laboratory testing and work with precision instrumentation.

Computational skills: A student must possess computational skills needed for laboratory math calculations.

Application and Acceptance

Because of limited laboratory space and clinical facilities as well as the delicate balance of job opportunities in medical laboratory science, the Medical Laboratory Technology Program has a limited enrollment. Admission to the first year of the program is based on achievement examinations in chemistry, biology, algebra and English at the high school level.

It is strongly recommended that applicants have completed high school chemistry, biology, algebra and English or their equivalents. Students should not interpret acceptance into the first year of the program as automatic eligibility for entrance to the second year of the program. Continuation into the second year is contingent upon performance during the first year. Each student entering into the second year is required to complete the health physical examination form provided by the MLT Department.

Students planning to enroll in the Medical Laboratory Technology Program should contact the Health Professions Admission Office for specific eligibility requirements and an appointment for a program advising session. Because of the unique responsibilities involved in the practice of clinical laboratory science, the Medical Laboratory Technology Department reserves the right to require that a student who appears to the department unsuited for clinical laboratory science be counseled into another area of study.

Course of Study

Students are prepared to perform routine clinical laboratory tests under the supervision of a pathologist, medical technologist or physician. The course combines on-campus instruction in fundamental principles with clinical experiences gained through rotation in clinical laboratories. The clinical laboratories affiliated with the MLT program include Kaiser Permanente, Legacy Health System, Oregon State Hospital, Sisters of Providence Health System, SW Washington Medical Center, Tuality Community Hospital and Willamette Falls Hospital.

Students enrolled in the MLT Program will be required to use medical devices and follow safety precautions of the clinical laboratory. Students who have a health, physical or psychological problem which may effect or be effected by the use of the devices or precautions should contact the department prior to entering the program. The graduates are eligible to sit for national examinations for certification given by several agencies.

Only those students who have been officially accepted into the first year of the MLT Program may enroll in MLT 111, MLT 112 and MLT 213.

First Term

CH 104	General Chemistry	5
MLT 111	Medical Technology I	4
	General Education	6

Second Term

BI 121	Intro to Human Anatomy & Physiology I	4
CH 105	General Chemistry	5
MLT 112	Medical Technology II	4
	General Education	3

Third Term

BI 122	Intro to Human Anatomy & Physiology II	4
CH 106	General Chemistry	5
MLT 213	Intro to Medical Microbiology	4
	General Education	3

Only those students who have completed the first year requirements and have been officially accepted into the second year of the MLT Program may enroll in the courses listed below.

Fourth Term

MLT 221	Clinical Chemistry I	3
MLT 250	Hematology	4
MLT 261	Bacteriology I	4
MLT 241	Immunohematology I	3
MLT 271	Clinical Laboratory Practice I	3

Fifth Term

MLT 222	Clinical Chemistry II	4
MLT 262	Bacteriology II	3
MLT 242	Immunohematology II	4
MLT 272	Clinical Laboratory Practice II	3
	General Education	3

Sixth Term

MLT 223	Clinical Chemistry III	3
MLT 263	Medical Parasitology	3
MLT 264	Medical Mycology	3
MLT 230	Body Fluids	3
MLT 273	Clinical Laboratory Practice III	3
	General Education	3

Seventh Term

MLT 281	Clinical Seminar	4
MLT 274	Clinical Laboratory Practice IV	8

Medical Sonography

Sylvania Campus
Health Technology Building, Room 306
503-977-4227, 503-977-4795
<http://spot.pcc.edu/sonography>

◆Associate of Applied Science degree - 105 credit hours; includes 87 credit hours of required Sonography courses and 18 credit hours of General Education. Students who already hold an associate's degree, or higher, will have met the General Education requirement. Consult an advisor for help in planning preparatory courses needed for admission. Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

This program is designed to prepare the student for certification as a registered diagnostic medical sonographer (R.D.M.S.) in abdominal and obstetrical/gynecological (OB/GYN) sonography.

Sonographers obtain images/data using diagnostic ultrasound under the direction of a physician who is responsible for the use and interpretation of ultrasound procedures.

The Sonographer integrates patient history and clinical data to facilitate optimum diagnostic results; performs appropriate procedures and records anatomical data for interpretation by the physician; exercises discretion and judgement in the performance of sonographic services; provides patient education related to medical ultrasound and promotes principles of good health.

Diagnostic medical sonographers are employed in hospitals, clinics, private offices and industry.

It is recommended applicants "shadow" a registered Sonographer, preferably in a hospital environment, to gain insight into the professional responsibilities and duties required of a Sonographer.

Program Requirements

Preference is given to applicants who are radiographers or a graduate of a 2 year accredited allied health program with certification in a discipline that includes direct patient care or possess a Baccalaureate degree with one year work experience in health care, providing direct patient care. In addition they must have successfully completed ("C" or higher) WR 121, MTH 111B or MTH 111C, BI 231, BI 232, BI 233 (BI 232 and 233 current within seven years), MP 111 or the equivalent,

be computer literate and possess a current C.P.R. card. Non-radiographers must complete PHY 101 and RAD 105 or its equivalent. Applicants need to read degree requirements for Associate of Applied Science degree in the Comprehensive Degree Requirements section of this catalog.

Application and Acceptance

Students planning to apply for the Sonography program should contact the Health Admissions Office, Sylvania campus, HT 205, 503-977-4795 for specific application and selection procedures. All students must be formally admitted or have program permission to enroll.

Course of Study

The Sonography program begins in January and is six terms in length (18 continuous months). The program combines campus instruction with clinical education at hospital affiliates.

Students are required to satisfactorily complete the course of study with a minimum of "C" grade or higher in each required course and must maintain an overall grade point average of 2.00 for graduation.

Students must keep their arm extended for long periods of time while using repetitive motions. Students may work in close proximity to ionizing radiation, processing chemicals and will provide patient care to individuals who may have contagious diseases. Special immunization required.

Course numbers, credit hours and term sequencing are continually reviewed in order to best serve the needs of the community and are subject to change as circumstances may require.

First Term

SON 100	Introduction to Sonography	1
SON 101	Sectional Anatomy	4
SON 113	Abdominal Sonography I	4
BI 241	Pathophysiology	3
	General Education Elective	3

Second Term

SON 103	Physics/Instrumentation I	3
SON 114	Ob/Gyn Sonography I	4
SON 120	Sonographic Clinic II	5 (16 hrs/wk)
SON 213	Abdominal Sonography II	4

Third Term

SON 104	Physics/Instrumentation II	3
SON 121	Sonographic Critique/Pathology I	3
SON 130	Sonographic Clinic III	8 (24 hrs/wk)
	General Education Elective	3

Fourth Term

SON 210	Sonographic Clinic IV	8 (24 hrs/wk)
SON 211	Sonographic Critique/Pathology III	3
SON 215	Ob/Gyn Sonography II	3
SON 217	Vascular Sonography/Echocardiography	3

Fifth Term

SON 220	Sonographic Clinic V	11 (32 hrs/wk)
SON 221	Sonographic Critique/Pathology IV	3
	General Education Elective	3

Sixth Term

SON 230	Sonographic Clinic VI	11 (32 hrs/wk)
SON 231	Sonographic Critique/Pathology V	3

Microelectronics Technology

Washington County Workforce Training Center
Room 1506
503-533-2702

◆ Associate of Applied Science degree - 106 credit hours; includes 18 credit hours of General Education courses. Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

Semiconductor manufacturing technicians work in clean room environments to process wafers, maintain equipment, and monitor manufacturing processes. Technicians must wear clean room suits and follow strict procedures in order to reduce particle count in the manufacturing environment. They must also follow safety procedures when handling process chemicals and gases. Technicians for this fast moving industry must have a broad range of skills and knowledge including strong backgrounds in mathematics, chemistry and physics. Good communications skills in the English language are required to function in team-oriented organizations that are becoming standard in the industry.

Potential employers of program graduates include Intel Corporation, Oregon's largest high-tech employer, Integrated Device Technologies, Inc. and other wafer and integrated circuit manufacturers.

Program Requirements

Students new to the program must take the college's placement examinations for mathematics and English prior to program advising and registration. Students must place in MTH 95 Intermediate Algebra and WR 121 English Composition or a higher level class before registering for first term microelectronics, electronics and chemistry courses.

Application and Acceptance

Qualified applicants are accepted in the order in which they complete the application process.

Course of Study

The program of study begins by laying a solid foundation in mathematics, chemistry, physics, and electronics before introducing topics in semiconductor manufacturing, process equipment, and vacuum/plasma technology. Instructional time is divided between classroom presentations and laboratory exercises to develop equipment analysis, maintenance, and troubleshooting skills. Students will also develop their oral and written communication skills in the English language. The ability to communicate is needed to be able to function effectively in teams in the factory.

Day courses are scheduled so that one section of a course meets on Monday and Tuesday and another section meets

on Thursday and Friday, enabling those students working compressed-work-week schedules to take courses. Evening courses follow a traditional Monday-Wednesday or Tuesday-Thursday schedule.

Full-time day students can complete the program in six terms. However, many students elect to take a part-time course load and take longer than six terms to complete the program.

Full-time day students must begin the program during fall term. Part-time students may begin during any term during the academic year.

Continuing Education

For students who continue their education beyond the Associate of Applied Science degree in Microelectronics Technology, up to 64 credit hours can apply toward a four-year baccalaureate degree.

Graduates of the Microelectronics Technology program may also transfer to Oregon Institute of Technology with junior standing to pursue a BS degree in Manufacturing Engineering Technology. Upper division OIT courses are offered at OIT's Metro Campus in Portland. (See notes following the curriculum listing.)

First Term

MT 110	Introduction to Microelectronics	3
MT 111	Electronic Circuits and Devices I	4
CH 221	General Chemistry	5
MTH 95	Intermediate Algebra	4
WR 121	English Composition	3

Second Term

MT 112	Electronic Circuits and Devices II	4
MT 121	Digital Systems I	3
CH 222	General Chemistry	5
MTH 111C	College Algebra for Math, Science and Engineering	5
WR 122	English Composition	3

Third Term

MT 113	Electronic Circuits & Devices III	4
MT 122	Digital Systems II	3
CH 223	General Chemistry	5
MTH 243	Statistics I	4
WR 227	Technical Writing I	3

Fourth Term

MT 223	Vacuum Technology	3
MT 224	Process Equipment I	3
PHY 201	General Physics	4
SP 130	Business and Professional Speech Communication	3
	General Education	3

Fifth Term

MT 200	Semiconductor Processing I	3
MT 222	Quality Control in SMT	2
MT 240	RF Plasma Systems	3
PHY 202	General Physics	4
SP 215	Small Group Communication:	

Process and Theory 3

Sixth Term

MT 227	Process Equipment II	3
MT 225	Semiconductor Processing II	3
PHY 203	General Physics	4
	General Education	6

Note: Students intending to transfer to OIT with junior standing should:

1. Complete both MTH 243 and MTH 244 at PCC.
2. General Education: Select two courses from PCC's General Education course list for Social Sciences and one course from PCC's General Education course list for Arts and Humanities, except: ENL courses, first year languages, speech, writing courses and PHL 197. MTH 95, a precollege course, does not apply toward the OIT bachelor's degree. SP 130 will substitute for OIT's SPE 111 general education requirement for the Microelectronics Program only, per approval of OIT's Academic Council.

Multimedia

Cascade Campus
Terrell Hall
503-978-5672

◆ One-year Certificate requires a total of 60 credit hours, including 45 Multimedia credit hours and 15 credit hours of approved electives.

Career Description

The Multimedia Certificate Program is designed to provide individuals with the entry level skills and experience needed for employment in a wide variety of professional opportunities. Some of the opportunities for Multimedia specialists include: multimedia associate producer, web designer, web content creation specialist, interface designer, multimedia programmer/authoring specialist, multimedia graphic production artist, digital video specialist, interactive/technical writer, multimedia project manager and more.

The Certificate program also provides ongoing skill development to members of the interdisciplinary multimedia team entering from related professions, such as graphic design, film/video, publishing, art and more. Such individuals, who wish to expand and move their skills into the "digital world," are offered a variety of advanced courses necessary to accomplish their goals.

Multimedia specialists are employed by companies that produce multimedia destined for the World Wide Web, CD-ROM, kiosks, and computer based delivery. Multimedia projects include those focused on business, marketing, education, training, presentations and entertainment applications.

Program Requirements

Students entering into the program must possess strong Macintosh or Windows computer management skills and be familiar with essential software such as word processing and draw/paint programs.

Course of Study

The program is located at the Cascade campus. The 100 level Multimedia courses are generally offered each term, and students may begin taking classes during any term. A variety of advanced, 200 level courses are also offered. Certificate students must receive a "C" or better in all required Multimedia courses.

Course listing

MM 110	Introduction to Multimedia	1
MM 120	Multimedia Design	2 ¹
MM 130	Multimedia Graphics, Video & Audio Production	3 ¹
MM 140	Multimedia Authoring I	3 ¹
MM 141	Incorporating Multimedia Elements In Presentation Software	2
MM 150	Multimedia Project Review, Testing and Delivery	1 ¹
MM 160	Marketing Yourself as a Multimedia Professional	2 ¹
MM 230	Graphics for Multimedia	4 ¹
MM 231	Vector Graphics and Animations for the World Wide Web	3 ¹
MM 232	Multimedia 3D Modeling and Animation	3
MM 234	3D for the World Wide Web	3
MM 235	Digital Video Editing and Production	3 ¹
MM 236	Internet Delivery of Digital Video and Audio Files	3
MM 240	Multimedia Authoring II	4 ¹
MM 241	Multimedia Authoring III - Scripting	4 ¹
MM 244	Creating Interactive Web Pages	3
MM 245	Internet Delivery of Interactive Multimedia	3
MM 250	Advanced Multimedia Project Development I	3
MM 251	Advanced Multimedia Project Development II	3
MM 252	Advanced Multimedia Project Development III	3
MM 270	Writing for Multimedia	3 ^{1,2}
MM 280	Cooperative Work Experience in Multimedia	1-3

¹Required course credit for Multimedia Certificate

² Prerequisite WR 122

Choose 15 elective credit hours from the following list:

ART 115, 116, 117	Basic Design	3
ART 221	Computer Graphics in Arts I	4
ART 221A	Computer Graphics in Arts I	2
ART 224	Computer Graphics in Arts II	4
ART 293	Sculpture	3
BA 201	Introduction to Business	4
BA 205	Solving Communication Problems	

	with Technology	4
CAS 106	Introduction to HTML	1
CAS 111D	Beginning Web Site Creation: Dreamweaver	3
CAS 113	Enhancing Web Pages with JavaScript	3
CAS 230	PageMaker: WIN	3
CIS 122	Software Design	4
CIS 133/233/234	any CIS 133, 233, or 234 series classes	12
CIS 178	Introduction to the Internet	4
DRF 124	Exploded Isometric Illustration	3
DRF 126	Introduction to AutoCAD	3
DRF 136	Intermediate AutoCAD	3
DRF 246	AutoCAD 3-D and Solid Modeling	3
DRF 256	Advanced AutoCAD	3
ED 103	Desktop Publishing for Educators	3
ED 104	Multimedia for Educators	3
ED 171	Computers in Education II - Introduction to the Internet	3
GD 120/220	any GD 120 or 220 series classes	9
GD 240	Adobe Illustrator Design	3
GD 241	Adobe Photoshop Design	3
GD 242	Combined Graphic Programs	3
GD 249	Design Studio	3
IVP	any Video Production Internship Courses	9
MUS 123	Electronic Media I	2
MUS 124	Electronic Media II	2
MUS 125	Electronic Media III	2
MUS 223	Studio Recording Technology I	3
MUS 224	Studio Recording Technology II	3
MUS 225	Studio Recording Technology III	3
PT 136	Electronic Layout-PageMaker	3
PT 150	Electronic Prepress-Prep for Print	6
PT 152	Electronic Prepress-Photoshop	6
PT 154	Electronic Prepress-QuarkXPress	6
WR 227	Technical Writing I	3
WR 9599	Professional Editing	3
WR 9600	Technical & Professional Writing II	3
WR 9601	Graphics for Technical & Professional Writers	3

Music

Sylvania Campus
Communications Technology Building, Room 216
503-977-4264 or 503-977-4277

Music Transfer

The college transfer courses are designed to be of interest to all students and may include two years of music theory for the student who plans to major in music at the upper divi-

sion level. For those who have no formal training in music but want to know something about it, general information courses are available to direct the student's attention to the theory of the art or toward the listening, appreciation and historical aspects of music as well as private instruction in applied performance. Consult the receiving institution or program advisor with respect to the transferability and application of credit.

Survey Courses for Non-Majors

The following courses fall into the category of general interest courses and are designed to acquaint the student with the many varieties and styles of music which have contributed to our vast musical heritage. They are especially recommended as humanities electives:

MUS 105 Music Appreciation

MUS 106 Opera Appreciation

Music History Courses

MUS 201A, MUS 202, MUS 203 Introduction to Music and its Literature

Music Theory Courses

The following courses are of interest to the generalist or the serious musician. They introduce basic musical skills:

MUS 110 Fundamentals of Music

(Preparation for Music Theory I)

MUS 111 Music Theory I

MUS 112A Music Theory I

MUS 113 Music Theory I

MUS 111C Music Theory I: Sight Singing
and Ear Training

MUS 112C Music Theory I: Sight Singing
and Ear Training

MUS 113C Music Theory I: Sight Singing
and Ear Training

MUS 211A Music Theory II

MUS 212A Music Theory II

MUS 213A Music Theory II

MUS 211B Music Theory II: Keyboard Harmony

MUS 212B Music Theory II: Keyboard Harmony

MUS 213B Music Theory II: Keyboard Harmony

Music Performance Courses

MUS 131 Group Vocal

MUS 158 Chamber Ensemble

MUS 220 Chorus

MUS 221 Chamber Choir

Individual Instruction

MUP 100 Applied Music (Individual instruction for non-majors)

MUP 171 - MUP 192 Applied Music (Private lessons - vocal and instrumental, first year)

MUP 271 - MUP 292 Applied Music (Private lessons - vocal and instrumental, second year)

Course Prerequisites

Prerequisites for each course may be found in the course descriptions section.

Music Transfer Courses

MUP 100	Individual Lessons for Non-majors	1
MUP 171-192	Applied Music	1 ¹
MUP 271-292	Applied Music	1 ¹
MUS 105	Music Appreciation	3
MUS 106	Opera Appreciation	3
MUS 110	Fundamentals of Music	3
MUS 111	Music Theory I	3
MUS 112A	Music Theory I	3
MUS 113	Music Theory I	3
MUS 111C	Music Theory I: Sight Singing and Ear Training	1
MUS 112C	Music Theory I: Sight Singing and Ear Training	1
MUS 113C	Music Theory I: Sight Singing and Ear Training	1
MUS 131	Group Vocal	1
MUS 158	Chamber Ensemble	1
MUS 191	Class Guitar I	3
MUS 192	Class Guitar II	3
MUS 193	Class Guitar III	3
MUS 191P	Class Piano	3
MUS 192P	Class Piano	3
MUS 193P	Class Piano	3
MUS 201A	Introduction to Music and Its Literature	3
MUS 202	Introduction to Music and Its Literature	3
MUS 203	Introduction to Music and Its Literature	3
MUS 205	Introduction to Jazz History	3 ¹
MUS 206	Introduction to the History of Rock Music	3 ¹
MUS 207	Introduction to the History of Folk Music	3 ¹
MUS 208	African-American Music	3
MUS 209	African-American Music	3
MUS 210	African-American Music	3
MUS 211A	Music Theory II	3
MUS 212A	Music Theory II	3
MUS 213A	Music Theory II	3
MUS 211B	Music Theory II: Keyboard Harmony	1
MUS 212B	Music Theory II: Keyboard Harmony	1
MUS 213B	Music Theory II: Keyboard Harmony	1
MUS 220	Chorus	2
MUS 221	Chorus: Chamber Choir	2

¹These are transferable courses taught at Cascade campus and are required in the Music (Professional) Program.

Music (Professional) Program

Cascade Campus
Cascade Modularity-CM 105
503-978-5226 or 503-978-5317

◆One-year Certificate - 48 credit hours including 37 credit hours of required professional music courses, eight credit hours of elective professional music courses and three credit hours of writing (WR 115 or above).

Professional music is a one-year program in music performance and music writing.

Career Description

Graduates may pursue jobs as a private teacher of music, instrumental musician, composer, arranger, or orchestrator.

Program Requirement

ASSET basic skills placement test administered through assessment centers.

Application and Acceptance

Students must apply in person at the Music Department. An appointment will be scheduled for an interview with a music instructor. Students will receive guidelines for a resume which they must bring to the interview. If the resume and interview document the student's qualifications, the student will be placed on a waiting list for entrance at the beginning of fall term.

Each student must develop a course of study with a program advisor.

Course of Study

This program is designed for the occupationally-oriented music student whose career goals can best be reached by improving skills in music performance or music writing or a combination of courses in these areas.

The following core of professional music courses will be required of all program students. All sequential courses must be taken and passed in sequence.

MUS 205	Introduction to Jazz History	3
MUS 206	Introduction to the History of Rock Music	3
MUS 207	Introduction to the History of Folk Music	3
MUS 101	Commercial Music Theory I	3 ¹
MUS 102	Commercial Music Theory II	3 ¹
MUS 103	Commercial Music Theory III	3 ¹
MUS 152A	Elements of Arranging Music I	3 ¹
MUS 152B	Elements of Arranging Music II	3 ¹
MUS 152C	Elements of Arranging Music III	3 ¹
MUS 120A	Sight Singing and Ear Training I	1
MUS 120B	Sight Singing and Ear Training II	1
MUS 120C	Sight Singing and Ear Training III	1
MUS 130A	Rhythm Training I	1

MUS 130B	Rhythm Training II	1
MUS 130C	Rhythm Training III	1
MUS 140A	Group Piano I	2
MUS 143	Group Percussion	2
MUS 145A	Group Guitar/Bass I	2
MUS 150A	Keyboard Harmony I	1
MUS 150B	Keyboard Harmony II	1
MUS 150C	Keyboard Harmony III	1
MUS 164	Survey of the Music Industry	1
MUS 165	Business for the Musician	1
MUS 234	Income Tax Preparation for Musicians	1
MUS 280A	CE: Vocational Music	3
MUS 280B	CE: Vocational Music - Seminar	1

¹Students must take either MUS 152A, MUS 152B and MUS 152C or MUS 101, MUS 102 and MUS 103.

Students may select from among the following courses to make up the number of credit hours required for the certificate. It is possible to concentrate on music writing or performance.

MUS 223	Studio Recording Technology I	3
MUS 224	Studio Recording Technology II	3
MUS 225	Studio Recording Technology III	3
MUS 123	Electronic Media I	2
MUS 124	Electronic Media II	2
MUS 125	Electronic Media III	2
MUS 140B	Group Piano II	2
MUS 144	Group Voice	2
MUS 145B	Group Guitar/Bass II	2
MUS 145C	Group Guitar/Bass III	2
MUS 153A	Show Band (Large)	2
MUS 153B	Show Band (Large)	2
MUS 153C	Show Band (Large)	2
MUS 154A	Show Band (Small)	2
MUS 154B	Show Band (Small)	2
MUS 154C	Show Band (Small)	2
MUS 155A	Improvisation I	2
MUS 155B	Improvisation II	2
MUS 155C	Improvisation III	2
MUS 156A	Applied Brass I	1 ¹
MUS 156B	Applied Brass II	1 ¹
MUS 156C	Applied Brass III	1 ¹
MUS 157A	Applied Woodwind I	1 ¹
MUS 157B	Applied Woodwind II	1 ¹
MUS 157C	Applied Woodwind III	1 ¹
MUS 159A	Applied Percussion I	1 ¹
MUS 159B	Applied Percussion II	1 ¹
MUS 159C	Applied Percussion III	1 ¹
MUS 160A	Applied Vocal I	1 ¹
MUS 160B	Applied Vocal II	1 ¹
MUS 160C	Applied Vocal III	1 ¹
MUS 161A	Applied Piano I	1 ¹
MUS 161B	Applied Piano II	1 ¹
MUS 161C	Applied Piano III	1 ¹

MUS 162A	Applied Bass I	1 ¹
MUS 162B	Applied Bass II	1 ¹
MUS 162C	Applied Bass III	1 ¹
MUS 163A	Applied Guitar I	1 ¹
MUS 163B	Applied Guitar II	1 ¹
MUS 163C	Applied Guitar III	1 ¹

¹Students receive individual instruction in piano, organ, voice and instruments of the band and orchestra.

Required writing course for the Professional Music Program

WR 115	Introduction to Expository Writing	3
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Nursing

Sylvania Campus

Health Technology Building, Room 126

(503) 977-4908 (Health Professions Admissions Office)

◆ Associate of Applied Science degree - 108 credit hours; includes 53 credit hours of required nursing courses, and 48-55 credit hours of support courses. All students must have completed 101-102 credit hours to receive an AAS degree in Nursing. (Curriculum requirements are subject to change when indicated to maintain a quality program.) Students must meet college graduation requirements including General Education, math and English competencies.

PCC Nursing Program Accreditation

Oregon State Board of Nursing

800 NE Oregon Street

Portland OR 97232

503-731-4745

National League for Nursing.

61 Broadway-33rd Floor

New York City, NY 10006

800-669-1656 ext. 153

Career Description

This program is designed to prepare the student with entry level skills needed to assume the role of a registered nurse and qualifies the graduate to take the RN licensure exam. Registered nurses deliver nursing care in a variety of health care settings.

Program Requirements

Persons applying to the Nursing Program must have:

- A high school diploma or equivalent
- Satisfactory completion (with a grade of "C" or better) of the following within five years at the time of application:

MTH 65 Introductory Algebra, or equivalent

WR 121 English Composition, or equivalent

- Satisfactory completion (with a grade of "C" or better) the following within seven years of application:

BI 234 Microbiology

BI 231 Human Anatomy and Physiology I

BI 232 Human Anatomy and Physiology II

Students with a previous degree may be eligible to have the math and English requirement waived. Call the Health Professions Office for clarification.

Application and Acceptance

Applications for the nursing program are accepted on August 1 through December 15 each year for entry the following September. Admission is based on completion of the prerequisite courses by the deadline. Students are selected by lottery. Contact the Health Professions Office at the Sylvania campus for information and admission instructions. Health Professions Admissions Office
Portland Community College
Sylvania Campus, HT 205
PO Box 19000
Portland, OR 97280-0990
503-977-4908

After being accepted into the program, the student must show evidence of the following prior to September 1:

1. Completion with a passing grade HC 101 Introduction to Health Careers for all students entering Fall 2001. (see Course Description section in this catalog)
2. Immunity to measles and other childhood diseases.
3. Negative TB test or chest x-ray.
4. Completion of the Hepatitis B vaccination series.
5. Current CPR certificate (Level C, or BLS for Health Care Professionals).

The nursing admission packet describes these requirements in more detail including tuition and fees required.

Program Transfer or Advanced Placement

Students requesting transfer from another nursing program or advanced placement must submit a written request to the Nursing Department. Transcripts and course descriptions for all nursing coursework and letter of reference from current school of nursing request should accompany the request. Letters of recommendation or reference may be required. Following completion of entrance criteria, transfer students are accepted at the appropriate course level on a space available basis.

The Nursing Department works with individual transfer students and LPNs who are requesting advanced placement.

Legal Limitations for RN Licensure

Applicants should be aware that the following questions are asked on the registered nurse licensure exam application by the Oregon State Board of Nursing:

1. Do you have any physical handicaps?
2. Have you had any major physical or mental illness during the past five years?
3. Have you ever been convicted of any criminal offense other than minor traffic violations?

Individuals that may have a past history of chemical abuse, felonies, or believe that past history circumstances may interfere with their ability to sit for the licensure examination should contact the OSBN at 503-731-4745 for recommendations. Applicants may also confer with the Nursing Program director regarding concerns with any of these questions.

Course of Study

The nursing program is based upon a self-care model that incorporates the concepts of biopsychosocial and nursing principles, nursing process, and critical thinking, communication, management, health promotion and teaching, and professional roles and standards of care. The student applies these concepts and the self-care model while providing nursing care for clients with a variety of health needs.

Students enrolled in the nursing program will work with clients who have a variety of health conditions that may require special precautions in relation to body fluids. Applicants who have concerns about this issue may contact the program director for additional information.

Student Disability Information

Nursing is a physically and mentally challenging occupation. Education related to this field is designed to prepare nurses for these challenges. Nursing students must be able to meet all established essential academic and clinical requirements to successfully complete the program. Persons with questions concerning particular qualifications are encouraged to contact the Health Admissions Office at 503-977-4908 for individual consultation prior to formal application.

Applicants with disabilities are encouraged to contact the Office for Students with Disabilities (OSD) 503-977-4341. To be eligible for a reasonable accommodation, applicants must provide clear documentation of their disability. OSD is responsible for determining if reasonable accommodations can be identified and ensuring that accommodations are provided for PCC students. OSD services are confidential and are separate from the nursing and college application processes. Early contact with OSD will ensure that accommodations can be made available when students begin the Nursing Program.

Program Progression

To advance from term to term, students must successfully complete all of the previous term's course work by receiving a grade of "Pass" or "C" or better. For example, all courses listed for first term must be completed prior to being allowed to progress to second term.

Students are strongly encouraged to complete as many support courses as possible prior to entering the program. These courses must have been taken within seven years of applying. Support courses are those listed below that do not start with the "NUR" prefix.

First Term (Fall term)

NUR 106	Foundations for Nursing and Client Self Care	9
PSY 215	Human Development (must be completed by the end of this term)	3
BI 233	Human Anatomy & Physiology III (must be completed by the end of this term)	4

Second Term (Winter term)

NUR 107	Nursing Care for the Perioperative Client/Psychosocial Adaptation	9
PSY 214	Introduction to Personality (must be completed by the end of this term)	3

BI 241	Pathophysiology	3
	(must be completed by the end of this term)	

Third Term (Spring term)

NUR 108	Nursing Care for Clients with Chronic Health Care Needs	9
FN 270	Normal and Applied Clinical Nutrition	4
	(must be completed by the end of this term)	

PHL 205	Contemporary Moral Problems: Biomedical Ethics	3
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Fourth Term (Fall term)

NUR 206	Nursing Care for Clients with Acute Health Care Needs/Nursing Care of Families	9
	General Education	6*

Fifth Term (Winter term)

NUR 207	Nursing Care for Clients with Complex and Unstable Health Care Needs	9
	General Education	6*

Sixth Term (Spring term)

NUR 208	Nursing Care of Clients with Emergent Health Care Needs	8
	General Education	6*

*Two program prerequisite science courses may be used as General Education credits.

Ophthalmic Medical Technology

Cascade Campus
Jackson Hall, Room 117
503-978-5667(Admissions)

◆ Associate of Applied Science degree - minimum of 92 credits. Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

Those training in the Ophthalmic Medical Technology Program will develop skills to perform ophthalmic procedures under the supervision of a licensed physician. These procedures include: medical histories, diagnostic tests, refractometry, anatomical and functional ocular measurements and tests, administration of topical ophthalmic and oral medications, instructing patients, maintaining equipment, sterilizing surgical instruments, assisting in minor ophthalmic surgery, assisting fitting of contact lenses, adjustments and minor repairs on spectacles. Ophthalmic medical technology is a rapidly expanding field in which a growing demand exists for technicians.

Program Requirements

1. High school completion or GED.
2. ASSET basic skills placement test administered through the assessment centers.
3. Students will receive provisional acceptance pending receipt of satisfactory physical examination, evidence of immunity to measles and evidence of initiating the immunization series to Hepatitis B, or sign a waiver.
4. Two statements of recommendation from a recent employer, teacher or counselor.
5. Program advising session with an Ophthalmic Medical Technology Program faculty advisor.

Students must also have transportation to practicum facilities throughout the Portland metropolitan area and surrounding communities.

To advance to the next term students must successfully complete all of the previous term's coursework by receiving a grade of "Pass" or "C" or better. For example, all courses listed for first term must be completed prior to being allowed to progress to second term.

Application and Acceptance

Admission instructions may be obtained from the medical programs technical specialist at 503-978-5667. The program is limited to 24 students.

Application documents should be sent to the attention of Medical Programs Technical Specialist
Cascade Campus JH 117
P.O. Box 19000
Portland, OR 97280-0990

Course of Study

This program is designed to correlate classroom and laboratory experiences with clinical experience in ophthalmic offices and clinics and prepares students to function under the supervision of a licensed physician. This program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). Graduates of accredited programs are eligible to test for national certification as an ophthalmic technician.

Students may consult with faculty advisor about alternative approaches to completing portions of the ophthalmic medical technology curricula.

Consult a program advisor for help in planning General Education classes.

Only those students who have been officially admitted to the Ophthalmic Medical Technology Program may enroll in OMT courses. Professionals in the field may be admitted on a space available basis.

First Term (Fall term)

BI 55	Human Biology	4
OMT 111	General Medical Terminology	3
OMT 145	Clinical Optics 1	2
OMT 163	Ocular Anatomy and Physiology	2
	General Education	3

Second Term (Winter term)

OMT 102	Pharmacology/Eye Disease 1	2
PSY 101	Psychology and Human Relations	3

OMT 104	Ophthalmic Office Procedures	3
OMT 146	Clinical Optics 2	2
	General Education	6

Third Term (Spring term)

OMT 106	Introduction to Clinical Skills	3
MP 131	Medical Science	5
OMT 103	Pharmacology/Eye Disease 2	2
OMT 208	Ocular Motility/Binocular Vision	2
OMT 231	Seminar I	1
OMT 121	Practicum I	1

Only those students who have completed the first year requirements and have been officially accepted into the second year of the Ophthalmic Technology Program may enroll in the courses listed below.

Fourth Term (Fall term)

OMT 206	Diagnostic Procedures I	4
OMT 209	Surgical Assisting Procedures	3
OMT 232	Seminar II	2
OMT 222	Practicum II	4
	General Education	3

Fifth Term (Winter term)

OMT 212	Contact Lens 1	3
OMT 223	Practicum III	4
OMT 283	Perception/Low Vision	2
OMT 233	Seminar III	2
OMT 207	Diagnostic Procedures II	4
HE 112	First Aid and Emergency Care	1

Sixth Term (Spring term)

OMT 224	Practicum IV	4
OMT 234	Seminar IV	2
OMT 210	Therapeutic Assisting Procedures	4
OMT 213	Contact Lens 2	3
	General Education	3

Legal Assistant - Paralegal

Cascade Campus
Terrell Hall, 4B
503-978-5212

◆ Associate of Applied Science degree - 90 credit hours; includes 18 credit hours of required paralegal core courses, 27 credit hours of elective paralegal courses, 18 credit hours of General Education and 27 credit hours of other elective courses. Consult the Legal Assistant/Paralegal Department for help in program planning. Students must meet college graduation requirements including General Education, math and writing competencies.

◆ One-year Certificate - 45 credit hours; includes 18 credit hours of required paralegal core courses and 27 credit hours of elective legal assistant courses.

Career Description

The paralegal is a trained paraprofessional who assists the attorney in delivery of legal services to the client. Paralegal tasks include: client and witness interviews, document preparation, organization of case materials and data, investigation, research and file management. The paralegal performs these tasks under the supervision of an attorney.

Program Requirements

ASSET basic skills placement test administered through assessment centers.

Program advising is required. Students planning to enroll in the Legal Assistant/Paralegal Program should contact the Department for specific eligibility requirements and program advising.

Students who meet prerequisites with classes from another institution should contact the Legal Assistant/Paralegal Department for approval to register.

Because of the responsibilities involved in the practice of law, the Legal Assistant/Paralegal Department reserves the right to require that a student who appears to be unsuited or unprepared for the program or the practice, be counseled into another, or preparatory, area of study.

Course of Study

Classes meet primarily on week day evenings, but a few day and Saturday classes are scheduled. While completing the required core courses, students may select from paralegal electives. Note the Suggested Areas of Concentration following the list of electives below. Please contact the Legal Assistant/Paralegal Department for further information.

Transferability of Courses

Paralegal courses may transfer to Portland State University toward a General Studies degree. PCC students interested in transferring to any four year school should check with that school for current transferability of specific paralegal courses.

Core courses (18 credit hours)

LA 101	Introduction to Law - Fundamentals	3 ¹
LA 102	Introduction to Law - Substantive Areas	3 ¹
LA 103	Introduction to Law - Ethics	3 ¹
LA 107	Techniques of Interview	3 ¹
LA 203	Legal Research and Library Use	3 ¹
LA 204	Applied Legal Research and Drafting	3 ¹

Listing of Legal Assistant/Paralegal courses

In addition to the required core courses listed, 27 credits from the paralegal electives listed below must be completed to earn the PCC certificate or associate of applied science degree.

Legal Assistant/Paralegal Electives

LA 104	Investigation Techniques for Legal Assistants	3 ²
LA 105	Litigation	3 ²
LA 106	Computer Assisted Legal Research	3
LA 109	Estate Planning	3
LA 111	Probate Practice	3
LA 116	Real Property Law I	3

LA 208	Family Law	3
LA 216	Employment Law	3
LA 219	Consumer Law	3
LA 220	Worker's Compensation	3
LA 221	Bankruptcy Law	3
LA 222	Corporate Law Practice	3
LA 226	Criminal Law for Legal Assistant	3
LA 280A	CE: Legal Assistant/Paralegal variable credit ²	

Legal Assistant /Paralegal electives from other departments

Courses from other departments, such as BA or CJA, may be used as Paralegal electives. Consult the Department for course approval.

¹Required core courses. Prerequisites required. See course descriptions.

² Prerequisites required. See Course Descriptions section of this catalog.

Suggested Areas of Concentration

Family Law

LA 105	Litigation	3
LA 109	Estate Planning	3
LA 111	Probate Practice	3
LA 116	Real Property Law I	3
LA 208	Family Law	3
LA 219	Consumer Law	3
LA 221	Bankruptcy Law	3
BA 256	Income Tax	3

Probate and Estate Planning

LA 109	Estate Planning	3
LA 111	Probate Practice	3
LA 116	Real Property Law I	3
LA 208	Family Law	3
BA 256	Income Tax	3

Civil Litigation

LA 104	Investigation Techniques for Legal Assistants	3
LA 105	Litigation	3
LA 116	Real Property Law I	3
LA 208	Family Law	3
LA 222	Corporate Law Practice	3
BA 226	Business Law I	3
BA 256	Income Tax	3

Criminal Justice

LA 104	Investigation Techniques for Legal Assistants	3
LA 226	Criminal Law for Legal Assistant	3

CJA courses may be taken with program approval.

Property

LA 109	Estate Planning	3
LA 111	Probate Practice	3
LA 116	Real Property Law I	3

LA 219	Consumer Law	3
LA 221	Bankruptcy Law	3
BA 256	Income Tax	3

Office Management

LA 216	Employment Law	3
LA 220	Worker's Compensation	3

BA 131	Computers in Business	4
BA 212	Principles of Accounting II	3
BA 226	Business Law I	3
BA 227	Business Law II	3
BA 228	Computer Accounting Applications	3

Business Law

LA 105	Litigation	3
LA 116	Real Property Law I	3
LA 216	Employment Law	3
LA 219	Consumer Law	3
LA 220	Worker's Compensation	3
LA 221	Bankruptcy Law	3
LA 222	Corporate Law Practice	3
BA 141	Intro to International Business Law	3
BA 226	Business Law I	3
BA 227	Business Law II	3
BA 256	Income Tax	3

Taxation

LA 109	Estate Planning	3
LA 116	Real Property Law I	3
LA 221	Bankruptcy Law	3
LA 222	Corporate Law Practice	3

Parent Education

Sylvania Campus
Health Technology Building, Room 318
503-977-4217 or 503-977-4218

Career Description

These courses are designed to help participants develop skills for successful parenting, learn more about their roles as parents and to enhance their relationships with their children.

Program Requirements

ASSET basic skills placement test administered through assessment centers.

Course of Study

The classes are taught by PCC parent education instructors with expertise in working both with children and adults. Some classes are lecture and discussion and others are interactive with parents and children together. Each class is tailored to the ages of the children and includes study topics. The study

topics for the term are chosen by the participants and the instructor in each class. Topics include: development, guidance, communication, self-esteem, health, current issues and others.

HEC 9402	Parents and Child Learn Together	1
HEC 157	Parenting Skills	1
HEC 9420	Living and Learning with Your Baby	1
HEC 9421	Living and Learning with Your Toddler	1
HEC 9422	Living and Learning with Your Two Year Old	1

Peace and Conflict Studies (PACS)

Description

The PACS Program Awards are flexibly designed to satisfy the different needs of Portland Community College students, teaching and other professionals, and the general public.

Objectives include providing a multi-disciplinary means of exploring the structural causes and manifestations of violence in self, in society, and in the global community, and to consider alternatives to violent resolution of conflict. Those enrolled are encouraged to study, design, and participate in social and political structures that nurture peace and security, human rights and justice, racial and gender equality, environmental stability, economic equity, and responsible communications.

Prerequisites

See course descriptions section of this catalog for individual course prerequisites.

Course of Study

PACS courses may be taken on any PCC campus with credit being given for some courses completed elsewhere. Students considering an Associate of Arts or Associate of Science degree should take care to satisfy all requirements relating to their degree. PCC courses for which PACS credit is granted are transferable to most colleges and universities in the United States. Students who plan to transfer to a state college or university in Oregon are encouraged to complete course sequences. Prior to enrolling, students should consult the receiving college or university and a program advisor concerning the transferability of credit.

For more information contact the Portland Community College Social Science Division at the Sylvania Campus.

PACS I Program Award Requirements

1. A minimum of 18 credit hours, including PS 211 (or equivalent.)
2. At least one course from each of three course categories (out of the five available course categories.)

PACS II Program Award Requirements

1. A minimum of 30 credit hours; includes PS 211 (or equivalent), at least one credit in cooperative education (PS 280C or equivalent.)

and a two credit Cooperative Education Seminar (PS 280B or equivalent.)

2. At least one course from each of the five course categories, (with no more than three of these courses coming from any one subject area discipline, and at least two coming from outside of the social sciences.

PACS III Program Award Requirements

1. A minimum of 45 credit hours, includes PS 211 (or equivalent), at least one credit in cooperative education (PS 280C or equivalent), and a two credit Cooperative Education Seminar (PS 280B or equivalent.)
2. At least one course from each of the five course categories (with no more than 4 of these courses coming from any one subject area discipline, and at least three coming from outside of the social sciences.
3. Inclusion of at least three courses concentrated in at least one course category.

Integrative Courses

PS 211	Peace and Conflict	3
PS 280B	CE: Community Service and Action Seminar	3
PS 280C	CE: Peace and Conflict	variable credit

Category I: Personal to Societal Peace and Conflict

ATH 103	Introduction to Cultural Anthropology	3
EC 216	Labor Markets:Economics of Gender and Work	3
ENG 261	Literature of Science Fiction	3
HST 203	History of the United States-III	3
PHL 202	Introduction to Philosophy: Elementary Ethics	3
PS 201	U.S. Government: Foundation and Principles	3
PSY 216	Social Psychology	3
SOC 204	General Sociology: Sociology in Everyday Life	3
SOC 205	General Sociology: Social Change and Social Institutions	3
SOC 206	General Sociology: Social Problems	3

Category II: Race and Gender, and Peace and Conflict

ENG 211	Contemporary African Literature	3
ENG 212	Biography	3
ENG 222	Images of Women in Literature	3
ENG 240	Introduction to Native American Literatures	3
ENG 258	African American Literature	3
ENG 260	Introduction to Women Writers	3
HST 206	History of Women in the United States: 1920 to Present	3
HST 218	Native American Indian History	3
HST 225	History of Women, Sex, and the Family	3
HST 276	African American History-III	3
SOC 218	Sociology of Gender	3

Category III: Environmental and Ecological Peace and Conflict

ATH 214	Human Environments: Ecological Aspects	3
ATH 215	Human Environments: Energy Consideration	3
BI 141	Habitats: Life of the Forest	4
BI 142	Habitats: Marine Biology	4
BI 143	Habitats: Fresh Water Biology	4
GEO 105	Introduction to Human Cultural Geography	3
GEO 106	Introduction to Human Cultural Geography	3
GEO 208	Physical Geography: Geomorphology	3
GEO 209	Physical Geography: Weather and Climate	3
ESR 171	Environmental Science: Biological Perspectives	4
ESR 172	Environmental Science: Chemical Perspectives	4
ESR 173	Environmental Science: Geological Perspectives	4

Category IV: Global Peace and Conflict

EC 115	Outlines of Economics	3
EC 230	Contemporary World Economic Issues: International Economics	3
ENG 265	International Political Poetry	3
GEO 107	Introduction to Human Cultural Geography	3
HST 103	Western Civilization: Modern Europe	3
PS 205	Global Politics: Conflict and Cooperation	3
PS 220	U.S. Foreign Policy	3
PS 225	Political Ideology: Alternative Idea Systems	3

Category V: Communication: Peace and Conflict

ENG 197	Contemporary Themes & Genres	3
MUS 207	Introduction to the History of Folk Music	3
PHL 191	Critical Thinking: Language and the Layout of Argument	3
PHL 193	Critical Thinking: The Evaluation of Practical Argument	3
PHL 197	Critical Thinking: TV and the Presentation of Reality	3
SP 100	Introduction to Speech Communication	3
SP 105	Listening	3
SP 140	Introduction to Intercultural Communication	3

Note: Other courses, or even sections of courses, may also be available for PACS Program Award credit. Consult a PACS Program advisor for the most up-to-date information relating to your plans to earn a PACS Program Award.

Philosophy

Description

Philosophers ask and attempt to answer fundamental questions about ourselves and the world. What is real? What can be known? How should we live our lives? What is the nature of human nature? What distinguishes logic from illogic? Philosophy courses will look at the answers given to such questions by major historical figures and will help the student to learn how to think critically about issues of the sort raised by these questions. Philosophy courses need not be taken in sequence and any three courses constitute a sequence for purposes of graduation. All philosophy courses are transferable to Portland State University, Oregon State University and the University of Oregon.

Prerequisites

See the Course Description (PHL) section of this catalog for individual Philosophy courses and course prerequisites.

Physical Education, Fitness and Dance

Description

PCC's Physical Education Program offers students the opportunity to improve physical and mental well being through a variety of exciting well based offerings. These courses will equip students with the stamina to meet today's challenges in the workplace. Our classes not only provide the skills, they also provide the knowledge to enable students to achieve lifelong fitness.

The Oregon State System of Higher Education and the systems in other states vary in their physical education requirements. Many physical education classes fulfill degree requirements at PCC or other institutions and colleges, or may transfer as elective credit. Students should check with their PCC program advisor or with the institution to which they plan to transfer.

Physical Examination

Although a physical exam is not required, students are advised to seek approval from their personal physician before entering into a regular program of vigorous physical activity as is found in physical education courses.

Students who require classroom accommodations should notify the physical education instructor and the Office for Students with Disabilities (OSD). OSD works with students to identify and ensure reasonable accommodations in PCC classes and programs.

Special Fees

Recreational use of physical education facilities and activity classes require special fees which are listed in the current class schedule.

Course of Study

PCC offers a wide variety of physical education activity and wellness classes, dance, and athletic opportunities to students of all ages and fitness levels. For further information, students should consult a physical education advisor at any PCC campus.

The Physical Education Department at Sylvania campus offers a One Year Certificate in Fitness Technology. The requirements and curriculum for this professional program are listed in a separate section of this catalog.

Physical Education Instructional and Professional Courses

HPE 295 Health and Fitness for Life 3

HPE 295 lecture and physical activity lab must be taken concurrently. Students must successfully complete both lecture and lab in order to receive credit. The lab includes fitness testing and fitness activities.

PE 291A Lifeguard Training 2

PE 292A Water Safety Instructor 2

Physical Education Activities Courses:

PE 180 (A - D) Aquatics 1.0

A variety of courses including water exercise, all levels of learning and improving swim strokes, conditioning for strength and endurance, and water sports.

PE 181 (A - G) Weight Training 1.0

Includes beginning, intermediate, and advanced weight training and coed circuit weight training 1 and 2.

PE 182 (A - N) Fitness Classes 1.0

Classes include aerobic fitness, fitness and walking, jogging, adult fitness, ski conditioning, yoga and Tai Chi.

PE 182 N - Corrective Physical Education is individualized, self-paced exercise and swim programs for students with acute or chronic injuries or disabilities.

PE 183 (A -S) Individual Sports 1.0

Includes beginning, intermediate and some advanced levels of tennis, golf, pickleball, racquetball, and karate.

PE 184 (A - K) Skiing 1.0

Beginning, intermediate, and advanced levels of Alpine (downhill), Nordic (cross-country), snowboarding, beginning ski racing and ski instructor training.

PE 185 (A - L) Team Sports 1.0

Classes include beginning, intermediate and advanced levels of basketball, soccer, volleyball, flag football and softball.

PE 186 (A - N) Dance 1.0

These classes represent the various skill levels in ballet, jazz dance, modern dance and tap. The Visual and Performing Arts Department also offers dance classes. See the listing under "Dance" in this catalog.

Athletics

Athletic opportunities are available to students through intramural activities, club sports, and college athletic teams. For more information, see the Student Activities section of this catalog.

Recreation - Sylvania Campus

Facilities and activities are available for student and employee recreational use when instructional classes are not in session. Present your validated PCC I.D. to the issue room staff in HT 114 and provide proof of current enrollment to obtain a facility use ribbon. This ribbon must be worn when using recreational facilities. The availability schedules are posted on the door of each facility and in each locker room.

Swimming Pool

Recreation Swim. Students must be at least 16 years old. This is lap swimming in three groups: beginning, intermediate and advanced. The instructional lap pool is five feet deep.

Gymnasium

Times are available for basketball, volleyball and other activities.

Weight Room, HT 02

This room has universal gyms, arm and leg machines and exercycles.

Consult current class schedule for recreation times in swimming pool, gymnasium and weight room.

Racquetball/Handball Courts

Call 503-977-4945 between 6 am-7pm for reservations for the following day, or go to room HT-114 to make reservations the same day.

Cascade and Rock Creek Campuses

These campuses provide recreational opportunities in their gymnasiums, weight rooms and walking/jogging routes. For specific procedures, contact the PE Department on these campuses.

Physics

Description

Work in the physical sciences is an important part of many college programs. Courses at PCC comprise four areas of study: chemistry, geology, general science and physics, and are organized to present basic principles and to provide a coordinated overview of the sciences as they relate to contemporary life.

Prerequisites

See the Course Description (PHY prefix) section of this catalog for individual Physics courses and prerequisites.

Political Science

Description

Political Science focuses upon politics and political systems and the behavior of people within political systems. At PCC, primary emphasis is on American government, the constitutional background of American politics, political parties, in-

terest groups, elections, Congress, the Presidency, the Supreme Court, domestic and foreign policies. In addition, PCC offers international relations, American foreign policy and political ideology.

Program Prerequisites

See the Course Description (PS prefix) section of this catalog for individual Political Science courses and course prerequisites.

Professional Skills Training

Southeast Center
Room 132
503-788-6127

◆ One-year Certificate - minimum of 64 credit hours.

A maximum of 24 credit hours of professional skills credit may be applied to an Associate of General Studies degree. Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

Setting realistic goals and learning new skills can go a long way toward building a bright future, especially for people who are out of work due to injury, disability, job displacement or other circumstances. Professional skills training is a unique off-campus educational program providing individuals the opportunity to develop marketable job skills. It is "custom designed" training tailored to the student's abilities, skills and interests. Program permission required.

Program Requirements

An interview with a professional skills representative is required to determine an individual's career goals and to determine if a suitable training site is available. Some training programs require basic skills of reading, interpreting and understanding technical manuals as well as basic math and writing skills.

Professional skills training is an approved program for state worker's compensation clients, disabled veterans and state vocational rehabilitation clients.

Course of Study

Students train at off-campus sites under the supervision of a skilled trainer up to 40 hours per week. This is an open entry/open exit program with no breaks for traditional school vacations. Length of the program depends on the skill being taught. The students receive no wages for time spent in training and do not replace regular employees.

Professional skills provides training in a variety of occupational areas. Examples include, but are not limited to general office clerk, tool repair, estimator, wastewater treatment operator and computer technician. Related classroom instruction may be included in the program if prescribed in the approved training plan. Professional Skills also offers on-the-job evaluation services.

Psychology

Description

Psychology is the scientific study of behavior and mental processes. Psychologists investigate how the individual's immediate environment, as well as how the individual's past experience and physiological makeup, influence current thoughts and behavior.

See the Course Description (PSY prefix) section of this catalog for individual Psychology courses and course prerequisites.

To successfully complete the reading and writing assignments required for all psychology courses, it is recommended that students have reading and writing placement test scores above 44 or have completed WR 115. If you have not been tested but would like to be, call 977-4533 for a recorded message that lists testing times, or call 977-4131 if you have additional questions, or stop by the Counseling Center (Sylvania Campus, CC 225) to talk to someone in person about the testing or the testing schedule.

Publishing Technology / Electronic Imaging

Sylvania Campus
Communications Technology Building, Room 216
503-977-4840 or 503-977-4264

◆ One-year Certificate - Publishing Technology/Electronic Imaging - 49 credit hours; includes 34 credit hours of required program courses, six credit hours of electives and nine credit hours of General Education courses.

PrintED Certification

The Publishing Technology/Electronic Imaging Program at PCC is a Printing Industries of America, nationally accredited, PrintED training program. Students enrolled in courses offered by the Publishing Technology/Electronic Imaging Program may request PrintED Certification. Certification through the program at PCC is granted to the student upon completion of industry specified competencies in one or more of these areas: Introduction to Printing, Electronic Imaging, Image Assembly and Platemaking and Basic Offset Press.

Career Description

The fields of print publishing and electronic imaging include opportunities in electronic and camera prepress, platemaking, press and bindery operations.

Program Requirements

Qualify for WR 115, or above on the English placement test and qualify for MTH 20, or above on the math placement test. PT 136 is required for the electronic prepress series.

Course of Study

Publishing Technology/Electronic Imaging is an open-entry and open-exit program which can be started any term, once prerequisites have been met, and completed any term, once personal goals have been satisfied.

The program was created to provide an overview of the printing and publishing industries with a hands-on Electronic pre-press production focus and an awareness of the design issues that drive this rapidly changing career field. The one-year certificate in Publishing Technology/Electronic Imaging will be awarded for satisfactory completion of the courses listed below, which can be taken in any sequence.

Vocational Certificate - Publishing Technology/Electronic Imaging

Summer Term

PT 136	Electronic Layout - PageMaker	3
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Fall Term

PT 100	Survey of Graphic Communications	2
PT 154	Electronic PrePress-QuarkXPress	6
ART 115	Basic Design	3
	or	
GD 120	Graphic Design 1	3
	Electives	2
	General Education	3

Winter Term

PT 114	Image Prep	2
PT 152	Electronic Prepress-Photoshop	6
ART 142	Introduction to Photography (Darkroom)	3
	Electives	2
	General Education	3

Spring Term

PT 108	Litho Press	2
PT 150	Electronic Prepress-Prep for Print	6
PT 280B	CE: Printing Technology Seminar	1
	or	
CG 209	Job Finding Skills	1
	Electives	2
	General Education	3

Students should select electives from the areas of art, business, science, computers, or other areas as approved by your program advisor.

Quality Assurance

Central Portland Workforce Training Center, Room 114
503-731-6600

◆ Program Award in Quality Assurance - 18 credit hours of quality assurance classes. (These credits may be applied toward the Associate of Applied Science degree in Management and Supervisory Development. See associate degree requirements.)

Career Description

This program is designed to provide participants with knowledge and skills in quality assurance. Examples of topics covered are understanding customer needs, background and fundamentals of TQM, empowerment of teams, and process and product improvement through statistical process control methods.

Program Requirement

ASSET basic skills placement test administered through assessment centers is recommended but not required.

Course of Study

This program is offered throughout the Portland Community College district including various metropolitan business facilities. For specific information pertaining to transferability or program information, contact the Institute for Management and Professional Development.

Radiography

Sylvania Campus
Health Technology Building, Room 306
503-977-4227, 503-977-4907, 503-977-4908
<http://spot.pcc.edu/academ/radtech>

◆ Associate of Applied Science degree - 120 credit hours; includes 102 credit hours of required Radiography courses and 18 credit hours of General Education. Credits from two prerequisite courses may be used to fulfill General Education requirements. Consult a program advisor for help in planning General Education classes or preparatory courses needed for admission. Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

This program is designed to prepare the student for certification as a registered technologist in radiography, R.T. (R).

Radiographers are important members of the health care team and work in close relationship with physicians and particularly with radiologists.

The radiographer is primarily concerned with providing diagnostic radiographic images (x-rays) of disease and injury and assisting in patient care.

The radiographer may be employed in hospitals, clinics and medical offices.

For information regarding additional professional employment responsibilities and opportunities contact the Medical Imaging Department or the Health Admissions Office.

Program Requirements

All program applicants must possess a high school diploma or a GED certificate. In addition, all applicants will be required to have satisfactorily ("C" grade minimum) completed WR 121, MTH 111B or MTH 111C, BI 231, 232 and 233, MP 111 or the equivalent, and be computer literate within three years prior to program admission. Students need to read degree requirements for Associate of Applied Science degree in the Comprehensive Degree Requirements section of this catalog.

Faculty advisors will provide information regarding options to those students needing preparatory work.

Applicants are encouraged to gain health care experience by volunteering or working in the health care industry, preferably in a hospital setting and "shadowing" a radiographer to gain knowledge of professional duties and responsibilities.

Application and Acceptance

Students planning to enroll in the Radiography Program should contact the Health Admissions Office at Sylvania campus HT 205, 503-977-4795 for specific application procedures. Applications are accepted January 1 through April 1. Students are selected in May. All students must be formally admitted. Other enrollees must have program permission.

Course of Study

Students begin the program only in September. The Radiography Program is eight terms in length (24 consecutive months). The program combines campus instruction with clinical education at affiliated hospitals in the Portland area.

PCC's program is approved by the Joint Review Committee on Education in Radiologic Technology.

Graduates may apply to take the national certification examination offered by the American Registry of Radiologic Technologists and for licensure as a radiographer in the state of Oregon. Students are required to satisfactorily complete the course of study with a minimum "C" grade or higher in each required course and must maintain an overall grade point average of 2.00 for graduation.

In the Radiography Program students will be working with ionizing radiation, processing chemicals and will provide patient care to individuals who may have contagious diseases. Special immunization required.

Course numbers, credit hours and term sequencing are continually reviewed in order to best serve the needs of the community and are subject to change as circumstances may require.

First Term

RAD 100	Introduction to Radiology	2
RAD 101	Radiographic Positioning I	3
RAD 105	Methods of Patient Care	3
RAD 106	Radiologic Equipment I	4
RAD 110	Radiographic Clinic I	4
HE 110	Cardiopulmonary Resuscitation	1

Second Term

RAD 102	Radiographic Positioning II	3
RAD 107	Radiologic Equipment II	4
RAD 115	Principles of Exposure I	3
RAD 120	Radiographic Clinic II	4

Third Term

RAD 103	Radiographic Positioning III	3
RAD 122	Radiation Protection - Biology	3
RAD 130	Radiographic Clinic III	4
RAD 132	Radiographic Image Production	3
	General Education Elective	3

Fourth Term

RAD 140	Radiographic Clinic IV	10
	General Education Elective	3

Fifth Term

RAD 209	Advanced Radiographic Procedures	4
RAD 210	Radiographic Clinic V	6
RAD 215	Principles of Exposure II	3
	General Education Elective	3

Sixth Term

RAD 205	Radiographic Positioning V	3
RAD 211	Advanced Imaging Modalities	4
RAD 220	Radiographic Clinic VI	6
	General Education Elective	3

Seventh Term

RAD 206	Survey of Medical Imaging Diseases	3
RAD 230	Radiographic Clinic VII	10

Eighth Term

RAD 240	Radiographic Clinic VIII	10
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College credit courses available to A.R.R.T. certified technologists for updating and re-entry knowledge and skills. Contact department for specific offerings each term. (503) 977-4227.

Real Estate

Sylvania Campus
Social Science Building, Room 215
503-977-4298, 503-977-4393, 503-977-4287

Career Description

A person desiring to represent others in the purchase and sale of real estate must satisfy the Oregon Real Estate Agency requirements for a "Broker's" license. A real estate broker represents buyers and/or sellers in real estate sale/lease transactions. A person desiring to be an appraiser in Oregon must satisfy the education and experience requirements established by the Oregon Appraisal Certification and Licensure Board. Real estate appraisers, depending upon which license or certification earned, may specialize in valuing simple single family residential, complex residential, or income producing properties. A person desiring to be a prop-

erty manager must satisfy the Oregon Real Estate Agency requirements for a "Property Manager's" license. A property manager is responsible for overseeing the management of such properties as single family residences, duplexes, apartments, condominiums, office or retail buildings, and other types of income producing real estate.

Course of Study

PCC offers pre-license courses approved by the Oregon Real Estate Agency for the "Broker" and "Property Manager" licenses. PCC also offers the Real Estate Advanced Practices post-license course which is required of all real estate brokers prior to their first license renewal. PCC offers pre-license/certification courses for students desiring to become real estate appraisers. The appraisal courses satisfy the "Qualifying Education" requirements for a Registered Appraisal Assistant. PCC also offers real estate courses intended to give students an introduction to the field of real estate and also courses in basic and advanced real estate investment.

Real Estate Broker Preparation Courses

RE 110	Real Estate Practices	3
RE 112	Real Estate Law	3
RE 114	Real Estate Agency Law	2
RE 116	Real Estate Finance	3
RE 118	Real Estate Brokerage	2
RE 126	Real Estate Contracts	2
RE 140	Real Estate Broker Property Management	1

Real Estate Broker Post-License Course

RE 130	Real Estate Advanced Practices	3
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Real Estate Property Manager Preparation Course

RE 252	Real Estate Property Management	6
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Real Estate Appraisal-Preparation for becoming a Registered Assistant

RE 210	Real Estate Appraisal - Foundations	3
RE 211	Real Estate Appraisal - Single Family Residences	3
RE 212	Real Estate Appraisal - USPAP	2

Note: It should be noted that the requirements for licensing/certification as a broker, property manager, or appraiser may change over time. Students are advised to confirm the current license/certification requirements with the Oregon Real Estate Agency, Oregon Appraisal Certification and Licensure Board, or PCC before making any course commitments.

General Interest Real Estate Courses (non pre-licensing/certification)

RE 100	Introduction Real Estate	3
RE 250	Real Estate Investments I	3
RE 212	Real Estate Appraisal - Uniform	3
RE 226	Real Estate Finance II	3

Refrigeration, HVAC and Trade Related

Southeast Center, 128
503-788-6105

◆ Associate of Applied Science degree - 90 credit hours; includes 18 credit hours of General Education and 50 credit hours of related technical study. Twenty-two credits will be granted for journey status (journey card is evidence.) Degree candidates must meet the comprehensive requirements for writing and mathematics.

Career Description

This field is usually divided into three industries: domestic, commercial and industrial. The domestic field covers home refrigerators, freezers and window air conditioners. The commercial field includes small automatic systems for stores, supermarkets, central air conditioning, water coolers, beverage coolers and truck refrigeration systems. The industrial field includes the large processing systems and air conditioning systems, packing plants, cold storage and ice rinks. These systems require the attention of a refrigeration operating engineer.

Prerequisites

Refrigeration and HVAC have individual course prerequisites. Example: Refrigeration I is required before Refrigeration II, etc. It is also required that a student test into the MTH 20 Basic Math and WR 115 Expository Writing. Students should see the department chairman for advising assistance.

Course of Study

The program is designed to prepare students for semi-skilled positions in the refrigeration and HVAC industry and for the changing jobs which are occurring in the refrigeration and HVAC industry. Training is varied and students may enter at different levels, depending on their backgrounds. Students may also enter any term.

The following courses may be taken in any sequence

TE 9110	Intro to Facilities Maintenance Systems	2
TE 9140	Chiller System Fundamentals	3
TE 9141	Water Treatment	2
TE 9151	Pneumatic Controls	2
TE 9152	Direct Digital Control Adv Tech	3
TE 9161	Introduction to Boilers	3
TE 9163	Boilers: Electrical Control Systems	3
TE 9233	Advanced Oil Burners	2
TE 9234	Oil Furnace Service	2
TE 9237	Refrigeration Electrical I	2

TE 9238	Refrigeration Electrical II	2
TE 9239	Refrigeration Electrical III	2
TE 9240	Refrigeration Electrical IV	2
TE 9241	Refrigeration Electrical V	2
TE 9242	Refrigeration I	2
TE 9243	Refrigeration II	2
TE 9244	Refrigeration III	2
TE 9245	Commercial Systems Design	3
TE 9246	Residential Systems Design	3
TE 9248	Shop - Commercial Refrigeration II	2
TE 9250	Shop - Light Commercial/Refrigeration I	2
TE 9252	Heat Pumps	2
TE 9253	Natural Gas Equipment I	2
TE 9254	Natural Gas Equipment II	2

Trade Related Elective

TE 9155	Lock Service and Repair	4
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Russian

All students who enroll in modern language classes (including those on the waiting list) are expected to attend class the first day when material essential for successful completion of the course will be presented. Students who do not attend the first class session may be replaced by those who do attend. Students who have studied a language before and are unsure of their placement are encouraged to consult with a modern language teacher since they will not be admitted to a course if their skill level is too advanced for that course.

Description

The objective of all Russian courses at PCC is to help students develop communicative competence and proficiency in understanding, pronouncing, speaking, reading and writing the Russian language. Activities in class involve active student participation. Students are expected to experiment and take risks with new material. Regular attendance and a desire to explore, experience and practice Russian are required.

Requirements

There are none for entry into the first year Russian. Students should read the Russian course descriptions for other Russian courses. Students unsure of their placement are encouraged to consult a Russian teacher.

Prerequisites

See the Course Description (RUS prefix) section of this catalog for individual Russian courses and course prerequisites.

Sign Language Interpretation Program (SLIP)

Sylvania Campus
Communications Technology Building, Room 219
503-977-4672 (V); 503-977-4951 (TTD)

◆ Associate of Applied Science degree - 108 credit hours; includes 90 credit hours of required SLIP courses, 18 credit hours of General Education elective courses and exit literacy in English and math. Please see Basic Competencies part in basic mathematic and writing skills to see what you need.

◆ Two-year Certificate - 90 credit hours of required SLIP courses, plus completion of WR 121.

Consult a program advisor for assistance in planning General Education electives.

Career Description

Professional sign language interpreters work in a variety of settings such as education, social service, religion, government, business, performing arts, mental health, medical, legal and law enforcement. Interpreters may specialize in one area or may free-lance in a variety of settings. The majority of graduates from this program are hired into entry level positions in educational settings. Currently, the demand for services exceeds the supply of interpreters nationwide.

Program Requirements

1. Attend an orientation session provided by the Sign Language Interpretation Program.
2. Submit an application.
3. Complete WR 121 with a grade of "C" or better prior to entering the program.
4. Successfully complete ASL 130, or if taking in summer prior to SLIP enrollment, show satisfactory progress.
5. Complete ASL 101, 102, 103, and 201, 202, 203 or ASL 150, 151, 250, 251 with a grade of "C" or better prior to entering the program.
6. Demonstrate American Sign Language and spoken English competencies through department-administered assessment.

Application and Acceptance

The deadline for application and completion of steps 1-4 is June 1.

When steps 1-5 are complete, candidates will be invited to the campus for a language assessment. Minimum entrance requirements are intermediate level for ASL and superior level for English. Candidates with higher language competencies will be awarded seats before those with lower language competencies.

Prerequisite Courses

ASL 130 Deaf Studies is a lecture course listed under Sign Language Studies in the college schedule.

Course of Study

This is a full-time two year (six term) program for students interested in sign language interpretation as a career. A maximum of 30 students will be accepted annually into the Fall term. The program focuses on the acquisition of bi-cultural and bi-lingual abilities and on both transliteration and interpretation skills. There are five practicum courses which place students in contact with Deaf people, employers and professional interpreters. Students must pass a qualifying exam before being accepted into an internship. Graduation is dependent upon entrance into and successful completion of an internship under the direction of a professional interpreter who acts as a mentor. Students complete the program with minimum job entry level skills. Students may retake courses which will assist them in developing exit competencies.

Students who require additional time to master interpreting skills may return after completion of second year courses to prepare to enter and complete this internship by re-taking and passing the qualifying exam. SLIP coursework which would assist this development is available to the candidate. These courses must be taken for credit. Please make arrangements with the SLIP Department.

Required Program Sequence

The following courses are required of all students accepted into the SLIP. Students must receive passing grades as determined by program policy in all courses to maintain student status in the program. The student is required to take either ITP 283 or ITP 284 for graduation from the two-year certificate program, or with the associate of applied science degree.

Note: All courses within the SLIP are open to individual professional interpreters and to other professionals working in fields serving Deaf persons. This invitation is subject to course availability, class size and program permission based on prerequisite skill and knowledge. In addition, groups and organizations such as school districts may contract with the SLIP for custom-designed courses for their staff.

First Term (Fall term)

ITP 111	American Sign Language I	5
ITP 120	Fingerspelling I	2
ITP 131	Deaf Culture	4
ITP 270	Interpreting Process I	4

Second Term (Winter term)

ITP 112	American Sign Language II	5
ITP 230	American Sign Language Linguistics I	3
ITP 260	Interpreting Theory I	4
ITP 271	Interpreting Process II	3
ITP 180	Field Experience	1

Third Term (Spring term)

ITP 113	American Sign Language III	5
ITP 121	Fingerspelling II	2
ITP 276	Specialized Discourse I	3
ITP 231	American Sign Language Linguistics II	2
ITP 272	Interpreting Process III	4

ITP 279	Mock Interpreting I	1
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Fourth Term (Fall term)

ITP 211	American Sign Language IV	3
ITP 277	Specialized Discourse II	3
ITP 273	Interpreting Process IV	6
ITP 281	Mock Interpreting II	2
ITP 262	Interpreting Theory III	4

Fifth Term (Winter term)

ITP 212	American Sign Language V	3
ITP 261	Interpreting Theory II	3
ITP 283	Interpreting Internship I	3
ITP 274	Interpreting Process V	6

Sixth Term (Spring Term)

ITP 275	Interpreting Process VI	4
ITP 284	Interpreting Internship II	3
HEC 226	Child Development	3
	or	
PSY 215	Human Development	3

Recommended Electives

Because interpreters work in a variety of settings, students are encouraged to broaden their general knowledge in a variety of areas. For those planning to work in K-12 or post secondary education, background in English, writing and literature, history, science, social studies, math and basic computer use is essential.

In addition, SLIP students may find the following electives helpful:

SP 100	Introduction to Speech Communication	3
SP 111	Fundamentals of Speech	3
SP 140	Introduction to Intercultural Communication	3

Sign Language Studies (SLS)

Sylvania Campus
Communications Technology Building, CT 219
503-977-4672 (V)
503-977-4951 (TTY/TDD)

The following general remarks apply to all Sign Language Studies courses:

All students who enroll in Sign Language Studies classes (including those on the waiting list) are expected to attend class the first day, when material essential for successful completion of the course will be presented. Students who do not attend the first class session may be replaced by those who do attend. Students who have studied sign language elsewhere and wish to continue at PCC must take a Sign Language Proficiency Interview through the department. Call Sign Language Studies Department, 503-977-4672 Voice or 503-977-4951 TTY, at least three weeks prior to the end of the term **before** the term you plan to take ASL to schedule an appointment for Sign Language Proficiency Interview (SLPI.)

Description

American Sign Language (ASL) is the language used by Deaf people in the United States and parts of Canada when communicating with each other. American Sign Language courses are offered for General Education credits as a modern language for students earning an associate degree from Portland Community College and second year courses satisfy the language requirement for the Associate of Arts Oregon Transfer.

American Sign Language will be used in classes; no spoken English will be used. The method of the courses involves the student in conversation using ASL. ASL courses prepare students to function comfortably in a variety of situations in the Deaf community, but students will not be qualified to perform any interpreting services.

Sign Language Interpretation

Students who are interested in interpreting as a career, please see the catalog description under Sign Language Interpretation (SLIP.)

Program Prerequisites

There are no prerequisites for entry into the first term of first year American Sign Language. However, students should read the Sign Language Studies course descriptions for the prerequisites for other American Sign Language courses.

Courses

ASL 101	1st Year American Sign Language I	3
ASL 102	1st Year American Sign Language II	3
ASL 103	1st Year American Sign Language III	3
ASL 130	Deaf Studies	3
ASL 150	Accelerated American Sign Language	4
ASL 151	Accelerated American Sign Language	5
ASL 201	2nd Year American Sign Language IV	3
ASL 202	2nd Year American Sign Language V	3
ASL 203	2nd Year American Sign Language VI	3
ASL 250	Accelerated American Sign Language	4
ASL 251	Accelerated American Sign Language	5

Social Sciences**Description**

Social Sciences at Portland Community College comprise ten areas of study: Anthropology, Economics, Geography, History, International Studies, Philosophy, Peace and Conflict Studies, Political Science, Psychology and Sociology.

The demand for people with business and technical skills is rising, but competencies other than specialized skills are also required to function in our society. No person exists in isolation. Social issues are unavoidable factors in human life. Social scientists investigate what it means to be human and sketch ways to become human. Every moment of living is filled with opportunities for applying the ideas of the social sciences to the human condition. The social and behavioral science curricula enhance student's abilities to make the most of such opportunities. The classes offered by the Social Sci-

ence Department are small, assuring the student of individualized instruction in the classroom. Students will also find their instructors readily available for individual conferences.

Students who take social science courses have diverse personal experiences, dissimilar academic backgrounds and distinct goals. Students include those taking courses before transferring to a four-year institution to complete a bachelor's degree, completing high school graduation requirements, fulfilling the General Education requirements of the Associate of Applied Science Degree, or taking courses for personal enrichment.

Most public and private colleges and universities will accept up to 108 credit hours of lower division credit from Portland Community College. Students are advised to consult a counselor or program advisor concerning the degree requirements of a particular college or university. Students who plan to transfer to a state college or university may major in a specific area of study (political science, anthropology, etc.) or may pursue a program of general studies.

Program Requirements

A member of the Social Science Department or Counseling staff should be consulted with respect to the basic skills that are desirable for those enrolling in social and behavioral science courses. The transferability of credit depends upon the institution granting a four-year degree. Please contact the receiving institution, a PCC counselor, or a program staff member for specific transfer information.

Sociology**Description**

Sociology is the study of human social behavior. It is the scientific study of human interaction with a focus on human group life. The general sociology series SOC 204, SOC 205 and SOC 206 introduces the student to basic knowledge, concepts, theory and research in sociology. It is recommended, but not required, that the courses be taken in sequence. The general sociology series is a prerequisite for all upper division sociology courses.

Prerequisites

See the Course Description (SOC prefix) section of this catalog for individual Sociology courses and course prerequisites.

Spanish

All students who enroll in modern language classes (including those on the waiting list) are expected to attend class the first day when material essential for successful completion of the course will be presented. Students who do not attend the first class session may be replaced by those who do attend. Students who have studied a language before and are unsure of their placement are encouraged to consult with a modern language teacher since they will not be admitted to a course if their skill level is too advanced for that course.

Description

The following applies to all Spanish courses:

The objective of all Spanish courses is to help the student develop communicative competence and proficiency in understanding, pronouncing, speaking, reading and writing the language. Materials and activities are carefully selected to involve active student participation in the language and to stimulate personal growth in linguistic and cultural sense and awareness. Regular attendance and a desire to explore, experience and practice Spanish are required.

Requirements

There are none for entry into the first term of first year Spanish. The student should read the Spanish course descriptions for prerequisites for other Spanish courses. Students unsure of their placement are encouraged to consult a Spanish teacher.

See the Course Description section of this catalog for individual Spanish courses and course prerequisites.

Sonography -

(see Medical Sonography in this catalog)

Speech Communication

Description

Speech Communication offers a wide variety of classes for students. A full two-year transfer program for speech communication majors is available.

Students may choose from the comprehensive selection of courses which will fulfill General Education requirements for the Associate of Applied Science and Associate of General Studies degrees.

Classes in interpersonal communication and public speaking can result in personal enrichment and increased skills for students. Class size is relatively small and class structure largely informal, allowing maximum interaction between students and faculty.

Transitional classes which may or may not be transferable are also available for those students with limited communication skills. If the transferability of credit is a concern, check with the receiving institution prior to enrolling. Consult a Speech Communication Program advisor for more information. The speech courses are in the categories listed below:

Transitional

Several classes are designed for students with limited communication skills. Classes in speaking and listening are available for those who may need improvement. If transferability of these courses is a concern, students should check with the institution to which they are planning to transfer. These classes include:

SP 101 Oral Communication Skills

SP 105 Listening

SP 110 Fundamentals of Voice and Articulation

Forensics

A forensics program is open to all students who wish to participate in intercollegiate competition. Tournaments are held primarily in the Northwest, with occasional travel beyond. The Speech Communication Department has a full selection of competitive activities appropriate for all levels. Novice and junior divisions can challenge the beginner. Senior division is available for the experienced competitor. In addition to the standard cross-examination and parliamentary debates, the college participates in oratory, extemporaneous, impromptu, expository, radio and oral interpretation events. Students may serve as judges at various

high school and collegiate tournaments. Furthermore, non-competitive programs allow students to speak before high school or college audiences and in front of various civic groups. The forensics course is SP 270, Forensics: Speech and Debate.

Interpersonal: Theory And Process

Interpersonal classes are designed to give students a more complete understanding of the communication process in their daily lives. The emphasis is on face-to-face communications. Personal improvement in a variety of interpersonal skills is stressed. These classes include:

SP 100 Introduction to Speech Communication

SP 140 Introduction to Intercultural Communication

SP 214 Interpersonal Communication: Process and Theory

SP 215 Small Group Communication: Process and Theory

SP 227 Nonverbal Communication

Performance Classes

Performance classes include a series of public speaking courses, voice and diction, and oral interpretation of literature. These classes are designed to improve delivery skills and to reduce speech-making anxiety. Organization of ideas, critical thinking and delivery are stressed. These classes include:

SP 111 Fundamentals of Speech

SP 112 Fundamentals of Speech:
Persuasive Speaking

SP 113 Fundamentals of Speech:
Argumentation and Debate

SP 130 Business and Professional Speech
Communication

SP 212 Voice and Diction

SP 217 Theories of Persuasion

SP 229 Oral Interpretation

SP 270 Forensics: Speech and Debate

Prerequisites

See the Course Description section of this catalog for statements on the prerequisites for individual speech courses.

Technical and Professional Writing

Rock Creek Campus
Building 3, Room 214b
503-614-7340

Sylvania Campus
503-977-4266

◆ Certificate - completion of 15 - 21 credit hours of Technical and Professional Writing courses with a "B" grade or better in each class.

Career Description

Technical and professional writing is a career that combines communications skills with skills from the fields of business, industry, science or technology. Technical and professional writers interpret and communicate specialized information for practical use. Their responsibilities include project planning, working as a member of a team, researching, interviewing, writing, designing, rewriting and editing.

Depending on the area of specialization, the types and complexity of the writer's tasks vary greatly but will likely include writing one or more of the following: instructions, policies and procedures, computer documentation, newsletters, training materials, reports and brochures.

Program Requirements

Students in the Technical and Professional Writing Program should be working or studying in their technical or professional field. The student must take the writing placement examination and score at the level required for entry into WR 121.

With instructor approval, based on a portfolio review, students who have a college degree or who are currently working as professional writers may request that the writing course program prerequisite be waived.

Course of Study

The Technical and Professional Writing Program is an evening program designed to accommodate individuals working or studying in technical and professional areas who wish to become technical and professional writers or who wish to acquire or improve their writing skills to meet requirements of their jobs. The program prepares students to work as technical and professional communications specialists in such businesses and industries as automotive service, electronics, engineering, banking, government and medicine.

The program consists of five three-credit hour courses that are offered during the evening. In addition to evening sections, some of the program courses are also offered in day sections. Consult

the schedule of classes for further information. The program includes a cooperative education option for on-the-job training. The certificate program can be completed in three to five terms. Refer to the course descriptions for further explanations.

Sequence of Courses

GD 120	Graphic Design I	3
WR 227	Technical Writing I	3
WR 9599	Professional Editing	3
WR 9600	Technical and Professional Writing II	3
WR 9601	Graphics for Technical and Professional Writers	3

Optional Course

WR 280A	CE: Technical Writing	variable credit ¹
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¹This is a variable credit course. See the course description for further explanation.

Telecommunications Management

Cascade Campus
503-978-5317

◆ Certificate - Successful completion of the 27 credit hours of telecommunications administration courses.

Career Description

Telecommunications managers, analysts and administrators are hired to operate business and government agency systems for voice, data and image communications. These professionals may be involved in planning communications support for the company's marketing and delivery strategies. In addition, they may design communications and network facilities, provide training for system users, provide troubleshooting and monitor traffic and transmission quality. They usually support changes to the communications systems, which occur with the movement of personnel or growth of the organization. They may also perform financial control functions, such as budgeting and monitoring telecommunications billings and expenses, and may handle administrative functions such as publishing the telephone directory.

Effective support of telecommunications system operations requires a general technical knowledge of the systems and of the public telephone network. Most job functions, however, do not require the in-depth knowledge of a technician. In addition, specific jobs may require a background in management, customer service, accounting, data processing, electronic engineering technology or utility regulation.

Course of Study

The PCC telecommunications management courses are designed to provide the student with the general knowledge of telecommunications systems which is necessary to support their daily operation and to plan for their growth and change.

The mission of the Telecommunications Management Program at Portland Community College is to provide a common knowledge base of the broad spectrum of telecommunications within a systems administration context for the professional development of those in the field.

This program uses a single business case study as the context for learning the concepts and skills which make up the program outcomes. The program's nine three-credit courses integrate the learning of management skills and technical information. Students learn to apply these skills in real world business situations with each course emphasizing tasks critical to success in the telecommunications industry.

Students who complete this program will have learned to:

*Survey and analyze business needs to determine how telecommunications can provide solutions.

*Prepare appropriate telecommunications solutions to business needs.

*Evaluate the solutions in the context of the business setting: budget, culture, internal resources, external resources, available technology.

*Recommend (sell) communications solutions to management.

*Implement telecommunications solutions within the organization.

*Manage telecommunications systems.

*Gather and respond to feedback on telecommunications solutions.

*Communicate effectively with customers and vendors.

Completion of all nine classes leads to the Certificate in Telecommunications Administration. Many of these courses also articulate to Marylhurst College.

Telecommunications Management courses

Consult the term schedule of classes for the times and locations of telecommunications management courses.

TEL 200 or equivalent knowledge is a prerequisite for all other courses.

TEL 200 Survey of Telecommunications Industry 3

TEL 201 Business Issues for Telecommunications Professionals 3

TEL 255 Planning, Implementation & Operations 3

TEL 261 Voice Communications 3

TEL 262 Data Communications 3

TEL 263 Advanced Voice Communications 3

TEL 265 Emerging Technologies 3

TEL 266 Advanced Data Communications and Local Area Networks 3

TEL 267 Integrated Network Systems 3

Theater Arts

Cascade Campus

Cascade Hall B-37

503-978-5250

Sylvania Campus

Performing Arts Center, Room 108

503-977-4323

Description

The Theater Arts Department offers a variety of courses for majors and non-majors in both performing and non-performing aspects of theater.

Program Requirement

Pass a writing placement examination at a level that permits admission to WR 121.

Course of Study

Students may select courses from the program to fulfill requirements for an Associate of Arts degree in addition to completing the transfer requirements. Classes are oriented toward individual projects as well as group activity and are relaxed to allow a creative environment.

Introductory Courses

Two classes are offered as an introduction to theater. They are designed for students who wish to explore the area and for experienced students who wish to improve and expand their skills and knowledge. Both courses are transfer level, but if this is a concern to students, they should verify transferability with the institution to which they are planning to transfer. These courses are TA 101 Theater Appreciation and TA 111 Fundamentals of Technical Theater.

Performance Courses

Several performance classes are offered for both beginning and advanced students. These courses are designed to help the student feel more relaxed in front of an audience as well as to improve performance skills and creativity. The courses are TA 141, 142, and 143 Fundamentals of Acting Technique, TA 155 Readers Theater, TA 144 Improvisational Theater, TA 148 Movement for the Stage and TA 240 Beginning Pantomime. Advanced acting classes TA 241, 242 and 243 are usually offered every other year.

Technical Courses

Courses are offered for students interested in backstage work. They are designed for both technically oriented students and performance students who wish to expand their understanding of the entire theatrical process. Classes are organized to include individualized "hands-on" projects so that students may practice their skills by using equipment and supplies. TA 111 Fundamentals of Technical Theater is an introductory and overview class. Additional courses are TA 112 Introduction to Set Design, TA 113 Introduction to Stage Lighting, TA 227 Stage Makeup and TA 261 Introduction to Costuming.

Special Projects

Transfer credit courses are offered to students who wish to participate in school productions as well as for individualized performances. Roles are open to any student by auditioning. Productions are mounted each year and all students interested (regardless of major field of study) are encouraged to audition and will be given equal consideration. In order to allow flexibility, credit for special projects may be given to either performing or non-performing students by special arrangements with a theater arts instructor. The courses are TA 180A and TA 253A, TA 253B, TA 253C Theater Rehearsal and Performance and TA 190A and TA 290A Projects in Theater.

See the Course Description (TA prefix) section of this catalog for individual Theater Arts courses and course prerequisites.

Veterinary Technology

Rock Creek Campus
Building 3, Room 111
503-614-7330

◆ Associate of Applied Science degree - minimum of 107 credit hours; includes 83 credit hours of veterinary technology courses and 18 credit hours of General Education. Consult a program advisor for assistance in planning General Education classes. (Course work from other colleges may substitute for the General Education requirement.) Students must meet college graduation requirements including General Education, math and English competencies.

Career Description

The veterinary technician is an assistant to the veterinarian, and is skilled and knowledgeable in the practical application of aspects involved in the care and handling of animals, clinical laboratory procedures, animal diseases, animal nutrition, pharmacology, radiography, anesthesiology, and medical and surgical assistance.

Program Requirements

1. ASSET basic skills placement test administered through assessment centers.
2. Writing skills placement at WR 121 or above.
3. Completing MTH 65, or MTH 63 with a grade of "C" or higher, or;
4. Passing a math class with a grade "C" or higher for which MTH 65 or higher level math skills are a prerequisite, or;
5. Passing the PCC competency exam for MTH 65.

Application and Acceptance

Because of limited space available for laboratory and clinical procedures courses, as well as the need for individualized instruction, the program has a limited enrollment. Admission to the

first year of the program is based on high school and college grades (college courses helpful, but not an admission requirement,) meeting the above program prerequisites, a letter of recommendation and an interview. Forty hours of observation with a veterinarian is also required. This may be done as a paid employee or on a volunteer basis. This is a seven-term program. Continuation into the second year is contingent upon satisfactory performance in the first year. Contact the Veterinary Technology Department for specific eligibility requirements and to obtain an admission application packet.

Note: Only those students who have been officially accepted into the Veterinary Technology Program or who have program approval may enroll in program courses.

Course of Study

This program is accredited by the Committee on Veterinary Technician Education and Activities of the American Veterinary Medical Association. It is designed to help students develop the technical skills needed to perform in a veterinary medicine environment. Graduates are prepared to do entry-level work as technicians in small and large animal hospitals and clinics, laboratory animal research facilities, educational institutions, military service and commercial firms. Graduates of this program are eligible to take the Veterinary Technician National Examination administered by the Oregon Board of Veterinary Medical Examiners certification examination for veterinary technicians and may, also, travel to other states to take their licensing examination.

First Term (Fall)

VT 100	Veterinary Medical Terminology	2
VT 101	Intro to Veterinary Technology	2
VT 121	Basic Animal Science	4
CH 100	Fundamentals for Chemistry	4 ¹
BI 101	Biology	4 ¹

Second Term (Winter)

VT 102	Animal Nursing and Restraint	3
VT 105	Comparative Veterinary Anatomy and Physiology I	4
VT 107	Veterinary Parasitology	3
VT 108	Pharmaceutical Mathematics I	1
BI 102	Biology	4 ¹

Third Term (Spring)

VT 103	Animal Health Record Systems	3
VT 106	Comparative Veterinary Anatomy and Physiology II	4
VT 110	Specimen Collection Laboratory	1
VT 111	Hematology and Urinalysis	5
WR 121	English Composition (if needed)	3

Fourth Term (Summer)

VT 109	Radiation Safety	2
VT 112	Clinical Laboratory Procedures	5
VT 113	Veterinary Microbiology	3
VT 280A	CE: Clinic I	4

Second Year

Fifth Term (Fall)

VT 201	Anesthesiology	3
VT 204	Applied Radiography	3
VT 205	Veterinary Pharmacology	4
VT 211	Pharmaceutical Mathematics II	1
PSY 101	Psychology and Human Relations	3 ¹

Sixth Term (Winter)

VT 202	Surgical Nursing and Lab Animal Procedures	4
VT 207	Public Health and Sanitation	2
VT 208	Small Animal Diseases	4
VT 280B	CE: Clinic II	4
	General Education	3

Seventh Term (Spring)

VT 203	Veterinary Procedures Seminar	3
VT 209	Large Animal Diseases and Procedures	3
VT 210	Animal Nutrition	3
VT 280C	CE: Clinic III	4
	General Education	3

¹Applies toward 18 hours General Education (9 from Science and 3 from Social Science).

Video Production Internship

Sylvania Campus
Communications Technology Building, Room 212
503-977-4405 or 503-977-4276

◆ One-year Certificate - 36 credit hours; requires the successful completion of the technical assistant, production assistant and producer portions of the video production internship and nine hours of General Education courses. General Education courses must be in speech, English, writing or other listed as General Education at the front of this catalog. Students may be given credit for General Education courses taken prior to enrolling in this internship.

Career Description

This performance-based certificate program gives self-directed students a unique three-term experience in video production. Interns work in various production positions, taking progressively more responsible roles. Numerous course activities will involve students in a variety of television productions, including live classes transmitted over local cable and microwave systems and projects focusing on the orientation, promotional and training needs of PCC clients. A non-traditional student and teacher relationship requires commitment and self direction on the part of the interns.

Program Requirements

ASSET basic skills placement test administered through assessment centers. Admittance to this program requires demonstrated commitment to the study of television and video by those selected. Potential interns should already have a basic working knowledge of video production and have played a significant role in producing one or more programs. PCC's television studio and telecommunications facilities provide an educational production house environment for a limited number of dedicated interns.

Application and Acceptance

The selection process for the VPI Program includes submission of an application with references and demonstrated writing competence (equivalent to completion of WR 121 with a grade of "C" or better.) Students who are finalists for admission into the program will be interviewed and given a test to determine subject matter knowledge level.

Course of Study

Classes and productions will be scheduled during daytime hours. However, students might be asked infrequently to attend meetings or work on productions during evening hours.

Students will work the first term as a technical assistant, the second term as a production assistant and the third term as a producer. The minimum skill criteria for each job must be satisfactorily achieved prior to beginning the next level of video production responsibilities. Graduates of the program will be well suited for television production positions in industrial in-house facilities and production companies. Also, graduates will be provided with a videotape of their best production which will be of tremendous assistance when demonstrating production skills to potential employers.

For further information and program application, contact the coordinator of television services or the instructor.

IVP 280A	CE: Video Production	variable credit
IVP 280B	CE: Video Production - Seminar	1
IVP 101	Video Production I	9
IVP 102	Video Production II	9
IVP 103	Video Production III	9
	General Education	9

These courses must be taken and successfully completed in sequence. Each course description is written in a job description format.

Welding

Rock Creek Campus
Building 2, Room 131
503-614-7226, 503-614-7601 or 503-614-7246

◆ Associate of Applied Science degree - 99 credit hours; includes 81 credit hours of welding courses as per two-year certificate, and 18 credit hours of General Education. Degree candidates must meet the comprehensive requirements for writing, WR 121 and mathematics, MTH 65. Consult a program advisor for help in planning General Education classes. Students must meet college graduation requirements including General Education, math and English competencies.

◆ Two year Certificate of completion - minimum of 81 credit hours of welding courses.

◆ One-year Certificate - minimum of 44 credit hours of welding courses.

Career Description

Welding is a skill used by many trades: sheet metal workers, ironworkers, boilermakers, carpenters, steamfitters, glaziers, repair and maintenance personnel in applications ranging from the home hobbyist to heavy fabrication of bridges, ships and many other projects. A variety of welding processes are used to join units of metal.

Program Requirements

ASSET basic skills placement test administered through assessment centers. Math, Reading and Writing scores above 32 or successful completion of MTH 20, WR 80, RD 80, or ENNL 250.*

*Applies to certificate and degree applicable courses only.

Course of Study

The PCC Welding Technology Program provides training in S.M.A.W. (Shielded metal arc welding,) G.T.A.W. (Gas tungsten arc welding,) G.M.A.W. (Gas metal arc welding,) F.C.A.W. (Flux-cored arc welding,) O.A.W. (Oxy-acetylene welding,) O.A.C. (Oxy-acetylene cutting,) and basic fabrication. Lecture portions of the program include blueprint reading, welding principles, welding metallurgy, and welding inspection and quality control.

The Welding Technology Program offers flexibility in scheduling which allows a student to register for full-time, part-time, or open entry-open exit formats.

The courses listed below are required for the one-year certificate:

First Term

WLD 111	Shielded Metal Arc Welding (E7024) and Oxy-acetylene Cutting	3
WLD 112	Shielded Metal Arc Welding: Mild Steel I (E7018)	3
WLD 113	Shielded Metal Arc Welding: Mild Steel II (E7018)	3
WLD 151	SMAW Certification Practice: Unlimited Thickness Mild Steel	3
WLD 101	Welding Processes and Applications	4

Second Term

WLD 142	Flux-Cored Arc Welding II (Self Shielding)	3
WLD 141	Flux-Cored Arc Welding I (Gas Shielded)	6
WLD 131	Gas Metal Arc Welding	3
WLD 102	Blueprint Reading	4

Third Term

WLD 152	Wire Welding Certification Practice	3
WLD 114	Shielded Metal Arc Welding: Mild Steel III (E6011)	3
WLD 115	Shielded Metal Arc Welding: Mild Steel IV (E6011)	3
WLD 121	Gas Tungsten Arc Welding: Mild Steel	3

Two year Certificate of completion - minimum of 81 credit hours of welding courses; includes three terms of the above listed courses, plus required courses listed below, and a minimum of 15 credits from the following list of elective welding courses.

Fourth Term

WLD 222	Gas Tungsten Arc Welding: Aluminum	3
WLD 223	Gas Tungsten Arc Welding: Stainless Steel	3
WLD 201	Welding Metallurgy I	4
	One Elective from list below	3

Fifth Term

WLD 261	Basic Fabrication I	6
	Elective	3
	Elective	3

Sixth Term

WLD 262	Basic Fabrication II	6
	Elective	3
	Elective	3

Electives

WLD 132	Gas Metal Arc Welding-Pulse	3
WLD 203	Structural Steel Welding Code and Standards	3
WLD 204	Nondestructive Testing I	3
WLD 206	Seeing Beyond the Hood: (Developing High Performance Skills)	3
WLD 216	Miscellaneous Electrodes & Advanced Positions	3
WLD 224	Gas Tungsten Arc Welding: (Mild Steel) Pipe I	3
WLD 225	Gas Tungsten Arc Welding: (Mild Steel) Pipe II	3
WLD 253	SMAW Certification Practice 3/8" Mild Steel (E6011)	3
WLD 254	SMAW Certification Practice 3/8" Mild Steel (E7018)	3
WLD 256	Preparation for Pipe Certification I	3
WLD 257	Preparation for Pipe Certification II	3
WLD 271	Oxy-acetylene Welding Projects	3
WLD 202	Welding Inspection and Quality Control	4
WLD 217	Diesel Welding	3
WLD 280A	CE: Welding	variable credit ¹
WLD 280B	CE: Welding - Seminar	1

¹ Cooperative education is a variable credit course up to a maximum of four credit hours. The student must have program approval prior to enrolling.

² The seminar is optional.

Individualized Course Offerings

These courses are designed to upgrade or develop specific welding skills based on the individual needs of the student. These courses do not apply toward the certificates or Associate of Applied Science degree.

WLD 9910	Shielded Metal Arc Welding (Stick)	3
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WLD 9911 Shielded Metal Arc Welding (Stick)	3
WLD 9912 Shielded Metal Arc Welding (Stick)	3
WLD 9913 Shielded Metal Arc Welding (Stick)	3
WLD 9920 Gas Tungsten Arc Welding (Heliarc)	3
WLD 9921 Gas Tungsten Arc Welding (Heliarc)	3
WLD 9922 Gas Tungsten Arc Welding (Heliarc)	3
WLD 9923 Gas Tungsten Arc Welding (Heliarc)	3
WLD 9930 Wire Welding	3
WLD 9931 Wire Welding	3
WLD 9932 Wire Welding	3
WLD 9933 Wire Welding	3

Women's Studies

Description

The Women's Studies Program introduces the past and present achievements and experiences of women from an interdisciplinary and global perspective. The program explores the decisive role that gender has played and continues to play in human societies and contributes to an understanding of women's lives. Knowledge derived from women's studies courses will enable people to analyze current problems that women face in the areas of employment, the family, domestic violence, health and the legal system. Since women comprise more than half of the world's population, an understanding of their experiences, history, needs and abilities is an asset to students considering careers in such fields as education, social service, government, business, law, the ministry, journalism, health occupations and childcare.

Program Requirements

The courses in the Women's Studies Program require college-level reading and writing skills; a member of the counseling staff should be consulted with respect to these basic skills.

All Women's Studies Certificate courses meet AAOT (Associate of Arts, Oregon Transfer Degree) requirements. Also, Women's Studies courses satisfy General Education and diversity requirements. Introduction to Women's Studies (WS 101) may be taken for either Arts and Humanities credit, or Social Science credit.

The Women's Studies Certificate Program at PCC prepares students for entry into other Women's Studies Programs at the bachelor's degree level. In Oregon these programs can be found at Portland State University, University of Oregon, Oregon State University, and Lewis and Clark College.

Women's Studies Award Program Requirements

Students must complete 12 units of Women's Studies courses to receive a program award.

Required courses

WS 101	Women's Studies	3
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plus an additional nine credit hours of women's studies courses selected from courses listed below.

Elective courses

ART 210	Women in Art	3
ENG 222	Images of Women in Literature	3
ENG 260	Introduction to Women Writers	3
HE 212	Women's Health	3
HST 204	History of Women in the US: Colonial to 1848	3
HST 205	History of Women in the US: 1848 to 1920	3
HST 206	History of Women in the US: 1920 to Present	3
HST 225	History of Women, Sex, and the Family	3
PSY 231	Human Sexuality	3
PSY 232	Human Sexuality	3
SOC 218	Sociology of Gender	3
SP 237	Gender and Communication	3
SPA 271A	Readings in Spanish Literature (Women Writers)	3
WS 201	Women of the World	3
WS 202	Women Working for Change	3

Note: Additional courses may be designated Women's Studies courses on a term basis, where such courses are taught with a focus on women. Consult a Women's Studies Program advisor for a list of those courses.

Writing

Non-transfer developmental writing and writing support courses may be found in the Support Courses and Programs section of this catalog. A description of PCC's Technical Writing Program may be found in the Career Courses and Programs section of this catalog.

Description

Writing transfer courses are offered under the subject headings of English Composition, Business and Technical Writing, and Creative Writing.

Note: Paper conferences are an integral part of the instructional process in all writing courses and students should anticipate at least two conferences each term.

English Composition

The English Composition Program provides a range of transfer writing courses designed to prepare students for the written work of upper division and graduate education. It also meets the writing requirements of several associate degree

and certificate programs in the college. For most transfer students, WR 121, 122 and WR 123 or WR 227 will satisfy the writing course requirements of Oregon's four-year colleges and universities. Students are required to take the writing placement examination to determine appropriate placement in a writing course. WR 115 Introduction to Expository Writing is designed for students needing basic skill preparation. WR 216 Advanced Composition is designed for students who would like to develop writing skills beyond the skills developed in the other writing courses. After taking the placement examination, students should check with an advisor or counselor before enrolling in a writing course.

Business and Technical Writing

Students majoring in technical areas or business are either required or encouraged to take WR 214 Business Communications and/or WR 227 Technical Writing I.

Note: WR 214 does not satisfy the writing requirements of the Oregon Transfer degree.

Creative Writing

The PCC Creative Writing subject area offers the student one of the largest selections of creative writing courses in the state. There are no prerequisites for any of the three introductory classes, and all are offered for three transferable credit hours.

The creative writing faculty recommends that students who register for creative writing courses be able to adhere to the standard conventions of spelling and grammar and have reading skills that are at the WR 121 level.

Each instructor has a unique approach to creative writing, but the student can count on studying critical terminology, and spending most of the class sessions discussing each student's creative work.

Program Requirements

Students are required to take the writing placement examination to determine appropriate placement in a writing course. After taking the placement examination, students should check with an advisor or counselor before enrolling in a writing course. Writing placement tests may be taken at the Testing Centers at Cascade, Rock Creek, Southeast Center or Sylvania.

Writing Transfer Courses

WR 115	Introduction to Expository Writing	3
WR 121	English Composition	3
WR 122	English Composition	3
WR 123	English Composition	3
WR 214	Business Communications II	3
WR 227	Technical Writing I	3
WR 240	Creative Writing (Non-fiction)	3
WR 241	Creative Writing (Fiction)	3
WR 242	Creative Writing (Poetry)	3
WR 243	Creative Writing (Script Writing)	3
WR 244	Advanced Creative Writing - Fiction	3
WR 245	Advanced Creative Writing - Poetry	3
WR 246	Advanced Creative Writing (Editing and Publishing)	3

COURSE DESCRIPTIONS

Portland Community College is committed to offering instruction that provides students with the opportunity for self-improvement, entry level employment skills, and to complete the first two years of a baccalaureate degree. The following course prefixes describe the primary intent of the courses offered:

Support Courses

DE: Developmental Education
ALC: Alternative Learning Center
ESL: English as a Second Language
ABE: Adult Basic Education
GED: General Equivalency Degree

Professional and Technical Courses*

AB: Auto Collision Repair Technology
AD: Alcohol and Drug Counselor
AM: Automotive Service Technology
AMT: Aviation Maintenance Technology
ARCH: Architectural Design and Drafting
ASEP: Automotive Service Educational Program
AVS: Aviation Science
AVT: Audiovisual Technology
BA: Business Administration (only 141, 216, 247)
BCT: Building Construction Technology
BIT: Biotechnology
CAS: Computer Applications Systems
CIM: Computer Integrated Manufacturing Technology
CHLA: Chicano / Latino Studies
CIS: Computer Information Systems (except 120, 121, 122)
CMET: Civil and Mechanical Engineering Technology
CST: Computer Software Engineering Technology
DA: Dental Assisting
DH: Dental Hygiene
DRF: Drafting Technology and Design
DS: Diesel Service Technology
DT: Dental Technology
ECE: Early Childhood Education
ED: Education (only 101-105, 109, 111-116, 151, 171, 260, 290)
EDO: Emergency Dispatch Operator-911
EET: Electronic Engineering Technology
EM: Emergency Services
EMT: Emergency Medical Technology
ESHM: Environmental Safety and Hazardous Materials
FN: Foods and Nutrition (except 225, 250)
FP: Fire Protection
FOT: Fiber Optics Technology
FT: Fitness Technology
GD: Graphic Design
HC: Health Careers
HEC: Consumer and Family Studies (except 226, 250, 280A)
HIM: Health Information Management
HR: Culinary Assistant
ID: Interior Design
INSP: Building Inspection Technology
ITP: Sign Language Interpretation
IVP: Video Production Internship
LA: Legal Assistant/Paralegal
LAT: Landscape Technology
MA: Medical Assisting
MCH: Machine Manufacturing Technology
MLT: Medical Laboratory Technology
MM: Multimedia
MP: Medical Professions
MSD: Management and Professional Development
MT: Microelectronic Technology
MUS: Music (only 101-103, 120A-130F, 132-157C, 159A-165, 222-280B)

NUR: Nursing
OMT: Ophthalmic Medical Technology
OS: Office Systems
PST: Professional Skills Training
PT: Publishing Technology
RAD: Radiologic Technology
RE: Real Estate
SON: Diagnostic Medical Sonography
TE: Trade Extension
TEL: Telecommunications
VT: Veterinary Technology
WLD: Welding

*Many professional and technical courses are applicable to the baccalaureate degree. Check with the BA-granting institution.

Lower Division Collegiate Courses

(only course numbers 100-299 are LDC at PCC)

ART: Art
ASL: American Sign Language
ATH: Anthropology
BA: Business Administration**(except 141, 216, 247)
BI: Biology**
CG: Counseling and Guidance**(except 101, 102)
CH: Chemistry
CHLA: Chicano/Latino Studies
CJA: Criminal Justice
CIS: Computer Information Systems (only 120, 121, 122)
CS: Computer Science
CSS: Crop Soil Science
D: Dance
EC: Economics
ED: Education**(only 121-126, 129-136, 200-258, 268-281, 292-298E)
ENG: English
ENL: English as a Non-Native Language**
ESR: Environmental Science
FN: Foods and Nutrition (only 225 and 270)
FR: French
G: Geology
GE: General Engineering
GEO: Geography
GER: German
GS: General Science
HE: Health
HEC: Consumer and Family Studies (only 226, 250, 280A)
HOR: Horticulture
HPE: Health and Physical Education
HST: History
HUM: Humanities
J: Journalism
JPN: Japanese
MTH: Mathematics**
MUP: Applied Music
MUS: Music (except 101-103, 120A-130F, 132-157C, 159A-165, 223-280B)
PE: Physical Education (exclude PE 10)
PHL: Philosophy
PHY: Physics
PS: Political Science
PSY: Psychology
RD: Reading**(only 116)
RUS: Russian
SOC: Sociology
SP: Speech
SPA: Spanish
TA: Theater Arts
WR: Writing**
WS: Women's Studies

** A number below 100 indicates a support course and a number above 299 indicates a vocational supplementary course. These courses are not usually transferable to a BA granting institution, PCC does not classify these courses as LDC.

AB – Auto Collision Repair Technology

AB 100 Autobody Basic Skills 12 Cr. - Introduces oxy-acetylene welding, use of hand tools, equipment, and procedures in replacing and aligning auto body components including the use of MIG welders in auto body repair. Develops skills in repair of auto body metals. Discusses damage analysis and how dents are reshaped to original contours.

AB 101 AB Basic Skills I 6 Cr. - Introduces oxyacetylene welding, use and care of hand tools and shop equipment, types and placement of currently used auto body steels, type of construction and repair procedures including procedures used in replacing and aligning hoods, fenders and other body components.

AB 102 Auto Body Basic Skills II 6 Cr. - Develops skills in use of and maintenance of MIG welders as applied to auto body repair. Develops skills in repair of auto body metals. Damage analysis is discussed and small dents are reshaped to the original contour of the auto body panel.

AB 103 Panel Repair I 6 Cr. - Develops skills in repair of small dents. Safe use of grinders, sanders, and assorted hand tools will be practiced. Paint preparation also discussed. Prerequisites: AB 101, 102.

AB 104 Panel Repair II 6 Cr. - Develop skills in repair of damaged panels on program and customer vehicles. Safe use of grinders, sanders, and assorted hand tools will be practiced. Prerequisites: AB 101, 102.

AB 105 Frame Analysis & Repair 12 Cr. - Covers structural misalignment analysis, use of measuring systems, structural repair procedures, and wheel alignment. Prerequisites: AB 100 or AB 101 and AB 102.

AB 106 Panel Repair 12 Cr. - Develop skills in repair of practice panels, school owned vehicles, and customer cars. Safe use of grinders, sanders, assorted hand tools, and pulling equipment will be applied and practiced. Paint fundamentals, preparation, and application will be discussed.

AB 107 Frame Analysis & Repair A 6 Cr. - Covers structural misalignment analysis, setup of measuring systems, and wheel alignment.

AB 108 Frame Analysis & Repair B 6 Cr. - Covers structural misalignment analysis, use of measuring equipment, and structural repair procedures.

AB 110 Auto Painting IA 6 Cr. - Introduces care and use of all paint equipment, shop safety and surface preparation for solid color materials. Emphasizes urethane undercoats, spot repair, color matching, and blending with urethane base coat. Covers masking techniques.

AB 111 Auto Painting IB 6 Cr. - Introduces care and use of all paint equipment, shop safety and surface preparation for metallic color materials. Emphasizes urethane undercoat, spot repair, color matching, and blending with urethane base coat. Covers masking techniques.

AB 112 Auto Painting IIA 6 Cr. - Introduces safe use of solid color enamel and single stage urethane systems. Emphasizes spot repair, color matching and blending. Covers surface preparation and proper masking techniques for these products.

AB 113 Auto Painting IIB 6 Cr. - Introduces safe use of metallic enamel and single stage metallic urethane systems. Emphasizes spot repair, color matching and blending. Covers surface preparation and proper masking techniques for these products.

AB 114 Auto Painting IIIA -6 Cr. - Introduces safe use of base coat/clear coat, pearl coat, and tri-coat urethane systems. Emphasizes spot repair, color matching and blending. Covers surface preparation and proper masking techniques for these products.

AB 115 Auto Painting IIIB 6 Cr. - Review and practice all previously learned painting skills on customer and school-owned cars.

AB 116 Auto Painting I 12 Cr. - Develops knowledge and skills in care and use of all painting equipment, shop safety, conservation of materials, surface preparation for application of paint, application techniques, color matching and basic taping techniques.

AB 117 Auto Painting II 12 Cr. - Introduces safe use of single stage urethane, advanced masking techniques, small dent repair and detailing. Review and practice of all previously learned painting skills on customer and school-owned cars. Prerequisite: AB 116.

AB 118 Auto Painting III 12 Cr. - Introduces safe use of pearl and tri-coat urethane base coat/clear coat systems. Emphasizes spot repair, color matching, blending and plastic part refinishing. Covers surface preparation and proper masking techniques for these products. Prerequisites: AB 116, 117.

AB 121 Estimating 3 Cr. - Damage appraisal relating to collision repair and use of crash estimating guides are applied to major and minor vehicle damage.

AB 201 Panel Replacement 12 Cr. - Covers replacing new and used weld-on panels, such as rocker panels, quarter panels and rear body panels. Includes preparation and installation of cosmetic and structural weld-on panels.

AB 204 General General Shop 12 Cr. - Review and practice all previously learned auto body skills on customer and/or school owned vehicles. May also be a work experience class, done in an approved, supervised auto body repair facility.

AB 205 Technical Skills and Collision Repair 12 Cr. - Develops knowledge and manipulation skills required for the complete repair of a collision damaged vehicle by understanding and testing the safety and comfort features found on current vehicles. Prereq: AB 100, 105, 106, 201.

AB 280A Cooperative Education: Auto Body Repair 1-10 Cr. - Focuses on demonstrating knowledge of auto body repair. Observe and obtain hands-on experience matching their learning objectives. Credits are determined by total clock hours spent on site during the term. Must be coordinated with supervisor, instructor and cooperative education specialist. Department permission required.

AB 280B Cooperative Education: Auto Body Repair Seminar 1-2 Cr. - Provides opportunity to share work experiences and receive feedback from students and instructors. Department permission required.

AB 9120 Auto Body Restoration 3 Cr. - Develops knowledge and manipulation skills required for vehicle restoration by understanding the processes used in welding, metal forming and finishing, rust repair, and panel alignment.

AB 9121 Vintage Auto Restoration Process 2 Cr. - Introduces restoration of antique and vintage automobiles. Develops knowledge in the process of researching, purchasing, and restoring all components pertaining to vintage vehicles.

ABE - Adult Basic English

ABE 0741 ABE: Beginning Literacy 0 Cr. - Literacy and other academic skills related to personal, family, work, and community needs. These basic academic and life skills are the foundation for developing higher-level employability skills. Prerequisites: Reading placement at CASAS 201-210; listening and speaking skills in English at SPL 5 or higher.

ABE 0743 ABE: Intermediate I 0 Cr. - To improve personal and interpersonal skills, critical thinking and learning, reading, writing, social studies, science, literature, mathematics, and employability for use in family, work, and community roles. Prerequisites: Reading placement at CASAS 221-235; listening and speaking skills in English at SPL 5 or higher; high school release for 16-17 year olds.

ABE 0745 ABE: Secondary I 0 Cr. - Can be used to prepare for the GED examination. Prerequisites: Reading placement at CASAS 236-245; listening and speaking skills in English at SPL 5 or higher; high school release for 16-17 year olds.

ABE 0746 ABE: Secondary II 0 Cr. - For use in family, work, and community roles. Prerequisites: Reading placement at CASAS 246 or higher; listening and speaking skills in English at SPL 5 or higher; high school release for 16-17 year olds.

AD - Alcohol and Drug Counselor

AD 101 Alcohol Use and Addiction 3 Cr. - Basic overview of addiction with emphasis on alcohol addiction. Considers physiology, psychology, denial, intervention, treatment, prevention, recovery, relapse and community resources. Required for students desiring to enter the program.

AD 102 Drug Use and Addiction 3 Cr. - Considers current drug use and psychological/behavioral aspects of client misuse or addiction. Includes drug chemistry, physiological effects of drug use upon the body and specific treatment formats and techniques.

AD 103 Women and Addiction 3 Cr. - Investigates patterns of alcohol and drug use and abuse by women in our society. Explores treatment and recovery models specific to the needs of women, plus the relationship of substance abuse to social issues.

AD 104 Multicultural Counseling 3 Cr. - Focuses on diversity of populations using addiction counseling services. Emphasizes developing sensitivity to relevant cultural differences and building skills in addressing them.

AD 150 Basic Counseling and Addiction 3 Cr. - Introduces basic skills required for establishing an effective professional helping relationship. Emphasizes in-class practice and feedback. Prerequisite: AD 101. Co-requisite: AD 151.

AD 151 Basic Counseling Skills Mastery 1 Cr. - Provides opportunity to demonstrate minimum level of facilitative skills required for initial practicum placement. Demonstrate mastery in responding to client behavior, content, feelings and meaning, through in-class practice and videotape review. Offered on a pass/no pass basis only. Prerequisite: AD 101. Corequisite: AD 150.

AD 152 Group Counseling and Addiction 3 Cr. - Provides exposure to the concepts of group process, group development and leader facilitation skills. Emphasizes group therapy and the addiction counselor. Prerequisite: AD 101.

AD 153 Theories of Counseling 3 Cr. - Basic theories of counseling, emphasizing treatment of addiction. Developmental model of recovery is used as a basis for discussion and comparison of the various theories. Prerequisite: AD 101.

AD 154 Case Management and Addiction 3 Cr. - Methods for making decisions regarding goals and objectives to be reached by clients during and after treatment. Covers all aspects of client record management including federal and state regulations and ASAM placement criteria. Courses AD 150, 151, 152, and 155 suggested prior to AD 154. Prerequisite: AD 101.

AD 155 Motivational Interviewing 3 Cr. - Produce a counseling video that demonstrates mastery of the micro skills of the Anchor Point System. Prerequisites: AD 101, 150, 151.

AD 156 Ethical and Professional Issues 3 Cr. - Covers ethical and legal issues relevant to the alcohol and drug counselor. Prerequisite: AD 101.

AD 184 Men & Addiction 3 Cr. - Investigates patterns of alcohol and drug abuse by men in our society. Explores treatment and recovery models specific to the needs of men, plus the relationship of substance abuse to social issues.

AD 201 Families and Addiction 3 Cr. - Provides overview of the chemically dependent family system. Includes appropriate methods for drawing families into treatment. Prerequisite: AD 101.

AD 211 Alcohol & Drug: Special Studies 1 Cr. - Not required for degree and may not be substituted for any required program courses.

AD 212 Alcohol & Drug: Special Studies 2 Cr. - Not required for degree and may not be substituted for any required program courses

AD 213 Alcohol & Drug: Special Studies 3 Cr. - Not required for degree and may not be substituted for any required program courses.

AD 241 Prevention I 3 Cr. - Provides knowledge of prevention basics including history, Risk/Protective Factors, research-based best practices, the prevention continuum of care, resiliency and assets. Builds skills in identifying community needs and planning comprehensive prevention programs. Includes professional responsibilities, scope of practice, cultural factors and ethics. Explores and evaluates alcohol, tobacco and other drug curriculums. Investigates how to match programs to target audiences.

AD 242 Prevention II 3 Cr. - Provides knowledge of comprehensive community prevention planning. Focuses on developing competencies in effective planning, program design, evaluation and grant administration. Develops capacity to review and apply current research and integrate research-based best practices into planning and evaluation. Emphasizes skills needed to work with diversity.

AD 243 Prevention III 3 Cr.- Explores methods of influencing public policy. Shows how to apply current research to advocacy efforts. Demonstrates ways to communicate credible evaluation results to policy makers, funding sources and the media. Considers how to advocate for prevention resources and include research based best practices.

AD 250 Advanced Counseling and Addiction 3 Cr. - Focuses on advanced skills for an effective professional relationship with clients. Covers interview techniques, facilitative dimensions, feedback, maintaining empathy and rapport, confrontation, problem solving, structuring the counseling interview, recovery and relapse, 12-step recovery programs, attitudes and values, and counselor self-care. Prerequisites: AD 101, 150, 151. Corequisite: AD 251.

AD 251 Advanced Counseling Skills Mastery 1 Cr. - Focuses on increasing counselor empathy and communication skills. Demonstrate skills through in-class practice and videotape review. Offered on a pass/no pass basis only. Corequisite: AD 250.

AD 252 Advanced Group Counseling 3 Cr.- Focuses on developing group counseling skills. Explores various themes and “critical issues” in 4.50 counseling alcoholics in experiential groups, working on common and difficult therapeutic problems. Professionally employed leaders of alcohol & drug groups admitted if space permits. Practicum involvement at a treatment facility required.

AD 255 Multiple Diagnoses 3 Cr. - Covers assessment of chemical dependency clients for communicable diseases and coexisting mental disorders, effective intervention, and referral of clients to optimum resources for resolving coexisting diagnoses. Develops clear ethical guidelines for practicing within alcohol and drug counselor's area of competence. Prerequisites: AD 101, 102. Prerequisite or corequisite: PSY 239.

AD 280A Practicum: Addiction 1- 6 Cr. - Works in alcohol and other drug treatment or education setting. Students required to complete a minimum of two six month placements for a total of 18 credits. Each placement must be at a different agency. Prerequisites: AD 101, 102, 150, 151, 152, 153, 154, 155, 156, WR 121, 122. Corequisite: AD 280B.

AD 280B Practicum: Addiction Seminar 2 Cr. - Focuses on the integration and synthesis of academic preparation with “real world” addiction counseling experience. Includes consideration of counselor self-care, healthy work practice, professional ethics and ongoing professional development. Corequisite: AD 280A.

AD 280C Cooperative Education: Prevention Practicum 3 Cr. - Works with a prevention professional mentor to achieve knowledge of International Certification Consortium Alcohol, Tobacco and Other Drug Abuse Prevention Domains. Learns professional responsibilities and growth, cultural sensitivity and ethics. Corequisite: AD 280D. Prerequisites: AD 101, 102, 241, 242, documenting two years of not abusing alcohol and other drugs, passing the criminal history check as outlined in ACCBO Certified Prevention Specialist certification standards and department permission.

AD 280D Cooperative Education: Prevention Practicum Seminar 2 Cr. - Focuses on prevention specialist's supervised learning experience including professional growth and responsibility, prevention specialist ethics, six professional domains of prevention and prevention and integration of academic preparation with “real world” experience. Corequisite: AD 280C.

ALC - Alternative Learning Center

ALC 50 Basic English Language Skills Lab 0 Cr. - Self-paced, individualized reading, writing and English instruction in lab setting. Content varies depending upon interest and diagnosed needs. May include computer-assisted instruction, tutoring, use of textbook-workbook for assignments and other media.

ALC 51 Basic English Language Skills Lab 0.50 Cr. - Self-paced, individualized reading, writing and English instruction in lab setting. Content varies depending upon interest and diagnosed needs. May include computer-assisted instruction, tutoring, use of textbook-workbook for assignments and other media.

ALC 52 Basic English Language Skills Lab 1 Cr. - Self-paced, individualized reading, writing and English instruction in lab setting. Content varies depending upon interest and diagnosed needs. May include computer assisted or small group instruction; tutoring; textbook/workbook assignments; or audio, video, or slide tapes.

ALC 53 Basic English Language Skills Lab 2 Cr. - Self-paced, individualized reading, writing and English instruction in lab setting. Content varies depending upon interest and diagnosed needs. May include computer-assisted instruction, tutoring, use of textbook-workbook for assignments and other media.

ALC 54 Basic English Language Skills Lab 3 Cr. - Self-paced, individualized reading, writing and English instruction in lab setting. Content varies depending upon interest and diagnosed needs. May include computer-assisted instruction, tutoring, use of textbook-workbook for assignments and other media.

ALC 55 Basic Study Skills Lab 0 Cr. - Self-paced, individualized study skills instruction in lab setting. Topics may include note-taking, time management, concentration and memory, reading texts, test taking, self advocacy and PCC resources.

ALC 56 Basic Study Skills Lab 0.50 Cr. - Self-paced, individualized study skills instruction in lab setting. Topics may include note-taking, time management, concentration and memory, reading texts, test taking, self advocacy and PCC resources.

ALC 57 Basic Study Skills Lab 1 Cr. - Self-paced, individualized study skills instruction in lab setting. Topics may include note-taking, time management, concentration and memory, reading texts, test taking, self advocacy and PCC resources.

ALC 58 Basic Study Skills Lab 2 Cr. - Self-paced, individualized study skills instruction in lab setting. Topics may include note-taking, time management, concentration and memory, reading texts, test taking, self advocacy and PCC resources.

ALC 59 Basic Study Skills Lab 3 Cr. - Self-paced, individualized study skills instruction in lab setting. Topics may include note-taking, time management, concentration and memory, reading texts, test taking, self advocacy and PCC resources.

ALC 60 Basic Math Lab 0 Cr. - Content may differ for each student. Designed for students receiving instruction in the Alternative Learning Center. For each credit earned, students spend a minimum of 30 hours in the lab or on course-related activities.

ALC 61 Basic Math Lab 0.50 Cr. - Content may differ for each student. Designed for students receiving instruction in the Alternative Learning Center. For each credit earned, students spend a minimum of 30 hours in the lab or on course-related activities.

ALC 62 Basic Math Lab 1 Cr. - Topics in Arithmetic (MTH 20A) and Introductory Algebra (MTH 60 and MTH 65) are covered as appropriate. Instruction is self-study, guided by an instructor and the use of a multimedia system. Students enrolled spend a minimum of 30 hours in the lab.

ALC 63 Basic Math Lab 2 Cr. - Topics in Arithmetic (MTH 20A) and Introductory Algebra (MTH 60 and MTH 65) are covered as appropriate. Instruction is self-study, guided by an instructor and the use of a multimedia system. Students enrolled spend a minimum of 60 hours in the lab.

ALC 64 Basic Math Lab 3 Cr. - Topics in Arithmetic (MTH 20A) and Introductory Algebra (MTH 60 and MTH 65) are covered as appropriate. Instruction is self-study, guided by an instructor and the use of a multimedia system. Students enrolled spend a minimum of 90 hours in the lab.

ALC 70 Technical Math Support 2 Cr. - Supports existing math courses by providing an opportunity for students to develop and refine beginning math skills applicable to many technical programs. Provides practical exercises in arithmetic, geometry, measurement skills problem solving techniques and calculator functions with emphasis on applying functional math to the work world. Prerequisite: Placement into MTH 20; or instructor permission.

AM - Automotive Service Technology

AM 101 Unit 1: Engine Repair I 4 Cr. - Covers basic theory, design and operation of automotive engines. Engine components are covered in detail including purpose, inspection and repair. Disassemble and reassemble school owned engines to gain experience in hand tool use and proper engine repair and evaluation procedures. Compression and leakage tests included. Prerequisite: AM 108.

AM 102 Unit 2: Electrical Systems I 4 Cr. - Covers electrical theory, schematic symbols, battery and starter theory, operation, diagnosis and repair.

AM 103 Engine Performance I 4 Cr. - Covers use of automotive scan tools, operation and testing electronic ignition systems, ignition secondary oscilloscope patterns, electronic advance, engine knock control systems, basic timing adjustment and distributor removal and replacement. Prerequisites: AM 108, 101, 102.

AM 104 Unit 4: Steering and Suspension Systems I 4 Cr. - Covers basic principles of steering, suspension and wheel alignment for passenger cars and light duty trucks. Familiarization with tire construction, types and sizing. Practice disassembly and reassembly of steering and suspension system components. Familiarization and practice in using computerized 4-wheel-alignment equipment and tire balancing machines. Prerequisites: AM 108, 102.

AM 105 Unit 5: Brake Systems I 4 Cr. - Studies principles of automotive brake systems. Practice disassembly/assembly of system components using school owned equipment. Includes proper measuring and machining techniques of brake drums and discs. Prerequisites: AM 108, 102.

AM 106 Unit 6: Heating and Air Conditioning Systems 4 Cr. - Covers theory, operation and repair of automotive heating and air conditioning systems. Work on approved customer automobiles. Includes testing and repair of electrical and vacuum circuits. Prerequisites: AM 108, 102.

AM 107 Unit 7: Manual Drive Train and Axles I 4 Cr. - Introduces various designs of manual transmissions and trans-axes and to the drive line components of an automobile. Each component is covered in detail including purpose, application, operation, inspection, diagnosis and repair. Disassemble, inspect and assemble school owned units to obtain hands-on experience and familiarization. Prerequisite: AM 108.

AM 108 Unit 8: Introduction to Automotive Systems I 4 Cr. - Orientation to PCC Automotive Service Technology program. Introduces automotive tools, fasteners, precision measurement, service manuals and shop procedures. Perform basic automotive service and inspection procedures. Includes the practical application of mathematics for the automotive trade.

AM 109 Unit 9: Fuel Systems I 4 Cr. - Covers theory, operation, testing and service of electro-mechanical carburetors and mechanical fuel pumps. Not a required course for the Automotive Certificate or Associates Degree; see automotive department advisor for more information on scheduling and registration.

AM 112 Unit 12: Electrical II 4 Cr. - Read schematics and work on charging systems and accessories. Prerequisites: AM 108, 102.

AM 113 Engine Performance II 4 Cr. - Topics include the causes of air pollution, the use of the 5 gas analyzer, air injection systems, catalytic converters, exhaust gas recirculation systems, evaporation control, crankcase ventilation systems, federal and state emissions laws. Prerequisites: AM 108, 101, 102, 103.

AM 114 Unit 14: Steering and Suspension Systems II 4 Cr. - The capstone class in a 2-class sequence covering steering system service, suspension system service and 4-wheel alignment. Practice learned skills repairing real steering, suspension and wheel alignment problems. Jobs assigned by instructor, drawing from a pool of customer vehicles, or school owned vehicles. Prerequisites: AM 108, 102, 104.

AM 115 Unit 15: Brake Systems II 4 Cr. - Brake diagnosis and repair of base brakes and anti-lock systems in a laboratory/shop setting. Covers how to do complete brake inspections and determine what repairs are needed. Ordering parts and completing repairs under close instructor supervision. Prerequisites: AM 108, 102, 105.

AM 117 Unit 17: Manual Drive Train and Axles II 4 Cr. - Work on approved customer automobiles diagnosing and servicing components of standard transmissions/transaxles. Provides realistic understanding of procedures which take place in an automotive repair facility each day. Prerequisites: AM 108, 107.

AM 122 Unit 22: Electrical III 4 Cr. - Work on approved automobiles and study how to diagnose electrical problems, read schematics, use test equipment, perform satisfactory wire connections, test, repair, and/or replace electrical units. Prerequisites: AM 108, 102, 112.

AM 123 Engine Performance III 4 Cr. - Study the operation, servicing and testing of electronic fuel injection systems, on board diagnostics I and II, idle control systems. Diagnose failed fuel injection vehicles. Prerequisites: AM 108, 101, 102, 103, 113.

AM 124 Unit 24: Steering and Suspension Systems III 4 Cr. - Work on approved customer automobiles to diagnose steering and suspension problems; properly align front and rear wheels; check frame alignment; repair and/or replace faulty steering system parts; balancing wheels and diagnose tire wear. Prerequisites: AM 108, 102, 104, 114.

AM 125 Unit 25: Brake Systems III 4 Cr. - Work on approved customer automobiles to diagnose customer complaints, analyze costs, repair and/or replace faulty brakes or related parts and use safety checksheets. Prerequisites: AM 108, 102, 105, 115.

AM 127 Unit 27: Automatic Transmission/Transaxle I 4 Cr. - Work on automatic transmissions/transaxles and study how to trace the power flow, diagnose problems, disassemble, inspect and evaluate, clean and layout components. Reassemble and adjust transmission, and test the unit for its proper operation. Prerequisites: AM 108, 102.

AM 133 Engine Performance IV 4 Cr. - Continuation of Unit 23. Prerequisites: AM 108, 101, 102, 103, 113, 123.

AM 137 Unit 37: Automatic Transmission/Transaxle II 4 Cr. - Work on approved customer automobiles diagnosing and servicing components of the automatic transmission/transaxle. Provides specific understanding of shop procedures that take place in an automotive repair facility. Prerequisites: AM 108, 102, 127.

AM 143 Engine Performance V 4 Cr. - Work on approved customer vehicles and perform maintenance and/or driveability hands-on work much the same as would be done in the repair industry. Prerequisites: AM 108, 101, 102, 103, 113, 123, 133.

AM 153 Engine Performance VI 4 Cr. - Continuation of AM 143. Prerequisites: AM 108, 101, 102, 103, 113, 123, 133, 143.

AM 280A Cooperative Education: Automotive Service 1-12 Cr. - Work outside of the classroom at a job performing diagnostic and repair work under the supervision of a professional automotive technician. Department permission required.

AMT - Aviation Maintenance Technology

AMT 101 Introduction to A&P 4 Cr. - Familiarization with aviation maintenance technology, including: program requirements, safety, aircraft and engines, general-purpose common hand tools, power tools, shop equipment, precision measuring tools, construction of aircraft parts, aircraft hardware, work ethics and career opportunities.

AMT 102 Aircraft Electricity I 4 Cr. - Includes basic electrical theory, interpretation of electrical schematics, principles of component operation, and alternating current theory.

AMT 105 Aviation CFRs & Related Subjects 4 Cr. - Presents federal aviation regulations as they pertain to the aircraft mechanic, plus some "action" learning on servicing and operation of the aircraft on the ground.

AMT 106 Aircraft Applied Science 4 Cr. - Existing math skills are used to perform operations in aircraft maintenance and record keeping. Also covers some basic principles of physics.

AMT 107 Materials & Processes 4 Cr. - Covers many general aircraft procedures, including: fluid lines and fittings, non-destructive testing methods, heat treatment, aircraft cleaning, and corrosion control. Procedures are equally applicable to both the airframe and powerplant courses.

AMT 109 Assembly & Rigging 4 Cr. - Covers methods of assembly and rigging commonly used in preparing both fixed and rotary wing aircraft for a safe test flight. Includes analysis of test flight reports and recommended rigging corrections necessary to produce a safe and efficient aircraft.

AMT 110 Aircraft Finishes and Welding 4 Cr. - Examines methods of removing finishes, corrosion proofing and painting aircraft and aircraft components. Includes inspection and recovering operations for fabric covered aircraft. Aircraft welding included.

AMT 115 Aircraft Structures & Inspection 4 Cr. - Examines structural designs and methods of inspecting the aircraft to assure continued operation in the "as engineered" configuration. Emphasizes interpretation of airworthiness directives, service bulletins and other maintenance documents. Technical writing skills required to complete FAA forms and records. Prerequisite: AMT 105.

AMT 117 Reciprocating Engine Theory & Maintenance 4 Cr. - Covers aircraft reciprocating engine theory and various maintenance procedures and techniques. Includes the use of manufacturer's publications.

AMT 120 Propellers and Engine Installation 4 Cr. - Examines propeller theory and repair within limitations imposed by FAA Regulation Part 65, plus control and auxiliary systems, such as anti-ice and synchronization. Unducted fan systems are explored and engine removal and installation are accomplished.

AMT 121 Turbine Engine Theory and Maintenance 4 Cr. - Presents theory for all turbine engines, but does not build expertise in any one design. Maintenance includes inspection, checking, servicing and repairing turbine engines and turbine engine installations.

AMT 123 Ignition Systems 4 Cr. - Covers reciprocating and turbine engine ignition system theory and overhaul practices, plus the relationships of the complete ignition system to the powerplant and its operation.

AMT 124 Fuel Metering Systems 4 Cr. - Examines methods used to move air and fuel into and through an engine in a ratio producing safe and efficient engine operation under widely varying conditions.

AMT 126 A&P Self Study/Tutorial 1-4 Cr. - Optional module offered to Aviation Maintenance Technology students who have special needs in developing math and other skills necessary for success in the required courses to follow. Under very special circumstances, this course title is used to substitute for certain required courses that are not offered at a time that meets student scheduling needs. This carefully coordinated and supervised independent study method must be well planned in advance.

AMT 203 Aircraft Electricity II 4 Cr. - Presents basic electronic theory; inspection and servicing of aircraft batteries; study of electrical system components; the installation and servicing of airframe/engine electrical wiring, controls, switches, indicators and protective devices; and electrical system inspection and troubleshooting.

AMT 204 Aircraft Electricity III 4 Cr. - Covers airframe/engine electrical components; inspection, check, service and repair of alternating and direct current electrical systems; the application of electrical principles used in sensing, indicating and control of airframe and powerplant systems.

AMT 208 Aircraft Systems 4 Cr. - Study of various airframe systems including ice and rain, cabin atmosphere, position and warning, and fire protection. Prerequisites: AMT 101, 102, 105, 203, 204.

AMT 211 Composite Structures 4 Cr. - Covers modern bonded structures such as honeycomb and laminated components. Includes discussion of inspection and limited repairs to wood structures.

AMT 212 Sheet Metal 4 Cr. - Covers methods for sheet metal repairs to aircraft and methods of forming repair parts for damaged aircraft.

AMT 213 Hydraulic Systems & Landing Gear 4 Cr. - Covers inspection and repair of aircraft landing gear and hydraulic system components.

AMT 214 Instruments, Communication & Navigation Systems 4 Cr. - Presents basic functions, internal workings and maintenance procedures for instruments, communication, navigation and autopilot systems used on complex, modern aircraft.

AMT 216 AMT Practicum/Airframe 4 Cr. - Provides further development of students' skills through practical application before graduating from the FAA-approved airframe curriculum. Used as comprehensive tool to evaluate student and program strengths and weaknesses. Prerequisites: Completion of all General and Airframe courses, or FAA permission granted under FAR Part 65 to take mechanic certification testing on an experience basis, or permission obtained from the Department Chair.

AMT 218 Powerplant Inspection 4 Cr. - Covers proper inspection of the entire engine installation, including exhaust systems, engine instrumentation, lubrication systems and control systems.

AMT 219 Turbine Engine Overhaul 4 Cr. - Covers removing, disassembling, cleaning, inspecting, reassembling and reinstalling a turbine engine. Emphasizes engine manufacturer's publications.

AMT 222 Reciprocating Engine Overhaul 4 Cr. - Covers machining and overhaul processes for reciprocating engines.

AMT 225 A&P Practicum/Powerplant 4 Cr. - Provides further development of students' skills through practical application before graduating from the FAA-approved powerplant curriculum. Used as comprehensive tool to evaluate student and program strengths and weaknesses. Prerequisites: Completion of all General and Powerplant courses, or FAA permission granted under FAR Part 65 to take mechanic certification testing on an experience basis, or permission obtained from the Department Chair.

AMT 227 A&P Makeup 1-4 Cr. - This optional course becomes required when a student has successfully completed all required airframe or powerplant courses but has not attended sufficient hours to qualify for graduation. Under some circumstances the course titled A&P Shop Practice may be more appropriate. Completion of all airframe or powerplant courses is usually required; however, if attendance problems are indicated and schedule openings are apparent in the student's record, the A&P Make-up course could be scheduled one or two modules prior to completion of required courses.

AMT 228 A&P Shop Practice 1-4 Cr. - Some students feel the need for more shop experience in areas of choice. When it is within the practical capabilities of the department to offer that experience, the student may take one or more shop practice modules. The module may, under some circumstances, be substituted for the A&P Make-up course. Completion of most of the required A&P courses is desirable.

AMT 229 Rotary Wing Maintenance 4 Cr. - Examines many specialized techniques and practices used in the maintenance of rotary wing aircraft.

AMT 280A Cooperative Education: Airframe and Power Plant 1-10 Cr. - Provides relevant field experience in an on-the-job environment. Students work in jobs related to their college programs. Allows stu-

dents to apply knowledge and skills developed in class and to explore career options. Department permission required.

AMT 280B Cooperative Education: Airframe and Power Plant - Seminar 1-2 Cr. - Optional seminar supplements field experience through feedback sessions, instruction in job-related areas, and linkage to student's on-campus program. Provides a basis for the instructor to supervise the student's learning in the work setting and to coordinate it with what the student is learning in other aviation-related courses. Department permission required.

ARCH - Architectural Design and Drafting

ARCH 101 Architectural Graphics 1 3 Cr. - Examines typical step-by-step process used to design a house including programming, sketching, drawings and models.

ARCH 102 Architectural Graphics 2 3 Cr. - Examines typical step-by-step process used to design a commercial building, including programming, sketching, drawings and models.

ARCH 103 Architectural Graphics 3 3 Cr. - Examines concepts and conventions of perspective drawing using a variety of graphic media. Recommended: Completion of all first year courses. Prerequisites: ARCH 101, 122, 123, 1226, 132, 136.

ARCH 111 Working Drawings 1 3 Cr. - Covers typical residential construction practices and residential plans. Students draw residential plans.

ARCH 112 Working Drawings 2 3 Cr. - Covers commercial plans and typical light commercial construction practices. Students draw light commercial plans. Recommended: DRF 117; ARCH 126; or equivalent.

ARCH 113 Working Drawings 3 2 Cr. - Covers site development, including surveying existing grades, locating existing and future buildings, driveway parking and landscaping, plus drawing site plans.

ARCH 122 Structural Systems 2 4 Cr. - Covers sizing of wood structural members (rafters, joists, beams, etc.). Prerequisite: MTH 60.

ARCH 123 Structural Systems 3 4 Cr. - Covers retaining walls, concrete foundations, structural steel framing, and sizing for wind and seismic loads. Prerequisite: MTH 60.

ARCH 124 Introduction to Building Systems 3 Cr. - An overview of structural systems, mechanical systems, specifications, and building codes in residential and small commercial buildings.

ARCH 126 Introduction to AutoCAD 3 Cr. - Introduces AutoCAD software as a drafting tool and its applications to architecture and covers the creation, retrieval and modification of drawings using basic AutoCAD commands. This course is 30 total contact hours and is also worth 60 LU credits to AIA members. Recommended: CIS 120.

ARCH 131 Environmental Control Systems 3 Cr. - Covers designing and drawing mechanical plans for plumbing, electrical, lighting, heating, and cooling systems. Recommended: DRF 117 or equivalent.

ARCH 132 Building Codes 3 Cr. - Covers land use zoning and Oregon Building Codes, applying codes to building design and to plan checking.

ARCH 136 Intermediate AutoCAD 3 Cr. - In-depth study of computer-aided-drafting using AutoCAD software and its applications to architecture. This course is 30 total contact hours and also worth 60 LU credits to AIA members. Prerequisite: ARCH 126.

ARCH 137 Advanced Architectural Desktop 3 Cr. - Explores advanced features of Auto CAD including 3-D, as it applies to architecture and includes an introduction to "Architectural Desktop" software. Prerequisite: ARCH 136 or DRF 136.

ARCH 140 Introduction to CHIEF ARCHITECT 3 Cr. - Introduces CHIEF ARCHITECT software as a design and drafting tool, its applications to architecture, and covers the creation, retrieval, and modification of drawings using basic commands. This course is 30 contact hours and is also worth 60 LU credits to AIA members. Recommended: DRF 117; CIS 120.

ARCH 161 Blueprint Reading-Part 1 2 Cr. - Teaches non-drafting students to read architectural blueprints.

ARCH 162 Blueprint Reading-Part 2 2 Cr. - Teaches advanced techniques in reading architectural blueprints. Recommended: ARCH 161 or equivalent.

ARCH 191 Special Projects 1 2 Cr. - Course content will be jointly developed by student and instructor. Course may be repeated for longer projects.

ARCH 192 Special Projects 2 2 Cr. - For larger special projects the same term or projects that require a second term to complete. Course content will be jointly developed by student and instructor. Recommended: ARCH 191.

ARCH 193 Special Projects 3 2 Cr. - For larger special projects that require a third term to complete. Course content will be jointly developed by student and instructor. Recommended: ARCH 191, 192.

ARCH 200 Introduction to Architecture 4 Cr. - Introduces concepts, theories, and practices of the discipline of architecture. Includes study of perceptual, environmental, technical and organizational concepts through lectures and individual projects in observing architectural spaces and forms.

ARCH 201 Design Studio 1 8 Cr. - Covers design of single family buildings and preparing a complete set of residential working drawings. Recommended: Completion of all first year courses. Prerequisites: ARCH 101, 122, 123, 132, 126, 136.

ARCH 202 Design Studio 2 8 Cr. - Covers design of special and general use commercial buildings and preparing a set of commercial working drawings. Recommended: Completion of all first year courses. Prerequisites: ARCH 102, 122, 123, 132, 126, 136.

ARCH 203 Design Studio 3 6 Cr. - Covers design and preparing a set of remodel/addition working drawings. Recommended: Completion of all first year courses. Prerequisites: ARCH 101, 122, 123, 132, 126, 136.

ARCH 220 Design Drawing 4 Cr. - Lectures and exercises to develop skills in graphic visualization, representation and communication as used in architecture and related design fields. Concepts and conventions from freehand to electronic media design and production will be used as a means to imagine, develop and represent design ideas. Recommended: ART 131; ARCH 126. Prerequisite: ARCH 200.

ARCH 224 Advanced Building Systems 4 Cr. - Advanced study of structural systems, mechanical systems, specifications, and building codes in residential and small commercial buildings.

ARCH 231 Specifications 3 Cr. - Covers basic contracts and construction specifications for residential and commercial projects. Recommended: Completion of all first year courses.

ARCH 232 Estimating 3 Cr. - Estimating material and labor costs of construction. Recommended: Completion of all first year courses.

ARCH 233 Architectural History 3 Cr. - History of architectural design and building construction.

ARCH 246 AutoCAD 3D and Solid Modeling 3 Cr. - Provides thorough coverage of 3-dimensional drafting and design procedures. Concepts examined will include 3D primitives, User Coordinate Systems, 3D V points, complex extrusions, regions, shading and rendering, 3D models and supportive AutoCAD 3D databases. This course is 30 total contact hours and is also worth 60 LU credits to AIA members. Prerequisite: ARCH 136.

ARCH 256 Advanced AutoCAD 3 Cr. - Examines customization of AutoCAD menu files. Includes buttons, pop, icon, screen and tablet sections, creation and implementation of user defined AutoLISP functions and basic file management techniques. This course is 30 total contact hours and is also worth 60 LU credits to AIA members. Prerequisite: ARCH 136.

ARCH 270 Design Fundamentals Studio 1 4 Cr. - Studio investigations of fundamental design concepts, issues and process. Projects and exercises focus on the concepts of making three-dimensional forms, organization, proportion, scale, human activities and introductory site and building design relationships. Release of the student's potential creative capabilities is a primary concern of this course. Includes individual criticism, lectures and seminars. Prerequisite: ARCH 220.

ARCH 271 Design Fundamentals Studio 2 4 Cr. - Studio investigations of fundamental design concepts, issues and process. Projects and exercises focus on the concepts of making three-dimensional forms, organization, proportion, scale, human activities and introductory site and building design relationships. Release of the student's potential creative capabilities is a primary concern of this course. Includes individual criticism, lectures and seminars. Prerequisite: ARCH 270.

ARCH 280 Cooperative Education: Architectural Design and Drafting 1 4 Cr. - Work or observe on approved job sites. Student receives as varied and complete an experience as possible under job conditions. Credits are variable and based on the number of clock hours student spends on job site. Must be coordinated with the supervisor, instructor, and cooperative education specialist. Department permission required.

ART - Art

ART 101 Introduction to Art 3 Cr. - Addresses seeing, experiencing and appreciating the urban world as a reflection of human interaction with the socio-political and physical environment, such as with architecture, gardens, fountains, malls and public spaces. Examines how cities express the values, technology, geography and economic structure of many cultures in the light of aesthetic, historic, and critical factors. The Intro to Art series ART 101, 102, 103 may be taken in any order.

ART 102 Introduction to Art 3 Cr. - Addresses issues of fine art, particularly painting, sculpture and drawing, in terms of experiencing, appreciating and understanding their role in our lives. Art is examined in the light of aesthetic, historic, and critical issues. The Intro to Art series ART 101, 102, 103 may be taken in any order. Recommended: WR 115 placement; reading score of 21.

ART 103 Introduction to Art 3 Cr. - Addresses issues relating to design in our daily lives, particularly graphic design, and may include commercial, industrial, crafts, and product design. Examines how design expresses the values, technology, economy and taste of our culture in light of aesthetic, historic and critical issues. The Intro to Art series ART 101, 102, 103 may be taken in any order. Recommended: WR 115 placement; reading score of 21.

ART 115 Basic Design 3 Cr. - Black and white design foundations studio experience centers on creative problem-solving, developing perceptual awareness and understanding and establishing critical skills and personal artistic vision. Uses a broad range of materials, techniques and projects to design concepts with reference to historical and contemporary perspectives. Basic Design series ART 115, 116, 117 may be taken in any sequence.

ART 116 Basic Design 3 Cr. - Color and design foundations studio experience centers on creative problem-solving, developing perceptual awareness and understanding, and establishing critical skills and personal artistic vision. Uses a broad range of materials, techniques and projects to explore color and design concepts with reference to historical and contemporary perspectives. Basic Design series ART 115, 116, 117 may be taken in any sequence.

ART 117 Basic Design 3 Cr. - Three-dimensional foundations studio experience centers on creative problem-solving, developing perceptual awareness and understanding and establishing critical skills and personal artistic vision. Uses a broad range of materials, techniques and projects to explore three-dimensional design concepts with reference to historical and contemporary perspectives. Basic Design series ART 115, 116, 117 may be taken in any sequence.

ART 131 Introduction to Drawing 3 Cr. - Presents various ways of seeing and drawing to become more visually literate. Examines basic drawing techniques and materials, conceptual references for critical analysis of visual forms and basic theories of art within the historical context. May be taken three times.

ART 141 Introduction to Photography (Non-darkroom) 3 Cr. - Covers camera operation, selection and use of film, filters, lenses, flash units and other accessories. Students shoot 35mm color slides and have them processed commercially. Must own, or have access to a 35mm camera with adjustable exposure controls.

ART 142 Introduction to Photography (Darkroom) 3 Cr. - Introduces basic photographic techniques, processes and approaches: fundamental principles of camera operation and exposure, darkroom procedures involved in developing film and making prints, some methods by which photographs are finished/prepared for presentation. Should own or have access to a 35mm camera with adjustable exposure controls.

ART 143 Photography II 3 Cr. - Devoted to both solidifying and building upon various techniques, processes, and approaches learned in ART 142. Covers advanced exposure procedures, printing on fiber-based paper, bleaching and toning prints, and the effect of using colored filters with black and white film. Will be encouraged to continue using the camera as an instrument of expression and communication. May be taken three times.

ART 181 Introduction to Painting 3 Cr. - Studio experience with supporting slides, lectures, and occasional films. Presents different ways of seeing and painting to become more visually literate. Examines basic painting techniques and materials. Presents a conceptual framework for critical analysis, along with basic art theory. May be taken three times.

ART 197 Artist's Survival/Practical Issues 3 Cr. - Introduces issues relevant to artists' career. Includes portfolio preparation, documenting work, gaining representation and exposure as an artist, creating publicity, how the art market works, basic marketing and exhibition strategies, business concerns, art collecting. Field trips to local galleries and/or guest lecturers. Practical experience gained by participating in PCC gallery installations.

ART 204 History of Western Art 3 Cr. - Examines visual art and architecture as a reflection of human interaction with the socio-political and physical environment of a particular era. Objectives center on viewing, analyzing and comparing many art forms in a historical context, and covers the Paleolithic, Ancient Near Eastern, and Aegean cultures, beginning about 30,000 BCE. Recommended: WR 121 placement; RD 115 placement.

ART 205 History of Western Art 3 Cr. - Examines visual art and architecture as a reflection of human interaction with the socio-political and physical environment. Objectives center on viewing, analyzing and comparing many art forms in a historical context, and covers Late Antiquity, Early Christian and Medieval periods, beginning about 500 BC. Recommended: WR 121 placement; RD 115 placement.

ART 206 History of Western Art 3 Cr. - Examines visual art and architecture as a reflection of human interaction with the socio-political and physical environment. Objectives center on viewing, analyzing and comparing many art forms in a historical context, and covers the Renaissance and Baroque periods, beginning about 1300 AD. Recommended: WR 121 placement; RD 115 placement.

ART 207 History of Asian Art 3 Cr. - Explores and analyzes the visual arts in relation to the culture of India from the Neolithic through the modern period. Recommended: WR 121 placement; RD 115 placement.

ART 208 History of Asian Art 3 Cr. - Explores and analyzes the visual arts in relation to the culture of China from the Neolithic through the modern period. Recommended: WR 121 placement; RD 115 placement.

ART 209 History of Asian Art 3 Cr. - Explores and analyzes the visual arts in relation to the culture of Japan from the Neolithic through the modern period. Recommended: WR 121 placement; RD 115 placement.

ART 210 Women in Art 3 Cr. - Covers the work of women artists from antiquity to the present. The works of the most important women artists from each period will be studied in relation to the changing roles of women in society and to the art produced contemporaneously by men.

ART 211 Modern Art History - 19th Century Art in Europe 3 Cr. - The Nineteenth Century saw the beginning of the modern world and modern societies in Europe. Examines and analyzes the visual arts to reveal some effects of those changes, and to gain insight into our modern world. Recommended: WR 121 placement; RD 115 placement.

ART 212 Modern Art History - Early 20th Century Art 3 Cr. - The turn of the Twentieth Century witnessed revolutions in science and technology, psychology and philosophy. Examines and analyzes the visual arts to reveal some effects of those changes, and to gain insight into our modern world. Recommended: WR 121 placement; RD 115 placement.

ART 213 Modern Art History - Art Since 1945 3 Cr. - World War II ended the supremacy of Europe in the visual art world and focused attention on America. Examines and analyzes art since 1945 to explore the ideas behind it, to reveal our culture and values, and to gain a greater understanding and appreciation of contemporary art. Recommended: WR 121 placement; RD 115 placement.

ART 218 Lettering Calligraphy I 2 Cr. - Covers practical and creative uses of calligraphy, lettering principles, techniques and funnns, and discusses the traditions and historical development of letters. Fall term: Roman alphabet, lower and upper case. Winter term: Italic alphabet, lower and upper case. Spring term: Carolingian and uncial alphabet styles. Each term may be taken once for a maximum of six credits.

ART 220 Advanced Lettering and Seminar 2 Cr. - Covers lettering techniques and shop practices necessary for commercial production of calligraphic and drawn letters. Work involves problem solving activities the professional calligrapher is likely to encounter on the job.

ART 221 Computer Graphics in Arts I 4 Cr. - Introduces the computer as a tool for imaginative exploration in art, using paint, desktop publishing, and animation programs. Students encouraged to carry over ideas and principles of art from such courses as basic design, drawing, painting and graphic design.

ART 221A Computer Graphics in Arts I 2 Cr. - Introduces the computer as a tool for imaginative exploration in art, using paint, desktop publishing, and animation programs. Students encouraged to carry over ideas and principles of art from such courses as basic design, drawing, painting and graphic design.

ART 224 Computer Graphics in Arts II 4 Cr. - Continues ART 221, providing further experience with programs previously used and introducing new, more advanced software. Emphasizes animation as well as computer use in art, advertising, video, music, and business graphics. Recommended: ART 221.

ART 231 Drawing 3 Cr. - Studio experience with supporting slides, lectures, and occasional films. Further exploration of different ways of seeing and drawing to become more visually literate. Presents basic drawing techniques and materials. Employs conceptual references for critical analysis of visual forms, along with basic theories of art within the historical context. May be taken three times.

ART 237 Life Drawing 3 Cr. - Studio experience with supporting slides, lectures, and occasional films. Covers studying and drawing the human form, using professional models. Presents the structure, form and proportions of human figure, applying various drawing techniques and concepts. Emphasizes personal artistic growth with attention to composition. May be repeated three times. Six credit hours drawing/painting, or instructor permission required.

ART 241 Nature Photography 3 Cr. - Covers specialized equipment and methods of professional nature photography. Work in color and/or black and white (color processed commercially at student expense). Includes field trips and discusses marketing nature images. Recommended: 35mm (or larger) SLR with a selection of lenses. Recommended: ART 141, 142; or instructor permission.

ART 242 Small Format Portraiture 3 Cr. - Covers lighting, posing, specialized equipment, and business practices. Primarily B&W; some color printing possible (color film processed at student expense). Should have access to 35mm SLR camera and lens of approximately 85mm (or larger format SLR and comparable lens). Recommended: ART 141, 142; or instructor permission.

ART 243 The Photographic Portfolio 3 Cr. - Provides framework within which students may pursue their unique photographic vision. Explores role of photography in the arts, and rights and responsibilities of the photographic artist. Work in black and white and/or color (color processed at student expense). Prerequisite: ART 143.

ART 253 Ceramics I 3 Cr. - Presents all aspects of introductory clay processes: development of ideas, care and preparation of clay, skills and understanding related to clay work on and off the potter's wheel, glazes and firing procedures. May be taken three times.

ART 256 Ceramics II 3 Cr. - Further explores all aspects of clay processes: development of ideas, care and preparation of clay, skills and understanding related to clay work on and off the potter's wheel, glazes and firing procedures. May be taken three times.

ART 266 Introduction to Slide Photography: London Quarter 3 Cr. Introduces color slide photography using slides for assignments and critiques - non lab. Covers camera use, lenses, aperture and shutter relationships, and exposure. Uses London's people and culturescape for subject matter.

ART 276 Popular Art of Mexico 3 Cr. - Investigates social and artistic issues in Mexican culture through painting and mixed media projects. Explores concepts and techniques used by Mexican artists to express a contemporary understanding of Mexico's rich visual history.

ART 277 Life Painting 3 Cr. - Studio experience with supporting slides, lectures, and occasional films. Investigates seeing and painting the human form to become more visually literate. Encourages personal interpretation and vision. Presents the conceptual framework for critical analysis, along with basic theories of art in the historical context. Six credit hours of drawing or painting, or instructor permission required. May be taken three times.

ART 281 Painting 3 Cr. - Studio experience with supporting slides, lectures, and occasional films. Explores different ways of seeing and painting to become more visually literate. Examines basic painting techniques and materials. Presents the conceptual framework for critical analysis, along with basic theories of art in the historical context. May be taken three times.

ART 284 Watercolor I 3 Cr. - Lectures, demonstrations, films, slides and specific problems dealing with color relationships, composition, and watercolor techniques. Explores different ways of seeing and painting to become more visually literate. Examines basic watercolor techniques and materials. Presents the conceptual framework for critical analysis, along with basic theories of art in the historical context. May be taken three times.

ART 287 Watercolor II 3 Cr. - Lectures, demonstrations, films, slides, and specific problems dealing with color relationships, composition, and watercolor techniques. Further investigates ways of seeing and painting using watercolor paint. Presents the conceptual framework for critical analysis, along with basic theories of art in the historical context. May be taken three times.

ART 291 Sculpture: Plaster/ Clay 3 Cr. - Studio experience introducing plaster and clay as primary materials. Continues the development of 3-dimensional knowledge while exploring traditional materials; plaster and clay. Concentration on plaster as a material for making multiples, and the use molds will be introduced. Both the 'figure' and 'abstraction' will be addressed as subject matter. Completion of ART 293 is strongly recommended before enrolling in this course.

ART 292 Sculpture: Welding 3 Cr. - Studio experience introducing use of oxy-acetylene torches for basic welding and cutting skills. Explores sculptural issues and concepts using steel. Completion of ART 293 is strongly recommended before enrolling in this course.

ART 293 Sculpture 3 Cr. - Studio experience exploring sculptural form, processes, techniques, and concepts while addressing historical and contemporary issues. Uses a variety of materials and techniques to develop and encourage creative problem solving. Critiques, discussions, and sculpture presentations establish critical skills necessary to

evaluate sculpture, explore artistic intent, examine aesthetic and structural solutions, and expand perceptual awareness. Includes demonstrations, slides, lectures and occasional films. May include field trips.

ART 295 Sculpture Welding II 3 Cr. - Develops the artist's knowledge and skills with Oxyacetylene welding and cutting, SMAW (stick) welding, GMAW (wire) welding and TIG (gas tungsten) arc welding processes. Explores metal sculpture design and construction with supporting demonstrations, slides, lectures and films. Completion of ART 293 strongly recommended. No prior welding experience is required.

ASEP - Automotive Service Educational Program

ASEP 100 Introduction to ASEP 8 Cr. - Provides overview of automotive systems and the automotive industry. Studies use of service manuals, tool use and purchase, precision measurement, shop safety procedures and basic vehicle service, such as, lube, oil and filter (LOF) and pre-delivery inspections (PDI). Also spend nine weeks at the dealership on a trial basis. Placement into MTH 55 or higher; WR 121; and attainment of a Dealership sponsor required.

ASEP 101 Electrical Systems and Air Conditioning 16 Cr. - Study and work with General Motors Electrical Systems, basic electrical, components, series, parallel and series parallel circuits, voltage, current, amperage, resistance, ohms, mhos, batteries, starters, alternators, wiper motors, wiring, small motors, semi-conductors, lights, meters, scopes, wiring diagrams, SIR (Supplemental Inflatable Restraint System), radios, BCM (Body Control Module), and instrumentation. Covers heating and air conditioning systems, components, compressors, air conditioning control systems, vacuum systems, electrical systems, diagnosing, repairing, recycling and the proper handling of R-12, 134A, and anti-freeze. Prerequisite: ASEP 100.

ASEP 102 Engine Repair and Drive Train 16 Cr. - Study and work with gasoline and diesel engines used on General Motors vehicles; components, engine blocks, cylinder heads, pistons, valves, cam, crankshaft, gaskets, oil, coolant, repair, diagnosis, and some areas of machining. Manual drive train and axles on and off the car; components, gears, bearings, clutches, CV joints, transfer cases, differentials, axle shafts, drive lines, seals, bushings, flywheel, leakage, gaskets, cables, cylinders and fluids. Work with automatic transmissions and transaxles used on General Motors vehicles, trace the power flow, diagnose problems, disassemble, inspect and evaluate, clean and layout components. Re-assemble and adjust transmission and test the unit for proper operation. Work on approved customers vehicles diagnosing, servicing and repairing as needed. Provides specific diagnostic guidelines and covers procedures that take place in a dealership. Prerequisite: ASEP 100.

ASEP 103 Engine Performance 16 Cr. - Studies operation, diagnosis and testing of systems used to deliver spark ignition and air/fuel to the combustion chamber of the engine, reduce vehicle emission levels and diesel engine operation. Prerequisite: ASEP 100.

ASEP 104 Steering, Suspension and Brakes 12 Cr. - Studies and works with suspension systems used on General Motors vehicles; components, steering gears, wheel bearings, alignment angles, rear wheel tracking, adjustments and correction, wheel balance and factors contributing to vehicle handling and tire wear. Studies principles of automotive brake systems on

General Motors vehicles. Practices disassembly and assembly of system components using school owned equipment. Includes proper measuring and machinery techniques of brake drums and rotors. Prerequisite: ASEP 100.

ASL - American Sign Language

ASL 101 First Year American Sign Language I 3 Cr. - Emphasizes active conversational competence in ASL. Includes visual readiness skills, vocabulary, culture and grammar used for meeting communication needs. For beginners. Proficiency target level: Novice high.

ASL 102 First Year American Sign Language II 3 Cr. - Continues work of ASL 101. Emphasizes active communication in ASL. Proficiency target level: Intermediate low. Sign Language Proficiency Interview may be required. Prerequisite: ASL 101. Prerequisite course must have been completed within one year of class enrollment; proficiency interview within one term.

ASL 103 First Year American Sign Language III 3 Cr. - Continues work of ASL 102. Emphasizes active communication in ASL. Proficiency target level: Intermediate mid. Sign Language Proficiency Interview may be required. Prerequisite: ASL 102. Prerequisite course must have been completed within one year of class enrollment; proficiency interview within one term.

ASL 130 Deaf Studies 3 Cr. - Introduces two perspectives of Deaf community, past and current perspectives on education, services, employment, legislation, signers vs interpreters, signaling devices, terminology, communication system and attitudes toward language.

ASL 150 Accelerated American Sign Language 4 Cr. - For beginners. Covers the material of ASL 101 and half of ASL 102 in an accelerated format. Emphasizes active conversational competence in ASL. Includes visual readiness skills, vocabulary, culture and grammar used for meeting communication needs. Recommended to the highly motivated student. Proficiency target level: Intermediate low.

ASL 151 Accelerated American Sign Language 5 Cr. - Covers the material of half of ASL 102 and ASL 103 in an accelerated format. Emphasizes active communication in ASL. Proficiency target level: Intermediate mid. Sign Language Proficiency Interview may be required. Prerequisite: ASL 102 or ASL 150. Prerequisite course must have been completed within one year of class enrollment; proficiency interview within one term.

ASL 201 Second Year American Sign Language IV 3 Cr. - Continues work of first year ASL, reviewing, expanding, and perfecting expressive skill, structure, and vocabulary for the purpose of active communication. Emphasizes active communication in ASL. Proficiency target level: Intermediate mid. Sign Language Proficiency Interview may be required. Prerequisite: ASL 103. Prerequisite course must have been completed within one year of class enrollment; proficiency interview within one term.

ASL 202 Second Year American Sign Language V 3 Cr. - Continues work of ASL 201. Emphasizes active communication in ASL. Increased emphasis on exploring, analyzing the rules and presenting ASL stories and literature. Proficiency target level: Intermediate mid. Sign Language Proficiency Interview may be required. Prerequisite: ASL 201. Prerequisite course must have been completed with one year of class enrollment; proficiency interview within one term.

ASL 203 Second Year American Sign Language VI 3 Cr. - Continues work of ASL 202. Emphasizes active communication in ASL. Increased emphasis on exploring, analyzing the rules, discussing, developing and presenting ASL literature and poetry. Proficiency target level: Intermediate high. Sign Language Proficiency Interview may be required. Prerequisite: ASL 202. Prerequisite course must have been completed within one year of class enrollment; proficiency interview within one term.

ASL 250 Accelerated American Sign Language 4 Cr. - Covers the material of ASL 201 and half of ASL 202 in an accelerated format. Emphasizes active communication in ASL. Increased emphasis on exploring, analyzing the rules, discussing, developing and presenting ASL literature and poetry. Proficiency target level: Intermediate mid. Sign Language Proficiency Interview may be required. Prerequisite: ASL 103 or ASL 151. Prerequisite course must have been completed within one year of class enrollment; proficiency interview within one term.

ASL 251 Accelerated American Sign Language 5 Cr. - Covers the material of half of ASL 202 and ASL 203 in an accelerated format. Emphasizes active communication in ASL. Continues emphasis on the ASL literature, poetry and other topics. Proficiency target level: Intermediate high. Sign Language Proficiency Interview may be required. Prerequisite: ASL 202 or ASL 250. Prerequisite course must have been completed within one year of class enrollment; proficiency interview within one term.

ATH - Anthropology

ATH 101 Introduction to Physical Anthropology 3 Cr. - Presents physical anthropology and the study of human biological evolution in the context of modern genetics and primate behavior studies. Examines human fossil record, as well as the diversity and commonality of present and past populations of humankind.

ATH 102 Introduction to Archaeology and Prehistory 3 Cr. - Introduces methods and techniques used by archaeologists to study the development of human culture. Provides a survey of world prehistory, while emphasizing the development of social complexity and the origins of agriculture that precede both new and old world civilizations.

ATH 103 Introduction to Cultural Anthropology 3 Cr. - Examines modern human cultures. Analyzes a variety of ethnographic examples from various world societies to understand the diverse aspects of language, technology, economy, social structure, governance, religion, world views and expressive aspects of life.

ATH 207 Cultural Anthropology: Culture Concepts 3 Cr. - Examines different schools of anthropological thought and the concept of culture from a historical perspective. Emphasizes the importance of culture in explaining similarities and differences in our evolving world system.

ATH 208 Cultural Anthropology: Cultures of the World 3 Cr. - Introduces ethnographic descriptions of a representative sample of the cultural variations among contemporary peoples. Compares various subsistence systems and levels of socio-political integration.

ATH 209 Cultural Anthropology: Cultural Growth & Change 3 Cr. - Examines processes of cultural growth and change, the development of contemporary anthropological theory and the rapidly growing fields within applied anthropology. Ethnographic techniques presented so students may use them to examine the changing culture of our complex society.

ATH 210 Selected Topics Ethnology: 3 Cr. - Introduces life styles and interactions with their environments of peoples in a selected part of the world. Uses ethnographic and other information for concentrated study of the cultural diversity and environmental adaptations of those peoples.

ATH 211 Selected Topics in Anthropology 3 Cr. - Focuses on a specific anthropological topic and explores it in detail. Topics are drawn from the four sub-fields of anthropology and provide an in depth examination and analysis of the chosen subject. Topic specific theories and methods also highlighted.

ATH 214 Human Environments: Ecological Aspects 3 Cr. - Examines ecological relationships between human societies and their natural environments. Clarifies human's biological relatedness to the world's natural ecosystems and then presents a look at the ensuing disruptions in nature and in human cultures.

ATH 215 Human Environments: Energy Consideration 3 Cr. - Explores issue of energy, ecologically and in terms of human use of energy. Examines energy crisis from the perspective of the individual energy user. Examines worldwide consequences of energy consumption.

ATH 230 Native Americans of Oregon 3 Cr. - Presents history of anthropological research and the prehistory, languages and culture areas of Oregon's native peoples. Individual native groups are studied to better depict the life ways of Oregon's major cultural and geographic divisions.

ATH 231 Native Americans of the Northwest 3 Cr. - An in-depth survey of the native peoples of Oregon, Washington, Alaska, and Southwest Canada. Individual native groups are studied to depict cultural variation within the region.

ATH 232 Native North Americans 3 Cr. - Surveys anthropology and distribution of the native North American peoples. Presents history of anthropological research and the prehistory, languages and culture areas of native North America. Specific native groups will be surveyed to better depict the life ways of the major cultural and geographic divisions.

ATH 235 Survey of Prehistoric Mexico and Central America 3 Cr. - Studies the development, form and history of pre-Columbian Indian civilizations, surveying the achievements of the Maya, the Aztec and their neighbors.

ATH 298 Independent Study: Anthropology 3 Cr. - Individualized, advanced study in areas of anthropology not considered in other courses, to meet special interests or program requirements. Complete a term project and readings approved by the instructor. Recommended: prior study in anthropology and instructor permission.

AVS - Aviation Science

AVS 110 Helicopter Private Ground School 4 Cr. - Covers fundamentals of flight, helicopter systems, aeronautical publications, Federal Aviation Regulations, navigation, flight planning, radio procedures and weather. Presents sufficient knowledge to prepare for the FAA Private Pilot Rotorcraft knowledge test.

AVS 115 Helicopter Private Pilot Flight 3 Cr. - Familiarizes student with operation of helicopters. Fundamentals of flight, emergency procedures, air traffic control and operational procedures are explored. Approximately 50 hours of flight training prepare student for the FAA Private Pilot Rotorcraft Helicopter practical test. Includes pre and post flight ground instruction. For current flight fees, contact the Aviation Science office at 503-614-7246. Corequisite: AVS 110.

AVS 120 Airplane: Private Pilot Ground School 4 Cr. - Covers fundamentals of flight, aeronautical publications, Federal Aviation Regulations, navigation, flight planning, radio procedures and weather. Presents sufficient knowledge to prepare for the FAA Private Pilot knowledge test. Open to the general public.

AVS 125 Airplane: Private Pilot Flight 3 Cr. - Familiarizes student with operation of single engine aircraft. Fundamentals of flight, air traffic control and operational procedures are explored. Approximately 50 hours of flight training prepare the student for the FAA Private Pilot practical test. Pre- and post-flight ground instruction and video review included. For current flight fees contact the Aviation Science office at 503 614-7246. Corequisite: AVS 120.

AVS 127 Introduction to Aviation 4 Cr. - Examines aviation from early flight to future potentials. Introduces career opportunities in all fields of aviation and outlines career advancement possibilities. Provides general overview of pilot certificates and ratings and training aircraft used. May include visits to area aviation facilities. Open to general public.

AVS 130 Instrument Ground School 3 Cr. - Covers fundamentals of instrument flight planning, use of flight and navigation instrumentation, air traffic control procedures, radio navigation systems including the concepts of instrument flight. Presents sufficient knowledge to prepare for the FAA Instrument Rating knowledge test. NOTE: Course not recommended without prior flight experience. Prerequisite: AVS 120.

AVS 135 Airplane: Instrument Flight 3 Cr. - Receive training in instrument flight operations. Approximately 48 hours of flight time (including flight training device) prepare student for the FAA instrument rating practical test. For current flight fees contact the Aviation Science office at 503 614-7246. Prerequisite: AVS 125 and FAA Private Pilot Certificate. Corequisite: AVS 130.

AVS 137 Applied Aerodynamics 4 Cr. - Introduces aerodynamics. Explores various concepts and theories relevant to modern aviation. Open to the general public (no math prerequisite.)

AVS 140 Airplane: Commercial Pilot Ground 5 Cr. - Covers advanced concepts of flight maneuvers, Federal Aviation Regulations, weight and balance, and other aeronautical skill topics. Presents sufficient knowledge to prepare for the FAA Commercial pilot knowledge test. Prerequisite: AVS 130.

AVS 145 Introduction to Commercial Airplane 3 Cr. - Begins commercial pilot training activities and includes cross-country flight operations and a review of previous items learned during private pilot training. Learn how to plan and execute a cross-country flight as a commercial pilot. For current flight fees contact the Aviation Science office at 503 614-7246. Prerequisites: AVS 135; FAA Private Pilot Certificate with Instrument Rating. Corequisite: AVS 140.

AVS 147 Aircraft Systems and Structure- 4 Cr. - Designed to give students the background in aircraft systems and structures that will enable them to progress into more advanced aircraft. Provides understanding of the safe and efficient operation of aircraft systems. Prior flight experience recommended.

AVS 150 Helicopter: Commercial Ground 3 Cr. - In depth study of aerodynamics systems, performance, aeronautical charts, regulations, and flight maneuvers all relating specifically to helicopters. Presents sufficient knowledge to prepare for the FAA Commercial Pilot Rotorcraft helicopter written test.

AVS 155 Helicopter: Introduction to Commercial Flight 3 Cr. - Begins the commercial pilot training activities and includes approximately 55 hours of flight time. Cross-country flight procedures and emergency maneuvers are the focus. Students must hold a private pilot certificate prior to enrollment. For current flight fees contact the Aviation Science office at 503-614-7246.

AVS 205 Helicopter: Commercial Flight A 3 Cr. - Continues the Commercial Pilot Rotorcraft Helicopter training Activities and includes cross-country flight operations and a review of previous items learned during the introduction to Commercial Pilot training. Increase knowledge about efficiently planning and executing cross-country flights as well as off Airport operations required for Commercial Pilots. Prerequisite: AVS 155. Co-requisite: AVS 150.

AVS 215 Helicopter: Commercial Flight B 4 Cr. - Continues the Commercial Pilot Rotorcraft Helicopter training activities and includes instrument flight training, cross-country flight operations and a review of previous items learned during

AVS 225 Airplane: Commercial Flight 4 Cr. - Concludes commercial pilot training activities and includes complex flight operations, multi-engine operations, advanced systems and performance maneuvers. Students will be prepared to take the Commercial Pilot single-engine land practical test and the multi-engine land additional class rating practical test upon successful completion of the course. For current fees, contact the Aviation Science office at 503-614-7246. Prerequisites: AVS 145; FAA private Pilot Certificate w/Instrument Rating.

AVS 227 Aviation Careers 4 Cr. - Designed to prepare students for a career in aviation. Explores aviation employment opportunities. Includes interview and resume preparation. Intended for second year AVS students.

AVS 230 Airplane: Certified Flight Instructor Ground 4 Cr. - Includes flight instruction fundamentals, evaluation techniques, and related skills necessary for a Flight Instructor certificate. Emphasizes instruction techniques and presents sufficient knowledge to prepare for the FAA Fundamentals of Instructing and CFI knowledge tests. Prerequisite: AVS 140.

AVS 235 Airplane: Certified Flight Instructor Flight 2 Cr. - Provides a structured environment to learn to fly the aircraft from the instructor's seat. Learn to explain, demonstrate and to assess flight performance. Prepares students for the FAA Flight Instructor practical test. For current fees contact the Aviation Science office at 503 614-7246. Prerequisites: AVS 225; FAA Commercial Pilot certification. Corequisite: AVS 230.

AVS 237 Aviation Law and Regulations 4 Cr. - Explores the applicable Federal Aviation Regulations through case law and current events. The FAA's role in the development and regulation of the industry is examined. Covers how to reference, interpret and explain aviation law and regulations.

AVS 240 Airplane: CFII/MEI Ground 3 Cr. - Includes Instrument and Multi-Engine subject areas for a Flight Instructor certificate. Presents sufficient knowledge to prepare for the Certified Flight Instructor Instrument knowledge test. Prerequisite: AVS 230.

AVS 245 Airplane: CFII/MEI Flight 2 Cr. - Instruction, flight training and practice teaching that will allow the student to obtain the aeronautical skill and knowledge necessary to apply for the FAA Flight Instructor Instrument and Multi-Engine practical test. Includes 40 hours of dual

instruction. For current flight fees contact the Aviation Science office at 503 614-7246. Prerequisites: AVS 235; FAA Commercial Pilot Certificate with Instrument; CFI ratings. Corequisite: AVS 240.

AVS 255 Airplane: Pilot Performance 1 Cr. - Designed to expose students to Cockpit Resource Management. Focuses on workload management and check list usage. Includes 10 hours of dual flight instruction. For current fees, contact the Aviation Science office at 503 614-7246. Prerequisites: AVS 225; FAA Commercial Pilot Certificate with Instrument rating.

AVS 260 Helicopter: CFI Ground 3 Cr. - Covers fundamentals of instruction, development of lesson plans, private and commercial topics from an instructional point of view. Presents sufficient knowledge to prepare for the FAA Fundamentals of Instruction and Certified Flight Instructor Rotocraft Helicopter written test.

AVS 265 Helicopter: CFI Flight 3 Cr. - Student receives 25 hours of flight training including instructor seat flying through all commercial helicopter maneuvers. For current flight fees contact the Aviation Science office at 503-614-7246.

AVS 267 Economics of Flight Operations 4 Cr. - Examines management philosophies and accounting procedures as they apply to general aviation. Includes business aspects of maintaining and flying aircraft, operating airport facilities, and managing passenger/cargo activities. Guest speakers from the industry may be featured.

AVS 275 Airplane: Professional Pilot 3 Cr. - Provides further post-commercial instruction and PIC flight time in single and multi-engine aircraft for those not selecting the flight instructor option. For current flight fees contact the Aviation Science office at 503 614-7246. Prerequisites: AVS 225; FAA Commercial Pilot Certificate with Instrument rating.

AVT - Audio Visual Technology

AVT 101 Introduction to Audio-Visual Communications Technology 3 Cr. - Overview of audio-visual (AV) communications industry and knowledge, skills and abilities necessary for employment in industry. Students who complete course successfully will be knowledgeable about industry trends, opportunities, and resources available to AV technicians. Also be proficient in using the technology required to take the online courses included in the program. Will be able to identify and describe the basic functions of various types of cabling, connectors, equipment and system components used in the audio, video, and system integration sectors of the industry.

AVT 110 Audio Technology 3 Cr. - Develops working knowledge of how to install/terminate audio cabling, distinguish between types of audio signals, recognize appropriate audio equipment, install audio components, verify audio system operations, operate audio systems, and complete appropriate documentation. Completion of integrated systems and rental staging application are included. Prerequisite: AVT 101 or department permission. Prerequisite or concurrent: AVT 130.

AVT 120 Video Technology 5 Cr. - Develops working knowledge of how to install/terminate video cabling, distinguish between types of video signals, recognize appropriate video equipment, install video equipment, verify video system operation, operate video systems, and complete appropriate documentation. Completion of integrated systems and rental staging applications included. Prerequisite: AVT 101 or department permission.

AVT 130 Electronics for AV 4 Cr. - Provides a basic understanding of electronics principles, circuits, and how they work, and techniques and skills necessary for working with electronic equipment used in AV systems. Prerequisite: AVT 101 or department permission. Prerequisite or concurrent: AVT 110.

AVT 201 Integrated Audiovisual Systems I 3 Cr. - Provides skills required for installing/uninstalling audiovisual equipment on a project basis. Introduces advanced technologies in control and display systems. Students will envision a project from start to finish, enabling them to address planning, concerns, and outcomes of a well-orchestrated presentation system.

AVT 202 Integrated Audiovisual Systems II 3 Cr. - Provides skills required for installing/uninstalling audiovisual equipment at the project level. Introduces advanced technologies in the areas of display systems, audio and video conferencing, lighting, RF systems, and home theater. In the final project, students will stage a presentation, both on paper and in the field in partnership with industry experts. Prerequisite: AVT 201.

BA - Business Administration

BA 95 Introduction to Accounting 3 Cr. - Presents double-entry accounting as related to service and merchandising business. Covers accounting cycle, including journalizing, posting to the general ledger, preparation of financial statements, petty cash, bank reconciliations, combined journal, special journals and payroll.

BA 96 Accelerated Computerized Accounting I 6 Cr. - Provides basic accounting skills using computerized systems for entry level positions in accounts receivable/payable. Principle topics include accounting for a sole proprietorship, accounting cycle, cash/combined journal, accounts receivable, inventory, plant assets and depreciation, purchases and cash payments, sales and cash receipts and accounting for payroll.

BA 97 Accelerated Computerized Accounting II 6 Cr. - Builds on accounting skills learned in BA 96. Computerized practice sets in accounting for a manufacturing company and comprehensive problems on financial statement company and financial statement analysis are used.

BA 98 Accelerated Computerized Accounting II 3 Cr. - Builds on the accounting skills learned in BA 97. Computerized practice sets in accounting for a manufacturing company and a comprehensive problem on financial statement analysis are used.

BA 101 Introduction to Business 4 Cr. - Survey course in the field of business including topics such as management, finance accounting, marketing, production, computers, international business, small business, investments and other areas of general business interest.

BA 113 Business Credit Principles 3 Cr. - Covers primary objectives of credit management: minimizing bad debt losses and maximizing sales volume. Stresses the need to investigate credit applicants, establish credit limits and follow orderly collection procedures.

BA 115 Credit Techniques 3 Cr. - Provides hands-on experience in applying the credit principles studied in BA 113. Focuses on using the computer, telephone, and other office equipment to complete the tasks of consumer and commercial credit departments. Prerequisite: BA 113 or instructor permission.

BA 131 Computers in Business 4 Cr. - Course in computer literacy that covers computer concepts and typical activities computers are used for in business. Includes introduction to hardware and software, operating systems, word processing, spreadsheet, database and electronic mail.

BA 141 Introduction to International Business Law 3 Cr. - Surveys international aspects of traditional business law subjects (sales, commercial paper, corporate law, agency, etc.) and related subjects (anti-trust law, administrative law, trade regulation, etc.).

BA 160 Purchasing I 3 Cr. - Covers fundamentals of purchasing, including role of the purchasing function, purchasing objectives and policies, operating procedures, purchase descriptions and specifications, sources of supply, types of contracts and ordering agreements, legal considerations, and ethical and professional standards.

BA 161 Purchasing II 3 Cr. - Covers more advanced purchasing concepts and techniques, such as win-win negotiations, total cost management, supplier management, continuous quality improvement, value analysis and value engineering, and inventory management. Recommended: BA 160.

BA 177 Payroll Accounting 3 Cr. - Provides fundamental skills needed to prepare a business's payroll. Introduces payroll and personnel recordkeeping, calculation of pay, payroll journalizing, regulations covering social security, withholding, and unemployment. Recommended: Microcomputer experience; MTH 60 or higher; BA 95 or 96.

BA 203 Introduction to International Business 3 Cr. - Explores processes of international trade, whether the company is an importer, exporter, or a multinational firm. Forms a basis for further study and specialization in the international business field.

BA 205 Solving Communication Problems with Technology 4 Cr. - Focuses on using current technology to create, revise, and design business documents: letters, memos, e-mail, reports, minutes, simple instructions, and resumes. Uses library and Internet resources to collect information. Students will deliver oral presentations using presentation tools. Recommended: WR 121; BA 131; CAS 133; or computer literacy.

BA 206 Management Fundamentals 3 Cr. - Introduces basic business management concepts as well as current management experience and research regarding organizing and managing processes, resources and people to achieve the organization's purposes. Changes in management included, recognizing that society and technology places new demands on business enterprises.

BA 207 Introduction to E-Commerce 4 Cr. - Presents concepts and skills for the strategic use of e-commerce and related information technology from three perspectives: business to consumers, business-to-business, and intra-organizational. Examination of e-commerce in altering the structure of entire industries, and how it affects business processes including electronic transactions, supply chains, decision making and organizational performance.

BA 210 Advanced Accounting Spreadsheet Application 3 Cr. - Presents advanced functions of electronic spreadsheets as related to the accounting profession. Also applies to finance, marketing, operations, and other business occupations. Recommended: (CAS 170 or 174) or CIS 125S; and (BA 95 or 96) or 211.

BA 211 Principles of Accounting I 3 Cr. - Introduces financial accounting theory, including the accounting cycle, analysis and recording of transactions, and reporting financial information in accordance with generally accepted accounting principles. Recommended: MTH 95 or higher; (BA 95 or 96).

BA 212 Principles of Accounting II 3 Cr. - Continues the presentation of fundamental issues begun in BA 211. Introduces statement of cash flows and financial statement analysis. Prerequisite: BA 211.

BA 213 Principles of Accounting III 3 Cr. - Covers managerial accounting: the cost/volume/profit relationship, manufacturing costs, cost decisions, management planning, budgeting and responsibility accounting. Prerequisite: BA 211.

BA 215 Basic Cost Accounting 3 Cr. - Covers cost accounting concepts, application, and techniques employed in the accumulation and reporting of manufacturing cost data. Particular attention paid to job order costing, process costing, joint and by-product costing, standard costs, budgeting and analysis of variances. Recommended: BA 96 or 211.

BA 216 Accounting Problems 3 Cr. - Reinforces understanding and offers new perspectives through reviewing and applying theory to a variety of accounting problems. Strongly recommended: BA 213.

BA 218 Personal Finance 3 Cr. - Studies role of the consumer in our economy, problems of financing family and individual needs, including budgeting, banking relationships, charge accounts, installment buying, insurance, wills, real estate investing and personal taxes.

BA 222 Financial Management 3 Cr. - Introduces concepts, techniques and decision process to manage the firm's sources and uses of funds. Includes working capital, ratio analysis, leverage, operating budgets, working capital management, cost of capital, capital budgeting and evaluation of financial alternatives. Recommended: BA 212; MTH 65.

BA 223 Principles of Marketing 3 Cr. - Provides a general knowledge of marketing with emphasis on the marketing mix elements and target markets for consumer and industrial products. Covers marketing strategies, customer behavior and international markets.

BA 224 Human Resource Management 3 Cr. - Attention given to human behavior, employment, employee development, performance appraisal, wage and salary administration, employment and job rights, discipline and due process, and labor-management relations.

BA 226 Business Law I 3 Cr. - Discusses fundamental concepts, principles, and rules of law that apply to business transactions. Includes function and operation of the courts, business crimes, torts and contract law, plus application of the Uniform Commercial Code to business activities.

BA 227 Business Law II 3 Cr. - Discusses fundamental concepts, principles and rules of law that apply to business organizations. Includes agency, property law, sales transactions, partnerships, corporations and government regulations. Recommended: BA 226.

BA 228 Computer Accounting Applications 3 Cr. - Introduces double-entry, fully integrated computerized general ledger software on the microcomputer. Topics include general ledger, accounts receivable, accounts payable, payroll and inventory. Recommended: BA 96 or 211; or instructor permission.

BA 234 International Marketing 3 Cr. - Covers nature and concepts of international marketing including techniques for identifying potential markets and assessing uncontrollable elements such as economic, political and socio-cultural environmental factors. International marketing strategies related to product/service, pricing, promotion and distribution are examined.

BA 237 Fundamentals of Import/Export 3 Cr. - Examines motivations and procedures for the import and export of goods and services. Emphasizes U.S. import/export regulations, documentation, logistics, community resources and customer services.

BA 238 Sales 3 Cr. - Offers a blend of practicality and theory on industrial, commercial and retail sales. Demonstrate and practice basic sales techniques, explore communication and motivation as they relate to selling and examine the function of sales relative to the total marketing program.

BA 239 Advertising 3 Cr. - Covers the basics of planning, creating, using, and placing advertising in the business world. Reviews entire field of advertising as basis for students who select advertising as a career or as an integral part of a marketing program.

BA 240 Governmental Accounting 3 Cr. - Develops conceptual foundation underlying the accounting procedures, records and statements used to summarize and disclose the results of non-profit and governmental activities. Recommended: BA 95 or 96.

BA 242 Introduction to Investments 3 Cr. - Studies popular investment vehicles—what they are, how they can be utilized and the risk and return possibilities. Emphasizes stocks and bonds, mutual funds, options and real estate. Examines securities exchanges and the functions of the broker.

BA 244 Introduction to Records Management 3 Cr. - Offers a study of the life cycle of records on all types of media from creation through disposition. Considers responsibilities of the records manager as they relate to each subsystem of the total records management program and to the needs of all types of organizations.

BA 247 Advanced Sales 3 Cr. - Explores methods for improving sales ability (such as the use of short, explicit, believable sales techniques) and applying them to day-to-day sales work. Examines role of the sales manager. Emphasizes commercial and industrial sales field. BA 238 strongly recommended.

BA 249 Principles of Retailing and E-tailing 3 Cr. - Covers analyzing target market, developing retail marketing mix elements, and reviewing store planning techniques used by retailers. Includes discussions of changing retailing environment and impact of government regulations.

BA 250 Small Business Management 3 Cr. - Emphasizes general functions, procedures and specific subject areas related to starting, organizing and operating a successful small business, including franchising.

BA 251 Office Management 3 Cr. - Introduces organizing, planning, leading, and controlling functions of an office and the resulting role and responsibilities of the office manager. Recommended: BA 206.

BA 256 Income Tax 3 Cr. - Introduces preparation of federal individual and sole proprietorship income tax returns. Provides brief overview of partnership and corporate returns.

BA 280A Cooperative Education: Business Experience 1-3 Cr. - Offers relevant field experience in business environments in one of the following areas: bookkeeping, marketing, management, international business, advertising, banking, purchasing, investment, finance and customer services (sales or credit services). Allows exploration of career options. Department permission required.

BA 280B Cooperative Education: Business Experience - Seminar 1 Cr. - Supplements on-the-job experience through feedback sessions, instruction in job-related areas, and linkages to the student's on-campus program. Department permission required.

BA 285 Human Relations-Organizations 3 Cr. - Explores interactions in organizations by examining human perceptions, communications, small group dynamics and leadership. Includes dynamics of change, cultural diversity, substance abuse, work stress, ethics and social responsibility, and the challenges of globalization.

BA 9235 Financial Statement Analysis I 3 Cr. - Presents techniques used in financial statement analysis from credit manager's perspective. Includes common-sizing, ratio analysis, and cash flow analysis. Recommended: BA 113.

BA 9236 Credit Management Case Studies 3 Cr. - Reviews the methods used by the credit administrator in the daily performance of work, including financial analysis, sales analysis, security devices and decision-making techniques. Prerequisite: BA 113 and experience with financial statement analysis or BA 9235; or instructor permission.

BA 9237 Financial Statement Analysis II 3 Cr. - Presents advanced techniques used by credit manager to analyze information contained in financial statements, including automated analysis, with an emphasis on case studies.

BA 9703 Income Tax Preparation: Basic 8 Cr. - Elements of taxation. Meets the statutory educational requirements for those wishing to be licensed income tax preparers in Oregon.

BA 9706 Income Tax Preparation: Advanced 3 Cr. - Provides comprehensive review of federal individual income tax law for return preparers and consultants. Includes update of changes in current law. Qualifies for CPE credit.

BCT - Building Construction Technology

BCT 100 Introduction to the Construction Industry 3 Cr. - Covers characteristics, organization, process and function of construction industry, including basic legal, ethical, business practices and management aspects.

BCT 101 Principles of Construction Surveying 3 Cr. - Basic concepts of construction surveying. Includes set-up and use of builders level, transit, theodolite, leveling rod and steel tape, field note assembly and subsequent interpretation, elevation and distance measuring technique. Vertical and horizontal angle calculation and grid system method for generating contour maps. Prerequisite: Prior completion of BCT 104; or instructor permission.

BCT 102 Blueprint Reading for Building Construction 2 Cr. - Provides a collaborative learning framework cultivating blueprint reading skills and concepts relevant to building construction. Demonstrates understanding of blueprint reading by analyzing interpreting and measuring plans for relevant construction information and by sketching scaled plans for peer and instructor evaluation. Work limited to residential blueprints.

BCT 103 Construction Materials and Methods I 3 Cr. - Introduces function and performance characteristics of basic building materials, components, methods, and sequences in the construction process. Emphasizes residential construction.

BCT 104 Construction Math 3 Cr. - Covers basic math, terminology and language commonly used in the normal work day of the builder.

BCT 106 Hand Tool/Power Tool Use and Safety 3 Cr. - Develops understanding of hand tools and power tools used in the construction trades. Identifies commonly used hand/power tools, select the correct tool to complete assigned projects and work in a safe and competent manner. Emphasizes safety and care of tools.

BCT 113 Contemporary Worksite Issues 2 Cr. - Explores apprenticeship structure and application procedures, construction culture, safety, work ethics and diversity issues on the construction site. Information delivered through lecture, class assignments, role playing and guest speakers.

BCT 114 Introduction to Applied Construction 10 Cr. - Develops and explores the components and practices of residential construction. Emphasizes blueprint reading, surveying, safety, proper use and selection of materials and tools, and construction sequence and assembly. Complete construction projects including framing, drywall, and equipment operation.

BCT 115 Introduction to Electrical/Mechanical Trades 10 Cr. - Introduces beginners to simple electrical and plumbing practices that will make work in construction crafts safer and entry to a registered apprenticeship program more accessible. Provides overview of training required for a licensed electrician and plumber, as well as familiarity with terminology and tools of the trades. Complete individual shop projects and work in a team to design and complete a residential wiring project in a simulated construction environment.

BCT 120 Floor Framing 3 Cr. - Explores and uses different labor methods and materials for the erection of various floor framing systems, including post & beam and truss floor systems, and rough stair construction. Prerequisite: BCT 106; or instructor permission.

BCT 121 Wall Framing 3 Cr. - Explores and uses different labor methods and materials for erection of various wall framing systems, including interior and exterior wall partitions, and different wall sheathing applications. Prerequisite: BCT 106; or instructor permission.

BCT 122 Roof Framing I 3 Cr. - Use of framing square, rafter tables, rafter framing formulas, and appropriate terminology. Layout, cut and assemble shed, gable, and hip roofs. Prerequisites: BCT 104, 106; or instructor permission.

BCT 123 Roof Framing II 3 Cr. - Layout, cutting and assembly of hip, intersecting and unequal pitch roofs, and dormers. Discussions include truss roof assemblies. Prerequisites: BCT 106, 122; or instructor permission.

BCT 126 Site Layout 3 Cr. - Become familiar with plot plan interpretation and drafting. Includes establishment of existing property grade before building, planning new grade, locating the building on a lot and accurate layout of the building foundation and floor elevations. Includes calculation of cut and fill. Prerequisite: BCT 101; or instructor permission.

BCT 127 Concrete Construction I 6 Cr. - Covers residential concrete foundation construction, including layout, footings, walls, slabs, stairs, and the handling and curing of concrete. Explores and uses different forming methods and materials to erect a concrete foundation. Prerequisite: BCT 106; or instructor permission.

BCT 128 Exterior Finish 6 Cr. - Become familiar with installation and estimation of materials and labor for exterior doors and windows, composition, shake and shingle roofing; horizontal lap siding, bevel siding, board and baton siding, vinyl siding and wood shingle siding. Includes construction of various cornice and soffit treatments. Prerequisite BCT 106; or instructor permission.

BCT 130 Construction Safety 3 Cr. - Requirements for safety on the job site, Occupational Safety and Health Act and other related regulations and legislation, accident prevention and hazard identification and procedures.

BCT 133 Construction Material & Methods II - 3 Cr. Continuation of Construction and Material Methods I with emphasis on commercial construction techniques and methods including building systems and assemblies. Prerequisite: Prior completion of BCT 103; or instructor permission.

BCT 134 Construction Scheduling w/MS Project 3 Cr. - Methods of planning and scheduling construction projects. Emphasis on building and efficient use of construction schedules, including critical path method and resource and cost loading. Use of computer scheduling software to build and monitor schedules. Recommended: Basic knowledge of Microsoft Windows. Prerequisites: BCT 104 and basic construction knowledge; or instructor permission.

BCT 140 Construction Accounting - Quickbooks Pro I 3 Cr. - Develops an understanding of the basic recordkeeping activities involved in using Quickbooks. Bookkeeping skills used for managing a small business will be specifically tailored for construction contractors. Some computer knowledge, Windows 95 required.

BCT 150 Mechanical & Electrical Facilities 3 Cr. - Covers the principles and applications of mechanical and electrical components during the construction process and of constructed facilities, heating, ventilating, air conditioning, plumbing, fire protection, power, lighting, distribution systems, security systems and a review of the related codes.

BCT 202 Business Principles for Construction 3 Cr. - Covers fundamental business principles used in managing a construction business, including accounting theory and systems, construction finance, project pricing, contracts and scheduling. Prerequisite: Prior completion of BCT 102 or equivalent required; or instructor permission.

BCT 204 Construction Estimating 2 Cr. - Introductory class in construction estimating concentrating on basic estimating techniques, organization and preparation of estimates, quantity take-off and pricing, and fundamentals of bid assembly. Prerequisite: Prior completion of BCT 102 or equivalent; or instructor permission.

BCT 208 Concrete Construction II 6 Cr. - Covers commercial concrete foundation construction, including high walls, columns, beams, and above grade floor slabs. Study and erect different formwork systems and travel on field trips to view actual commercial construction job sites. Prerequisite: BCT 127; or instructor permission.

BCT 211 Remodeling 6 Cr. - Covers remodeling techniques associated with framing, exterior finish and interior finish. Includes fundamental methods used to setup and run a successful remodeling company. Emphasis on customer relations, product outsourcing, architectural detailing and subcontractor relations. Recommended: Prior completion of BCT 106; or instructor permission.

BCT 213 Advanced Blueprint Reading 2 Cr. - Covers typical residential and commercial plans and practices. Presents skills for reading residential/commercial blueprints and applying that knowledge to construction property. Residential plans are reviewed for detail terminology and basic print reading before moving into commercial plans. Prerequisite: BCT 102; or instructor permission.

BCT 214 Advanced Construction Estimating 3 Cr. - Advanced estimating for larger scale projects. Discussion of labor rates, specifications, budget estimating, assembly of bids, bidding procedures, including use of computer estimating software. Prerequisite: BCT 204; or instructor permission.

BCT 216 Cabinetry I 2 Cr. - Focuses on materials, hardware and techniques used to build industry standard cabinetry. Covers productive uses and safe operation of hand and power tools as well as equipment and machinery used for the production of cabinetry. Generate shop drawing and subsequently machine, mill and assemble a cabinet complete with plastic laminate countertop.

BCT 217 Cabinetry II 2 Cr. - Covers more advanced forms of cabinet construction and joinery such as doweling, box joints, dovetail joints and lock shoulders. Covers machining and assembly of the five piece door. An instructor designed cabinet project will supply the frame work for learning experience. Prerequisite: BCT 216; or instructor permission.

BCT 218 Woodworking Projects 2 Cr. - Designed for independent work on cabinet projects. Required to present shop drawings for instructor approval before beginning. Students must supply their own materials. Prerequisite: BCT 216 or 217 or 219; or instructor permission.

BCT 219 Cabinetmaking I 6 Cr. - Covers materials, hardware, outsourcing alternatives, equipment and techniques necessary to produce industry standard cabinetry and the estimation of cabinet materials. Learn and demonstrate safe use of both portable and stationary power equipment. Includes taking site measurements, subsequent generation of shop drawings and cabinet installation methods. Also covers the estimation of cabinet materials and labor.

BCT 220 Cabinetmaking II 6 Cr. - Expands on the materials, hardware, outsourcing alternatives, equipment and techniques necessary to produce industry standard cabinetry covered in BCT 219. Learn and demonstrate the safe use of both portable and stationary power equipment. Includes cabinet construction using the 32mm system, fundamentals of kitchen design, kitchen planning, universal design and drafting techniques specific to the cabinet industry. Covers the construction of stile and rail doors.

BCT 221 Construction Law for the Contractor 3 Cr. - Introduces basic principles of construction law used in managing construction contracts. Gain working knowledge of construction law principles through examination of case studies.

BCT 223 Finished Stair Construction 2 Cr. - Covers an understanding of methods and techniques used to frame and finish interior staircases, including construction of handrails and guardrails. Emphasizes building codes which govern the construction of stairs, hand rails and guardrails. Includes methods used to estimate labor and materials associated with stair and rail construction with emphasis on outsourcing.

BCT 224 Drywall Installation 2 Cr. - Gains an understanding of methods and techniques used to install, tape, finish, texture and patch drywall by participating in hands-on activities. Studies estimating techniques used to establish labor and material costs associated with drywall installation.

BCT 225 Construction Project Management 3 Cr. - Studies of management functions in construction industry. Planning and scheduling, project organization and communications, cost control, project and contract administration, and project close out. Basic construction industry operation knowledge or instructor permission required.

BCT 226 Finish Carpentry 2 Cr. - Covers techniques and methods used to hang and install interior doors, install door hardware; measure, cut and install base trim, casing, crown molding wainscoting and various interior window trim treatments; and in plastic laminate countertop fabrication. Covers estimating techniques used to establish labor and material costs associated with finish carpentry.

BCT 240 Construction Accounting - Quickbooks Pro II 3 Cr. - Continues developing further understanding of the basic recordkeeping activities involved in using Quickbooks. Bookkeeping skills used for managing a small business will be specifically tailored for construction contractors. Some computer knowledge, Windows 95 required.

BCT 250 Construction Practice 4 Cr. - Construction management capstone class applying knowledge gained in previous estimating, scheduling, project management, and business classes to a mock construction project. Exposed to and solve real life construction management situations and problems. Prerequisite: Prior completion of BCT 134, 213, 214, 225 and INSP 251; or instructor permission.

BCT 280A Cooperative Education: Building Construction 1 Cr. - On-the-job training at a department-designated worksite, giving students experience in real work conditions and helping determine career choices. Department permission required.

BCT 280B Cooperative Education: Building Construction 4 Cr. - On-the-job training at a department-designated worksite, giving students experience in real work conditions and helping determine career choices. Department permission required.

BCT 280C Cooperative Education: Building Construction 8 Cr. - On-the-job training at a department-designated worksite, giving students experience in real work conditions and helping determine career choices. Department permission required.

BCT 280D Cooperative Education: Building Construction 12 Cr. - On-the-job training at a worksite designated by the program. The hands-on job site training will give students experience in real work conditions and help determine career choices. Department permission required.

BCT 280E Cooperative Education: Building Construction - Seminar 1 Cr. - Provides opportunity to share work experiences and receive feedback from students and instructors. Department permission required.

BCT 280F Cooperative Education: Building Construction 3 Cr. - Department permission required.

BI - Biology

BI 55 Human Biology 4 Cr. - Surveys human body systems. Exercises include the identification of structural components of the body as well as investigations in physiology. Designed for students in the Medical Assisting and Ophthalmic Medical Technology programs. Prerequisites: Good command of the English language; reading ASSET score of 36-41.

BI 101 Biology 4 Cr. - Laboratory science course designed for non-biology majors. Introduces the properties of life, morphology and physiology of cells, cell chemistry, energy transformation, and the basic principles of ecology. Students should have a reading ASSET score of 45 or above.

BI 101B Introductory General Biology 4 Cr. - One-quarter laboratory science course designed as an introduction to biology students interested in the health professions as well as a general science. Strongly recommended for students who intend to take 200-level microbiology and/or anatomy and physiology. Topics include study of the scientific method, cellular chemistry, cell structure and function, human ecology, and laboratory skills. Recommended: ASSET scores of 45 in reading, 45 in writing, and 45 in math.

BI 102 Biology 4 Cr. - Laboratory science course designed for non-biology majors. The second term of a three-term sequence. Presents protein synthesis, cell division, genetics, animal reproduction and development, and evolution. Prerequisite: BI 101 or BI 101B.

BI 103 Biology 4 Cr. - Laboratory science course designed for non-biology majors. The last term of a three-term sequence. Presents the evolutionary relationships among the kingdoms. Includes a comparison of biological systems across kingdoms. The last half of this term covers human systems. Prerequisites: (BI 101 or 101B) and 102.

BI 104 Secret of Life 4 Cr. - Emphasizes real world applications of the biological sciences with emphasis on recent advances in molecular biology, cancer, genetic diseases, genetic engineering, and the bio-ethical considerations of such developments.

BI 121 Introduction to Human Anatomy & Physiology I 4 Cr. - Surveys anatomical terminology, basic chemistry, cell structure and function, tissues, and the following systems: integumentary, skeletal, muscular, and nervous. Lecture discussions complemented by laboratories involving physiological exercises, dissections, microscopy, and multimedia. Prerequisites: ASSET scores of 36 in reading, 36 in writing, and 41 in math.

BI 122 Introduction to Human Anatomy & Physiology II 4 Cr. - Surveys the endocrine, lymphatic, cardiovascular, digestive, respiratory, reproductive, urinary, and some coverage of human development, human genetics, and immunology. Lecture discussion are complemented by laboratories which include physiological exercises, dissections, microscopy, and multimedia. Prerequisite: BI 121.

BI 141 Habitats: Life of the Forest 4 Cr. - Examines structure and function of Oregon forest ecosystems. Covers distribution and interactions of plants, animals, microorganisms, climate and basic geology. Laboratory emphasizes identification and environmental testing.

BI 142 Habitats: Marine Biology 4 Cr. - Examines marine environment and the ecology, physiology, and morphology of marine plants and animals, emphasizing Oregon. Laboratory focuses on identification and environmental testing.

BI 143 Habitats: Fresh Water Biology 4 Cr. - Covers environments of freshwater streams, lakes, and marshes. Includes effects of physical and chemical factors on organisms, along with the organisms, their biological interactions and nutrient cycles. Explores ecological factors of freshwater environments and the effects of human activities on them.

BI 160 Ecology/Field Biology: Coast 1 Cr. - Field trip experience designed to introduce the relationships among plants, animals and the general geologic formation of various life zones for the Oregon Coast.

BI 161 Ecology/Field Biology: Malheur 2 Cr. - Field trip experience designed to introduce the relationships among plants, animals and the general geologic formation of various life zones for the Malheur geographical area.

BI 163 Organic Gardening 3 Cr. - Develops knowledge in soils, plant anatomy, cultivars available in the Pacific Northwest, organic population control of pests, pruning and grafting. Introductory course not requiring prior science courses, but an interest in plants is helpful.

BI 170 Environmental Science 4 Cr. - Examines major environmental questions facing the world today. Includes population growth, matter and energy resources, ecosystems, pollution, and environment and society. Explores broad range of environmental issues including sustainability, the interconnection of the economy with ecosystem, short-term versus long-term gains, and the trade-offs in balancing problems and solutions. Recommended: A working knowledge of the English language and a 10th grade reading level.

BI 170A Environmental Science 3 Cr. - Examines major environmental questions facing the world today. Includes population growth, matter and energy resources, ecosystems, pollution, and environment and society. Explores a broad range of environmental issues— including sustainability; the interconnection of the economy with the ecosystem; short-term versus long-term gains; and the trade-offs in balancing problems and solutions. A working knowledge of the English language and a 10th grade reading level are recommended.

BI 198 Independent Study - Biology 1-4 Cr. - Opportunity of independent study in an area of biology under guidance and supervision of biology instructor.

BI 200 Principles of Ecology: Field Biology 4 Cr. - Introduces concepts of ecology. Includes lecture component covering the concepts of ecology and diversity of life and a field component surveying plants, animals, or

other kingdoms, and interactions with their environment. May involve national or international travel.

BI 202 Botany: An Introduction to the Plant Kingdom 4 Cr. - Develops knowledge about plant anatomy and physiology. Strong emphasis on plant taxonomy with an evolutionary focus. Recommended for students with an interest in agriculture, forestry, horticulture, or general botany.

BI 211 Principles of Biology 5 Cr. - First term of a three term sequence for students majoring in biology and the sciences, including pre-medical, pre-dental, chiropractic, pharmacy, and related fields. Includes introduction to science, biochemistry, metabolism, the cell, molecular biology, and reproduction. Recommended: High school biology and chemistry in the past seven years. Prerequisites: ASSET scores of 45 in reading, 45 in writing or completion of WR 115; ASSET scores of 46 in elementary algebra or 41 in intermediate algebra or completion of MTH 65 or 70.

BI 212 Principles of Biology 5 Cr. - Second term of a three term sequence designed for students majoring in biology and the sciences, including pre-medical, pre-dental, chiropractic, pharmacy, and related fields. Includes life cycles, reproduction, molecular biology, modern and classical genetics, evolution, diversity and systematics. Prerequisite: BI 211.

BI 213 Principles of Biology 5 Cr. - Third term of a three term sequence for students majoring in biology and the sciences, including pre-medical, pre-dental, chiropractic, pharmacy, and related fields. Includes plant and animal anatomy and physiology, and individual, population, community and ecosystem ecology. Prerequisite: BI 212.

BI 222 Human Genetics 3 Cr. - Lecture/discussion presentation of the fundamentals of human genetics. Includes physical basis of inheritance, the mechanics of inheritance, probability, sex chromosomal abnormalities, autosomal anomalies, gene structure and function, molecular genetics, behavioral genetics, twinning and contemporary issues in human genetics. Prerequisites: ASSET scores of 45 in reading, 45 in writing, and 45 in math.

BI 231 Human Anatomy & Physiology I 4 Cr. - First term of a three-term sequence covering: chemistry, cells, tissues; the skin, skeletal and muscular systems and nervous tissue. Lecture discussions complemented by laboratories involving microscopy, animal dissection, physiological exercises and computer work. Prerequisite: BI 101 or CH 100; ASSET scores in reading 45, writing 45 or completion of WR 115 or higher.

BI 232 Human Anatomy & Physiology II 4 Cr. - Second term of a three-term sequence. Courses may not be taken out of sequence. Covers nervous, endocrine, cardiovascular and immune systems. Lecture discussions complemented by laboratories involving microscopy, animal dissection, physiological exercises and computer work such as CD-ROM-based exercises. Prerequisite: BI 231 with a "C" or better.

BI 233 Human Anatomy & Physiology III 4 Cr. - Third term of a three-term sequence. Courses may not be taken out of sequence. Covers digestive, respiratory, urinary and reproductive systems; metabolism fluid and electrolyte balance; embryology and genetics. Lecture discussions will be complemented by laboratories involving microscopy, animal dissection, physiological exercises and computer work such as CD-ROM-based exercises. Prerequisite: BI 232 with a "C" or better.

BI 234 Microbiology 5 Cr. - Lecture, recitation, and laboratory cover: bacterial genetic recombination; bacterial, viral, and parasitic relationships with human health and disease; immune system and allergy; water and sewage treatment; soil microbes; and microbiology of foods. Laboratory stresses aseptic technique, bacterial identification and physiology using a variety of media, culturing techniques, and staining techniques. Prerequisites: (BI 101 or 101B); ASSET scores: Reading 45, writing 45; or completion of WR 115 with a "C" or better.

BI 237 Applied and Environmental Microbiology 4 Cr. - Highlights the medical and environmental aspects of microbiology with an emphasis on genetic engineering, forensics, immunology, epidemiology, emergent diseases, water quality, bioremediation, and food safety. Stresses molecular techniques including DNA fingerprinting, water and food analysis and the manipulation of bacterial genes. Note: this course is not intended to replace Microbiology 234. Prerequisite: BI 101; or instructor permission.

BI 241 Pathophysiology 3 Cr. - Lecture/discussion presentation of congenital and genetic diseases, neoplasia, fluid and electrolyte imbalances, and diseases of the integumentary, muscular, skeletal, nervous, cardiovascular, immune, respiratory, endocrine and reproductive systems. Prerequisites: BI 231 and 232. BI 233 is either a prerequisite or may be taken concurrently.

BI 280A Cooperative Education: Biology 1-10 Cr. - Requires students to work in either laboratory or field environments associated with biological and/or environmental data collection, monitoring, and evaluation. Students are placed in work environments, outside of PCC, designed to expose students to the skills, knowledge, abilities, attitudes, technology and scientific apparatus associated with research and scientific enterprises. Department permission required.

BI 280B Cooperative Education - Seminar 2 Cr. - An optional seminar exploring job survival, including stress management, interpersonal relations, etc. Students share experiences and receive feedback from other students and instructors. Department permission required.

BIT - Biotechnology Laboratory Technician

BIT 101 Introduction to Biotechnology 3 Cr. - Introduces biotechnology industry and related areas. Reviews the basic science and tool in the context of major biotechnology applications (in medicine, agriculture, environmental science and forensics), examines ethical, legal and social issues, and career opportunities in biotechnology. Recommended: completion of two terms of college Biology or Chemistry.

BIT 103 Laboratory Safety I 2 Cr. - Provides survey of technical and regulatory aspects of chemical and radiation safety in the biotechnology laboratory. Principle topics covered: handling and storing hazardous chemicals, personal protective equipment, ventilation equipment, chemical spills, chemical waste disposal, ionizing radiation, radiation control measures and waste disposal.

BIT 104 Laboratory Safety II 2 Cr. - Provides survey of technical and regulatory aspects of biological safety in the biotechnology laboratory. Principle topics covered: biological containment principles, biosafety level, biological safety cabinet function and operation, disinfection/sterilization, medical waste handling, applicable regulations and guidelines.

BIT 107 Laboratory Mathematics 3 Cr. - Focuses on mathematical skills and problems relevant to the biotechnology laboratory. Covers calculations for solution preparation, analysis and manipulation of biological molecules and cells, analysis and interpretation of data and commonly used statistical methods. Prerequisite: MTH 95.

BIT 109 Basic Laboratory Techniques and Instruments 3 Cr. - Introduces fundamental laboratory skills. Learn procedures for solution preparation, measurement of pH, use and calibration of pipettors, UV/VIS spectroscopy, protein assay techniques and interpretation, and some techniques in purification and analysis of DNA. Prerequisite for all 200-level BIT courses. Prerequisite/Corequisite: BIT 107.

BIT 134 Media Preparation 1 Cr. - Provides hands-on approach to the preparation of various types of media used to support the growth of bacterial, mammalian and plant cells in culture. Prerequisite/Corequisite: BIT 109.

BIT 201 Applied Immunology 4 Cr. - Familiarizes student with properties and uses of antibody molecules. Covers an overview of immune response, synthesis of immunoglobulin, obtaining and handling specific antibodies and a variety of commonly used immunochemical techniques and strategies. Prerequisite: (BI 234 or BIT 211) and BIT 109.

BIT 205 Bioseparations I 4 Cr. - First term of a two-term sequence. Laboratory-intensive course introducing commonly used methods for separating biological molecules for both analytical and preparative applications. Electrophoretic and chromatographic techniques will be emphasized. Prerequisites: (CH 106 or 223) and BIT 109.

BIT 207 Tissue Culture I 4 Cr. - First term of a two-term laboratory-intensive course offering training and practical experience in the fundamentals of the culture of plant and animal cells. Prerequisite: BIT 109; BI 234; or equivalent.

BIT 211 Biomolecular Principles 4 Cr. - Structure/function relationships of biological molecules. Principles of organic and biochemistry will be related to practical problems of function, detection and separation of biological molecules. Prerequisite: CH 106 or CH 223 and BIT 109.

BIT 215 Bioseparations II 5 Cr. - Second term of a two-term sequence. Laboratory-intensive courses in which commonly used methods for separating biological molecules for analytical and preparative applications will be combined in the purification of specific proteins from complex sources. Prerequisite: BIT 205.

BIT 217 Tissue Culture II 4 Cr. - Second term of a two-term laboratory-intensive course offering more advanced training and practical experience in culture of plant and animal cells. Prerequisite: BIT 207.

BIT 221 Techniques in Molecular Biology I 5 Cr. - First term of a two-term laboratory-intensive course focusing on theory and practice of techniques for analysis and manipulation of nucleic acids. Emphasizes recombinant DNA techniques and strategies and analysis of recombinant DNA by restriction digest, blot hybridization and PCR. Prerequisite: BI 234 or equivalent; and BIT 109.

BIT 223 Techniques in Molecular Biology II 4 Cr. - Second term of a two-term laboratory-intensive course focusing on the theory and practice of techniques for analysis and manipulation of nucleic acids. Emphasizes DNA sequence determination analysis of DNA sequence data, construction and use of plasmid and phage libraries. Prerequisite: BIT 221.

BIT 225 Regulatory Compliance 2 Cr. - Introduces various regulatory bodies with jurisdiction over activities in biotechnology. Particular emphasis placed on the FDA regulations for good laboratory and manufacturing practices and processes relating to product approval.

BIT 280A Work Experience 1-4 Cr. - Students work in a biotechnology laboratory, supervised by professionals on site and by program instructor(s). Department permission required.

BIT 289 Special Topics in Biotechnology 2 Cr. - A variety of topics relevant to the biotechnology workplace will be addressed. Intended for students who have completed all of the laboratory requirements of the Biotechnology Lab Technician program and are enrolled in BIT 280A.

CAS - Computer Applications and Office Systems

CAS 103 Introduction to Windows 1 Cr. - Hands-on introduction to Microsoft Windows as the operating system of microcomputers. Become aware of and apply basic concepts of the Windows environment and acquire skill in using the mouse, menus, and other parts of the program. English communication skills necessary.

CAS 104 Basic Internet Skills 1 Cr. - Hands-on course with emphasis on using World Wide Web browsers, search techniques, and communication tools. Includes overview of e-commerce from a user's perspective. Intended as an introductory course. Recommended: familiarity with Microsoft Windows.

CAS 105 Hard Disk Management: DOS 1 Cr. - Hands-on introduction to the operating system and the effective use of the microcomputer's operating system to setup and maintain a hard-disk. English communication skills necessary.

CAS 106 Introduction to HTML 1 Cr. - Beginning hands-on course for creating simple web pages with HTML. Basic concepts of HTML tags and file transfer protocol (FTP) will be emphasized using a text and/or tag editor and an FTP application. Recommended: Basic working knowledge of Windows, word processing, browsers and file management.

CAS 109 Beginning PowerPoint: WIN 1 Cr. - Use PowerPoint software to produce visual media for electronic presentations, overhead transparencies, 35mm slides, or Web pages. Qualify for RD 115 or WR 115. Additional lab hours may be required..

CAS 111D Beginning Web Site Creation: Dreamweaver 3 Cr. - Introduces basic elements of web site creation using Dreamweaver. Includes web terminology, basic HTML, uploading pages to a server, tables, forms, frames and simple graphics. Recommended: Basic working knowledge of Windows, word processing, browsers and file management.

CAS 111F Beginning Web Site Creation - FrontPage 3 Cr. - Introduces basic elements of web site creation using FrontPage. Includes web terminology, basic HTML, uploading pages to a server, tables, forms, frames and simple graphics. Recommended: Basic working knowledge of Windows, word processing, browsers and file management.

CAS 112 Intermediate Web Site Creation 3 Cr. - Plans and publishes professional web sites by exploring a variety of software tools. Utilizes existing scripts, audio, video, graphics and other emerging technologies. Explores issues such as security and E-commerce. Includes extensive use of the Internet. Recommended: CAS 111 or equivalent.

CAS 113 Enhancing Web Pages with JavaScript 3 Cr. - Presents a thorough introduction to the JavaScript language, from a non-programmers viewpoint. Add interactivity to web pages and perform a variety of tasks such as validating form input, manipulating browser windows, and working with cookies. Recommended: CAS 111 or equivalent.

CAS 121 Beginning Keyboarding 3 Cr. - Key alphabetic portion of computer keyboard by touch. Introduces the numeric portion of the keyboard. Produce basic business documents and increase speed and accuracy. English communication skills necessary.

CAS 121A Beginning Keyboarding 1 Cr. - Key alphabetic portion of computer keyboard by touch. English communication skills necessary.

CAS 122 Keyboarding for Speed and Accuracy 3 Cr. - Develops confidence, endurance, and control for accurate keyboarding while increasing keyboarding speed. Develops ability to proofread documents accurately and efficiently. Keying by touch is essential. Recommended: Qualify for RD 115 or WR 115.

CAS 123 Production Keyboarding 3 Cr. - Rapid keyboarding and accurate proofreading of business letters, memos, reports, and tables. Increased speed and accuracy of keyboarding skills. English communication skills necessary. Recommended: Qualify for RD 115 or WR 115; CAS 216; OS 120, keying 45 wpm by touch; or instructor permission.

CAS 133 Basic Computer Skills/Microsoft Office 3 Cr. - Hands-on computer literacy course for beginners. Includes mouse and windows basics and file management. Use word processing, spreadsheet, and database software. Introduces email and Internet basics. English communication skills necessary. Keyboarding by touch recommended. Additional lab hours may be required.

CAS 140 Beginning Access: WIN 3 Cr. - Introduces basic components of a database management program, such as how to design, make, save and use records and to develop a working knowledge of the database vocabulary. English communication skills necessary.

CAS 140A Beginning Database: Windows 1 Cr. - Hands-on microcomputer course covering beginning database management concepts including tables, forms, reports, queries and basic macros. Stresses a working knowledge of database management vocabulary. Emphasizes efficient use of Access toolbars and menus. Database design issues are discussed but not emphasized. English communication skills necessary. Recommended: Qualify to enter RD 115 or WR 115.

CAS 170 Beginning Excel: WIN 3 Cr. - Hands-on computer course covering beginning spreadsheet concepts including basic design, formulas, formatting, charting, lists and functions. Stresses a working knowledge of spreadsheet vocabulary. Prerequisite: Placement into RD 115 or WR 115. Additional lab hours may be required, consult instructor.

CAS 170A Beginning Excel: WIN 1 Cr. - Hands-on opportunity covering basic concepts of using a spreadsheet program on a microcomputer. Includes moving around the spreadsheet, entering data, formatting, and printing. Stresses a working knowledge of spreadsheet vocabulary. English communication skills necessary.

CAS 171 Intermediate Excel: WIN 3 Cr. - Learn advanced features of Excel including financial, logical, statistical, lookup, and database lists, pivot tables, "what-if" analysis with data tables, importing data, complex graphs, macros, and solver features. Recommended: Placement into RD 115 or WR 115; CAS 170; or instructor permission. Additional lab hours may be required, consult instructor.

CAS 174A Beginning Lotus: WIN 1 Cr. - Hands-on opportunity covering basic concepts of using a spreadsheet program on a microcomputer. Includes moving around the spreadsheet, entering data, formatting, and printing. Stresses spreadsheet vocabulary. English communication skills necessary.

CAS 175 Introduction to Flash 3 Cr. - Introduces the basic Flash® (Macromedia) interface. Course is presented in small increments so students can learn to use this complex program. Use menu items, timelines, events, and toolbars to put together simple Flash® projects. Emphasizes how to use the software.

CAS 210 Beginning WordPerfect: WIN 3 Cr. - Produces letters, memos, tables, and reports using headers, footers and mail merge. Uses spell check and other writing tools. Uses Wizards and/or templates. English communication skills necessary. Recommended: 25 words per minute keyboarding.

CAS 210A Beginning WordPerfect: WIN 1 Cr. - Develops introductory skill in the use of a word processing program. Includes creating, editing and printing letters, memos and reports. English communication skills necessary. First credit in a sequence of three one-credit courses. Recommended: 25 words per minute keyboarding.

CAS 210B Beginning WordPerfect: WIN 1 Cr. - Produces merged copy and create, save and recall stored paragraphs and/or instructions. Second credit in a sequence of three one-credit courses. English communication skills necessary. Prerequisite: CAS 210A.

CAS 210C Beginning WordPerfect: WIN 1 Cr. - Produces multi-page documents, uses headers and footers, and becomes familiar with spell check and thesaurus functions. Third credit in a sequence of three one-credit courses. English communication skills necessary. Prerequisite: CAS 210B.

CAS 211 Intermediate WordPerfect: WIN 3 Cr. - Review basic features and develop additional skill Using WordPerfect. Enhance documents through special formatting features such as graphic lines and images, text art, and clipart; work with headers and footers in multi-page documents; create and format tables; use advanced merge; create documents with newspaper columns; and create and use fill-in forms. Recommended: Placement into RD 115 or WR 115; CAS 210; or instructor permission.

CAS 216 Beginning Word: WIN 3 Cr. - Create, edit, and print documents such as letters, memos, and manuscripts; produce multi-page documents; use headers and footers; become familiar with the program's writing tools and basics of enhancing documents; and produce merged copy. Recommended: Placement into RD 115 or WR 115; keyboarding 25 words per minute.

CAS 216A Beginning Word: WIN 1 Cr. - Develops introductory skill in the use of a word processing program. Includes creating, editing, and printing basic documents such as letters and memos and become familiar with the program's writing tools. Recommended: Placement into RD 115 or WR 115; keyboarding 25 words per minute.

CAS 216B Beginning Word: WIN 1 Cr. - Produce multi-page documents, use headers and footers, and become familiar with spell check and thesaurus functions. Second credit in a sequence of three one-credit courses. English communication skills necessary. Prerequisite: CAS 216A.

CAS 216C Beginning Word: WIN 1 Cr. - Produce merged copy and create, save, and recall stored paragraphs and/or instructions. Third credit in a sequence of three one-credit courses. English communication skills necessary. Prerequisite: cas 216B.

CAS 217 Intermediate Word: WIN 3 Cr. - Review basic features and develop additional skill using Word. Enhance documents through special formatting features such as graphic lines and images, Word Art, and clipart; work with headers and footers in multi-page documents; create and format tables; use advanced merge; create documents with newspaper columns; and create and use fill-in forms. Recommended: Placement into RD 115 or WR 115; CAS 216; or instructor permission.

CAS 230 PageMaker: WIN 3 Cr. - Use desktop publishing software features to design and create effective publications, such as announcements, fliers, advertisements, and reports. Create, import and manipulate text and/or graphics through use of software features. Recommended: Placement into RD 115 or WR 115; prior knowledge and use of Windows 95 or higher; CAS 133, 210, or 216; or instructor permission.

CAS 246 Integrated Computer Projects 4 Cr. - Apply previous computer and business knowledge to create individual and group projects using software found in today's workplace. Use integrated software such as MS Office. Use new technologies and equipment as appropriate to solve business problems. English communication skills at the WR 121 level are expected. Recommended: 3 credits of word processing and 3 credits of spreadsheet or instructor permission.

CAS 280W Cooperative Education: Web Site Development 1-4 Cr. - Develop skills by working on a job related to web site creation. Recommended: Four terms of CAS web-related classes or instructor permission and English communication skills.

CG - Counseling and Guidance

CG 0690 Stopping Test Anxiety 1 Cr. - Covers techniques for coping with excessive test-taking anxiety and improving overall test performance.

CG 0693 Confidence Building 1 Cr. - Helps students explore the concept of self-confidence: how it is learned, how it can be developed and how it is sabotaged. Ideas, tools and techniques are introduced that will help students in their development of a stronger self-image.

CG 100A College Survival and Success 3 Cr. - Helps new or returning students make personal and social adjustments for college success. Covers college terms and information, class choice, degree requirements, use of library, tours and student services. Emphasizes identifying personal learning strengths and weaknesses, balancing work, school and home demands, forming study partnerships and stress and time management.

CG 100B College Survival and Success 2 Cr. - New-to-college or returning-after-absence students will be assisted in personal, academic and social adjustments needed for college success. Emphasizes balancing work, school and home demands and managing stress and time. Feeling comfortable with academic demands and projecting an educational plan are goals of this class.

CG 100C College Survival and Success 1 Cr. - New-to-college or returning-after-absence students will be assisted in personal, academic and social adjustments needed for college success. Provides college terms and information, class choice, degree requirements, use of library, tours and student services are provided in a supportive atmosphere. Introduces learning styles and managing stress and time.

CG 101 Positive Family Relations I 1 Cr. - Explores ways of building positive family relationships while enhancing individual self worth. Gain understanding of components necessary for a positive self image. Learn the characteristics common to both negative and positive communication.

CG 102 Positive Family Relations II 1 Cr. - A continuation of CG 101. Explores family communication styles, family rules, family as impacted by government and social policies. Parenting strategies and the family as a source of self understanding will be discussed. Prerequisite: CG 101.

CG 111A Study Skills for College Learning 3 Cr. - Provides information, techniques, strategies and skills helpful in becoming more efficient in time management, studying, listening, notetaking and taking exams. Addresses basic principles of the psychology of learning and memory as they relate to college students. Instructor permission may be required. Recommended: College-level reading and/or writing skills as defined by placement in WR 115 or RD 115.

CG 111B Study Skills for College Learning 2 Cr. - Provides information, techniques, strategies and skills helpful in becoming more efficient in the classroom. Topics addressed are class organization, time management, studying, listening, notetaking, taking exams and memory. Instructor permission may be required. Recommended: College-level reading and/or writing skills as defined by placement in WR 115 or RD 115.

CG 111C Study Skills for College Learning 1 Cr. - Introduces information, techniques, strategies and skills helpful in becoming more efficient in the classroom. Topics addressed are class organization, time-management, studying, listening, notetaking and taking exams. Instructor permission may be required. Recommended: College-level reading and/or writing skills as defined by placement in WR 115 or RD 115.

CG 130 Today's Careers 2 Cr. - Explores careers and what it takes to succeed in them. Covers ways of gathering information about specific occupations. Uses guest speakers from a variety of career areas and helps develop a plan for next steps. Provides basic career information.

CG 140A Career Development 3 Cr. - How do I choose a career? Where do I go from here with my life? Provides tools needed to make an informed career decision. Includes interest testing and self assessment of skills, values and attitudes. Learn how to locate occupational information, conduct informational interviewing, make decisions and set goals. Instructor permission may be required. Recommended: College-level reading and/or writing skills as defined by placement in WR 115 or RD 115.

CG 140B Career Development 2 Cr. - How do I choose a career? Where do I go from here with my life? Provides tools needed to make an informed career decision. Includes interest testing and self assessment of skills, values and attitudes. Learn how to locate occupational information, conduct informational interviewing, make decisions and set goals. Instructor permission may be required. Recommended: College-level reading and/or writing skills as defined by placement in WR 115 or RD 115.

CG 140C Career Development 1 Cr. - How do I choose a career? Where do I go from here with my life? Provides tools needed to make an informed career decision. Includes interest testing and self assessment of skills, values and attitudes. Learn how to locate occupational information, conduct informational interviewing, make decisions and set goals. Instructor permission may be required. Recommended: College-level reading and/or writing skills as defined by placement in WR 115 or RD 115.

CG 144 Introduction to Assertiveness 1 Cr. - Provides basic communication skills students can use to state or declare their rights in a positive fashion to obtain desired results in career, social and personal relations.

CG 145 Stress Management 1 Cr. - Identifies specific, personal stressors and develops skills that enable students to more effectively deal with stress.

CG 146 Value Clarification 1 Cr. - Examines beliefs, attitudes and values behind decisions and actions including whether behavior matches stated beliefs, evaluating consequences of choices and developing a process that will enable the development of personalized values.

CG 147 Decision Making 1 Cr. - Develops an awareness of personal decision-making style. Encourages the practice of different decision-making styles to make effective life choices in personal, social or work settings.

CG 150 Exploring Careers in Science Technology 3 Cr. - Explores the fields of microelectronics, biotechnology, aviation sciences and computer literacy. Covers lab experiments in biotechnology and environmental science classes, photolithography and pattern etching in microelectronics.

CG 151 Exploring Careers in Science and Technology II 3 Cr. - Explores the fields of diesel, welding, building construction, auto collision repair and computer literacy in this new and exciting career exploration class.

CG 190 Mentorship of Latino(a) Students 3 Cr. - Offers instruction in areas of leadership and mentorship for those serving as mentors to Latino(a) high school students who are enrolled in the Oregon Leadership Institute. Covers the mentoring process as well as intercultural skills and effective communication strategies. Requires instructor consent and willingness to be enrolled for fall, winter, and spring terms.

CG 209 Job Finding Skills 1 Cr. - Explores broad range of job search techniques, including building a job network, compiling appropriate information for job applications, targeting cover letters and resumes, typical interview questions and techniques. Promotes overall understanding of the job search process.

CG 280A Cooperative Education: Career Exploration 1-3 Cr. - Explores personal interest and suitability for a career field through work situations in selected occupations. By demonstrating skills and evaluating career areas, the student may make an informed career decision. Offered for one to three credits per term with a limit of two terms or six credits. Department permission required.

CG 280B Cooperative Education: Career Exploration - Seminar 1 Cr. - Required seminar supplements the work experience by offering a flexible menu of assignments from which to select a variety of activities. Includes video tapes, selected readings, workshops, lectures and a variety of career related exercises to enhance career development. Department permission required.

CG 280L Career Development - 1 Cr. Provides Latino high school students an opportunity to develop leadership skills, explore career and educational options after high school through interactive sessions.

CH - Chemistry

CH 95 Laboratory Techniques 1 Cr. - Designed to prepare students to work in a laboratory environment by providing them with wet chemistry laboratory techniques applied in general chemistry classes. Focuses on hands-on activities using common standard lab techniques. Provides basic introductory knowledge and skills needed to function properly in a chemical laboratory setting.

CH 100 Fundamentals for Chemistry 4 Cr. - Covers selected basic chemical principles and computational problems found in first-year, 100-level chemistry courses. For students who have no chemical background and those with minimal problem solving skills. Recommended: Algebra I and II, or equivalent. Students who have completed or are concurrently enrolled in MTH 95 should consider enrolling in CH 104.

CH 101 Inorganic Chemistry Principles 5 Cr. - Survey of inorganic chemistry with an emphasis on solution chemistry. Designed for Allied Health students.

CH 102 Organic Chemistry Principles 5 Cr. - Covers basic organic and bio-chemistry. Designed for Allied Health students.

CH 104 General Chemistry 5 Cr. - Includes general principles of chemistry, including atomic structure, mole concept, chemical reactions, stoichiometry, and gas laws. Designed for students in a health science curriculum leading to a Baccalaureate degree or liberal arts students who need a laboratory science elective. Credit for, or concurrent enrollment in MTH 95, or equivalent required.

CH 105 General Chemistry 5 Cr. - Includes stoichiometry, gases, oxidation-reduction, acid-base concepts, equilibrium, physical and chemical properties of solutions, and nuclear chemistry. Prerequisite: CH 104.

CH 106 General Chemistry 5 Cr. - Includes fundamental principles of organic chemistry and biochemical processes. Prerequisite: CH 105.

CH 110 ChemExcel 1 Cr. - One-credit optional course/study class taken concurrently with the CH 221, 222, 223 sequence. Gives students the opportunity to enhance their understanding of the concepts of general chemistry using a collaborative, student-centered and active-learning approach.

CH 211 Introduction to Biochemistry 4 Cr. - Introduces the chemistry of biological systems. Principal topics covered are: the structure and function of biological molecules, the chemistry of heredity, metabolism and biological energy. CH 106 or 200-level organic chemistry required.

CH 221 General Chemistry 5 Cr. - Includes fundamentals of chemistry, atomic structure, chemical bonding, nomenclature, physical states of matter, properties of gases and chemical equations. Recommended for chemistry and other laboratory science majors, pre-professional majors in engineering, medicine and dentistry. High school chemistry and MTH 95 or their equivalent required. Students encouraged to co-register for CH 110, Chem Excel. Contact Chemistry Department for information.

CH 222 General Chemistry 5 Cr. - Includes chemical stoichiometry, acid and base solutions, oxidation-reduction, chemical kinetics and thermodynamics. Students encouraged to co-register for CH 110, ChemExcel. Contact Chemistry Department for information. Prerequisite: CH 221.

CH 223 General Chemistry 5 Cr. - Includes chemical kinetics, ionic equilibria, nuclear chemistry, thermodynamics and descriptive chemistry topics. Students encouraged to co-register for CH 110, ChemExcel. Contact Chemistry.

CH 241 Organic Chemistry 5 Cr. - Includes fundamentals of organic chemistry, bonding, hydrocarbons, alkyl halides, alcohols, nucleophilic and radical reactions, stereochemistry and spectroscopy. Recommended for chemistry and other laboratory science majors, and pre-professional students (medical, dental, pharmacy, physical therapy, veterinary, chiropractic, etc.) CH 106, CH 223 or equivalent required.

CH 242 Organic Chemistry 5 Cr. - Includes conjugation, aromaticity, arene chemistry, aldehydes, ketones and spectroscopy. Prerequisite: CH 241.

CH 243 Organic Chemistry 5 Cr. - Includes carboxylic acids, amines, carbohydrates, amino acids, proteins, lipids, nucleic acids, heterocyclic compounds, spectroscopy and selected topics. Prerequisite: CH 242.

CHLA - Chicano / Latino Studies

CHLA 201 Introduction to Chicano/Latino Studies I 4 Cr. - Introduces Chicano/Latino history in the United States beginning with Spanish colonization and continuing with the Mexican-American War and the migration of Chicanos/Latinos. Covers the events that shaped the Chicano/Latino experience, such as the Bracero Program, the Chicano Movement, and U.S. foreign policy in Latin America.

CHLA 202 Introduction to Chicano/Latino Studies II 4 Cr. - Introduces Chicano/Latino social, political, and economic status in the United States. Includes an examination of the political and economic structure and position of various Chicano/Latino groups. Also includes a demographic profile and overview of current social issues.

CHLA 203 Introduction to Chicano/Latino Studies III 4 Cr. - Introduces the cultural heritage of Chicano/Latino people in the United States. Drawing on disciplines such as anthropology, folklore, literature, film, and linguistics, folk and popular culture, and the combination and integration of various traditions in Chicano/Latino communities, are examined.

CIS - Computer Information Systems

CIS 100 TEKnology - High Tech Career Exploration 4 Cr. - Explores high tech careers including education, ethics, and work environment. Assess individual skills, abilities and attitudes. Presents high technology disciplines through class discussions, presentation by professionals, mentoring, and hands-on activities. Create a written plan to help them prepare for a career in high technology. Note: Not an elective toward a CIS degree or certificate.

CIS 100A Technology-High Tech - Career Exploration I 2 Cr. - Introduces high tech careers including education, ethics, and work environment. Assess individual skills, abilities and attitudes. Presents high technology disciplines through class discussions, presentation by professionals, mentoring, and hands-on activities. Explore a plan to help prepare for a career in high technology. English communication skills necessary. Note: This elective course will not count towards a CIS degree or certificate. A student cannot receive credit for both CIS 100 (A and B) and CIS 100.

CIS 100B Technology - High Tech Career Exploration II 2 Cr. - Continues high tech career exploration including education, ethics, and work environment. Assess individual skills, abilities and attitudes. Presents high technology disciplines through class discussions, presentation by professionals, mentoring, and hands-on activities. Complete a written plan to help prepare for a career in high technology. English communication skills necessary. Recommended: CIS 100A. Note: This elective course will not count toward a CIS degree or certificate. A student cannot receive credit for both CIS 100 (A and B) and CIS 100.

CIS 120 Computer Concepts I 4 Cr. - Introduces the systems development life cycle as the foundation for the evaluation, selection and application of technology to solve information systems problems. Explores history, ethics, and effects of technology on organizations and cultures. Surveys hardware, software, communications technology, and information storage and representation concepts. Covers design and presentation of text and graphical information using technology and the Internet. Recommended: Completion of WR 90 or equivalent or instructor approval. Completion of basic computer skills equivalent to CAS 133 or instructor permission.

CIS 121 Computer Concepts II 4 Cr. - Continues the use of the systems development life cycle as the foundation for the evaluation, selection and application of technology to solve information systems problems. Focuses on representation, manipulation, storage and presentation of quantitative information. Explores ethics in quantitative data gathering, representation and privacy. Includes related hardware and software concepts. Recommended: CIS 120 or equivalent; or instructor permission.

CIS 122 Software Design 4 Cr. - Illustrates the importance of software design as part of the software development life cycle. Prepares student to take programming courses, by giving examples of well-designed software projects. Student is expected to design small programming projects, and code the projects to prove the design. Focus is on procedural design. May be taken concurrently with CIS 121. Recommended: CIS 120, 121.

CIS 125D Database Application Development I 4 Cr. - Concepts of a client-based relational database management system (RDBMS) and application of such systems to the business environment. Topics include database management issues, database design, creating and maintaining databases, creating forms, queries and reports. Design, create and maintain a database system. Recommended: CIS 121 or instructor permission.

CIS 133B Introduction to Visual Basic Programming 4 Cr. - Introduces design, implementation and testing of software using Visual Basic. Structured design techniques emphasized throughout. Write and test a final Visual Basic program that solves a business-oriented problem. Recommended: CIS 122; or instructor permission.

CIS 133J Java Programming I 4 Cr. - Introduces elementary principles of software engineering, structured program design, modular programming, object oriented program design, event driven programming, problem solving and social issues of computer systems. Topics include scalar and structured data types, alternation and repetition control structures, modular programming, object oriented programming and use of event driven graphics user interfaces. Prerequisites: placement in WR 121 and CIS 122; or equivalent.

CIS 140D Operating System: Microcomputers 4 Cr. - Provides basic concepts of operating system with emphasis on DOS and Win9x (Win2000) desktop operating systems. Includes basic operating system functions, history, directory (folder) management, memory management, virtual memory, installation, multitasking, booting and formatting processes, system optimization, system management, registry structure, profiles and policies. Recommended: CIS 120; or instructor permission.

CIS 178 Introduction to the Internet 4 Cr. - Introduces the Internet from a user's perspective, with emphasis on productive, professional access. Topics include how to connect to the Internet, how to communicate with others, how to find and share information productively, as well as educational, business and social issues related to the Internet. Recommended: CIS 120; or instructor permission.

CIS 179 Data Communication Concepts I 4 Cr. - Provides basic concepts of data communications, networking and connectivity. Explores hardware, connectivity, signaling, addressing, network topologies, communication protocols, network designs, switching, management, TCP/IP protocols, security and standards with emphasis on the OSI reference model. Recommended: CIS 120 or instructor permission.

CIS 225 End User Support 4 Cr. - Prepares computer professional for providing training and support to end users. Includes roles and responsibilities of the end-user support person; characteristics of the adult learner; and strategies and techniques for developing instruction, teaching technical subject matter and providing ongoing technical support. Recommended: CIS 120, WR 227, and three additional CIS courses; or instructor permission.

CIS 233B Intermediate Visual Basic Programming 4 Cr. - Continues Visual Basic programming sequence utilizing arrays, sorting, relational database access and data structures. Structured design techniques emphasized throughout. Recommended: CIS 133B or instructor permission; CIS 275 or instructor permission. CIS 275 may be taken concurrently.

CIS 233J Java Programming II 4 Cr. - Continues the introduction of Java Programming and Web based programming. Introduces advanced graphics, advanced event handling, advanced graphical user interfaces, input/output to files, networking, multi-processing, database access and internationalization in Java. Recommended: CIS 133J or CS 161 and CIS 275; or instructor permission.

CIS 233S Internet Web Page Scripting 4 Cr. - Provides necessary knowledge to create web-based business information systems using current web-based scripting and database technologies. Although the primary focus is on the concepts, a business web site is developed utilizing the presented material. Prerequisites: Proficient in a modern programming language (CIS 133B, 133J, or CS 161), knowledge of relational database design and SQL (CIS 275), basic web and network knowledge (CIS 278), and general knowledge of distributed business applications.

CIS 234B Advanced Visual Basic Programming 4 Cr. - Continues the Visual Basic Programming sequence utilizing relational database access, multiple document interface and software objects and classes. Structured design techniques emphasized throughout. Recommended: CIS 233B, 275; or instructor permission.

CIS 234J Java Programming III 4 Cr. - Continues to explore web-based Java applications. Introduces the use of Java in enterprise and n-tier applications. Topics include the XML, Java 2 security model, Remote Method Invocation (RMI), and Enterprise JavaBeans (EJB). Recommended: CIS 233J or instructor permission.

CIS 234V Advanced Visual Basic for Programmers 4 Cr. - Student should have at least two years of current experience as a professional working programmer in any language. Course quickly introduces Visual Basic and then focuses on object oriented, three tier client/server design using the VB Professional edition.

CIS 235B Visual Basic for Applications 4 Cr. - Focuses on design, development and implementation of Visual Basic for Applications (VBA) within the Microsoft Office environment. Covers connecting objects from multiple applications, extending functionality of applications and developing a user-friendly interface to the data. Emphasizes thorough documentation and structured programming techniques. Recommended: CIS 125D, 133B.

CIS 235D Database Application Development II (VBA) 4 Cr. - Design, development and implementation of a complete database application using Visual Basic for Applications (VBA). Covers Access Object Model, user interfaces, object variables, ADO automation, databases on a server, and COM add-ins. Thorough documentation and structured programming techniques will be emphasized. Recommended: CIS 133B and CIS 125D or instructor permission.

CIS 240L Operating Systems II - Linux 4 Cr. - Designed to prepare students for an entry-level position as an administrator of a system utilizing the Linux operating system. Focuses on knowledge and skills necessary for day-to-day operations on a Linux system using the command line. Recommended: CS 140U.

CIS 240M Operating Systems II - Microsoft 4 Cr. - Advanced and applied operating system class designed to prepare students for an entry-level position as user support specialist for desktop computers using Windows 2000 Professional operating system. Focuses on knowledge and skills necessary to install, configure, troubleshoot and support the operating system on stand alone computers and LAN connected client computers. MS-DOS disk partitioning and file system management also covered. Recommended: CIS 140D.

CIS 243 E-ssentials of E-commerce Information Systems 4 Cr. - Encompasses the multi-faceted aspects of e-commerce information systems. Combines study of network, database and programming concepts with hands on skills. Provides a framework for the analysis of information system based e-commerce solutions to issues surrounding B2B, B2C, and intro-organizational trade. Provides a solid background in critical issues and technologies related to e-commerce. Recommended: CIS 121 and one programming class or instructor permission.

CIS 244 Structured Systems Analysis 4 Cr. - Provides overview of the system development life cycle (SDLC) emphasizing analytical techniques to develop the correct definition of business problems and user requirements. Students will prepare a feasibility assessment and develop system requirements for an assigned project. Recommended: One class in a high-level programming language and WR 227. One 200-level business administration course. CDA: Additional lab hours may be required.

CIS 246 Structured Systems Design 4 Cr. - Provides overview of the system development life cycle (SDLC), emphasizing analytical techniques to develop a project from a previously prepared requirements document through a structured design to a final implementation. Prepare a formal design statement and implement the project in a computer language of their choice. Recommended: Two classes in a high-level programming language; CIS 233S, 244 and 275; or instructor permission.

CIS 275 Database Development I 4 Cr. - Introduces design, uses, and terminology of a database management system. Includes data modeling using Entity Relationship modeling tools and Semantic Object modeling tools, normalization rules, relational database terminology, program/query development, multi-user database issues (including the Internet) and data administration. Recommended: CIS 122; One high-level programming language course (CIS 133B, CIS 133J, CS 161) or equivalent; or instructor permission.

CIS 276 Database Development II 4 Cr. - Focuses on design, development and implementation of SQL programming for all types of relational database applications including client/server and Internet databases. Learn to write complicated interactive and embedded SQL statement and learn the implications of multi-user database applications. Recommended: CIS 275; Two-term programming language sequence; or instructor permission.

CIS 278 Data Communication Concepts 4 Cr. - Provides basic concepts of data communications, networking and connectivity. Explores communications software and hardware used with personal computers to access networks. Explores hardware connectivity, signaling, addressing, network topologies, communication protocols, architectures, switching, management, security, and standards with emphasis on the OSI reference model. Recommended: CIS 121; or instructor permission.

CIS 279L Network Administration I: Linux 4 Cr. - First term of a sequence designed to prepare students for an entry-level position as a system administrator of a network utilizing the Linux network operating system. Networking, TCP/IP, DNS, DHCP, NFS and Samba are covered. Recommended: CIS 240L.

CIS 279M Network Administration I: Microsoft 4 Cr. - First of a three-term sequence designed to prepare students for an entry-level position as a system administrator of a network utilizing Microsoft's network operating system. Focuses on knowledge and skills necessary to install and configure Microsoft Windows Operating System on standalone computers and on client computers that are part of a workgroup or a domain. Provides skills and knowledge necessary to install and create and configure Windows Operating System file, print, application, and terminal servers. Recommended: CIS 240M.

CIS 279N Network Admin I: Novell 4 Cr. - First of a three-term sequence designed to prepare students for an entry-level position as a system administrator of a network utilizing Novell's NetWare operating system. Covers post installation administrative functions including object-naming conventions, user and group creation, login security, file system design, access and security, and login scripts. Recommended: CIS 140D or CS 140U; or instructor permission.

CIS 280D Cooperative Education: Application Development 1-4 Cr. - Develop career objectives by linking course work with off-campus learning experiences in computer information systems of the public/private sector organizations. Department permission required.

CIS 288I Web Server Administration 4 Cr. - Provides aspiring systems administrators with the knowledge and skill sets to install, configure, implement, and manage a web server. A variety of operating systems will be explored. Course does not cover publishing Web page content. Recommended: CIS 278 and either CIS 279M or 279L.

CIS 288M Network Administrator II: Microsoft 4 Cr. - Second of a three-term sequence designed to prepare student for an entry-level position as a system administrator of a network utilizing Microsoft's network operating system. Focuses on knowledge and skills necessary to design, install, configure, and administer a network infrastructure that uses Microsoft Windows Server products. Recommended: CIS 279M; or instructor permission.

CIS 289 Network Administration III 4 Cr. - Prepares student to install Network Operating System software and configure network parameters to suit individual installation sites. Includes discussion and lab activities on various installation/upgrade methods, security issues, partition and replica management, and time synchronization of multiple servers. Recommended: CIS 288; or instructor permission.

CIS 289M Network Administration III: Microsoft 4 Cr. - Third of a three-term sequence designed to prepare students for an entry-level position as a system administrator of a network utilizing Microsoft's network operating system. Focuses on the knowledge and skills necessary to design, install, configure, and administer an enterprise network using Microsoft Windows Active Directory. Also focuses on implementing Group Policies and understanding Group Policy tasks required to centrally manage users and computers. Recommended: CIS 279M, 288M. CIS 288M may be taken concurrently.

CJA - Criminal Justice

CJA 100 Introduction to Professions in Criminal Justice 3 Cr. - Provides overview of the various careers in the public safety professions, including police, corrections, parole and probation, juvenile and adult casework, private security, loss prevention, investigator and all communications. Open to the general public.

CJA 101 Cultural Diversity in Criminal Justice Professions 3 Cr. - Provides introduction and familiarization with communication styles, customs, language and behavior patterns of various cultures, ethnic groups and non-traditional populations as employed by and encountered by criminal justice professions; including police, corrections, parole and probation, juvenile and adult casework, private security, loss prevention, investigation and 911 communications. Open to the general public.

CJA 111 Introduction to Criminal Justice System - Police 3 Cr. - Gives a basic introduction to crime, law and justice. Provides overview of the law enforcement field with a focus on police and their role in society. Topics include the criminal justice system, agencies, nature of crime and victimization. Also presents police issues and functions with an emphasis on community policing. Open to the general public.

CJA 112 Introduction to Criminal Justice System - Courts 3 Cr. - Focuses on the United State criminal court systems including state, federal and miscellaneous other jurisdictions. Studies the roles and functions of participants in the adjudication process including the prosecutor, defense attorney, defendant, victim, judge, jury, police and more. Examines various criminal court procedures from arrest and arraignment through trial and sentencing. Open to the general public.

CJA 113 Introduction to Criminal Justice System - Corrections 3 Cr. - Covers theories and current practices in correctional treatment, crime prevention, contemporary criminal justice services and treatment methods, and professional career opportunities. Open to general public.

CJA 210 Arrest, Search & Seizure 3 Cr. - Covers issues and procedures regarding stops, frisks, and searches and seizures of property and persons. Explores the Fourth Amendment of the United States Constitution, the Ninth Amendment of the Oregon Constitution and Oregon statutory law. Prerequisites: CJA 100, 111; WR 121.

CJA 211 Civil & Ethical Issues for Criminal Justice Practitioners 3 Cr. - Explores the conduct and ethics of criminal justice practitioners that give rise to civil liability. Examines both state and federal laws and the state and federal court systems. Prerequisites: CJA 100, 111; WR 121.

CJA 212 Criminal Law 3 Cr. - Addresses the principles of criminal liability (culpability), the elements of specific crimes, and defenses to culpability. Examines crimes established under constitutional, statutory, common and case law. Prerequisites: CJA 100, 111; WR 121.

CJA 213 Evidence 3 Cr. - Explores the nature and types of criminal evidence and rules governing admissibility, competency and relevancy. Introduces presentation and suppression of evidence, hearsay rules and exceptions. Prerequisites: CJA 100; WR 121.

CJA 214 Criminal Investigation 3 Cr. - Introduces modern investigative methods, including the collection and preservation of physical evidence, scientific aids, sources of information, interviews, follow-up and case presentation. Covers techniques of interview and interrogation and the use of the polygraph and investigative hypnosis. Prerequisites: CJA 100; WR 121.

CJA 215 Forensic Science & Criminalistics 3 Cr. - Covers the theoretical and technical skills necessary for complex criminal investigation. Explores how scientific principles help in crime detection and solution. Prerequisites: CJA 100; WR 121.

CJA 217 Interviewing & Interrogation 3 Cr. - Presents knowledge and working skills in the art of interviewing and interrogation. Prerequisites: CJA 100, 111; WR 121.

CJA 218 Criminal Justice Perspectives of Violence & Aggression 3 Cr. - Explores and analyzes violence and aggression as viewed from biological, psychological, psychiatric and sociological perspectives. Emphasizes episodically violent individuals, their detection, treatment methods and violence prevention in the area of crisis intervention. Presents tools and techniques of crisis intervention through discussion, demonstrations, simulation and role playing. Prerequisites: CJA 100; WR 121.

CJA 222 Introduction to Juvenile Process 3 Cr. - Focuses on integrating juvenile law, theories of causation and procedural requirements. Discusses current programs in Oregon available to juveniles who have gone, or are going through, the Juvenile Justice System. Covers generic issues regarding some history of juvenile adjudication and correction law and philosophies. Open to the general public.

CJA 225 Criminal Justice and the United States Constitution 3 Cr. - Provides a broad overview of United States Constitutional Law as it relates to professions in the Criminal Justice field. Examines Articles and Amendments of the U.S. Constitution, focusing on the 1st, 6th, 8th, 14th amendments and "penumbras." Focuses on freedom of speech, religion and assembly as these rights relate to limitations on police authority. Prerequisites: CJA 100; WR 121.

CJA 228 Theory and Structure of Organized Crime 3 Cr. - Provides information on organized crime, its development, growth and impact on society and criminal justice processes. Includes crime families, terrorists, gangs and fringe groups with criminal intentions, their detection, investigation and combat. Prerequisites: CJA 100; WR 121.

CJA 243 Narcotics & Dangerous Drugs 3 Cr. - Covers history and causes of narcotic and drug problems, how to identify drug addicts and drug abusers, how to define and classify various types of narcotics and dangerous drugs, including laws and other controls and rehabilitation programs. Prerequisites: CJA 100; WR 121.

CJA 260 Introduction to Correctional Institutions 3 Cr. - Overview of the institutional penal system, including jails and detention facilities, prisons, treatment and work release facilities. Provides historical and policy study of the role and purposes of confinement or imprisonment as a criminal justice system tool. Prerequisite: CJA 100, 113.

CJA 261 Introduction to Probation and Parole 3 Cr. - Introduces Community Corrections or probation and parole in the management of offender behavior. Management of Community Corrections agencies and community interventions with offenders will be discussed. Prerequisite: CJA 100, 113.

CJA 262 Introduction to Correctional Process 3 Cr. - Covers process of how offenders are brought under correctional supervision. Causes of criminal activity, the problems of crime in American society and the processes of pre-trial and post conviction supervision of offenders are discussed. Prerequisite: CJA 113.

CJA 263 Introduction to Corrections Casework 3 Cr. - Introduces the process of casework and case management in a correctional setting. Develops both a theoretical and practical base of knowledge to allow the student to develop counseling techniques. Prerequisite: CJA 100, 113.

CJA 264 Introduction to Management of Public Safety 3 Cr. - Introduces the administration of correctional institutions and programs. The management and administration of jails, prisons and community based programs will be discussed. Prerequisite: CJA 100, 113.

CJA 279 Criminal Justice Seminar 1-4 Cr. - Designed for criminal justice agencies offering special topic seminars to meet the information and training needs of local criminal justice agencies.

CJA 280A Cooperative Education: Criminal Justice 1-3 Cr. - Participate with various public sector criminal justice agencies to learn about their structure and function. The field placement must be program-related. Department permission required prior to registration. Prerequisites: CJA 100 and 111, or 113.

CJA 280B Cooperative Education: Applied Criminal Justice 1-6 Cr. - Students employed by a public sector criminal justice agency to increase professional skills and knowledge. Prerequisite: Department permission required. See CJA advisor.

CMET - Civil and Mechanical Engineering Technology

CMET 110 Statics 4 Cr. - Covers fundamental concepts of mechanics relating to forces acting on rigid bodies. Includes problems involving actions and reactions on structures and machines in two and three dimensions. Also covers friction, moments of inertia, and centroids. Corequisite: CMET 111. Prerequisite or concurrent:

CMET 111 Engineering Technology Orientation 4 Cr. - A rigorous practical approach to techniques and problems encountered in the field of engineering technology. Offers abundant opportunity to solve engineering problems. Concurrent registration: CMET 110. Corequisites: CMET 112.

CMET 112 Technical Algebra/Trigonometry 4 Cr. - Includes algebra and trigonometry used in CMET 110 and 111, emphasizing simultaneous linear equations, quadratic equations and applied problems. Prerequisites: MTH 60 and placement in WR 115.

CMET 113 Engineering Technology Graphics 3 Cr. - Introduction to and study of the basic skills of drafting and the use of drafting equipment for proper pictorial communication as used by industry. Includes an introduction to AutoCAD. Prerequisite: placement in WR 115. Corequisite: MTH 60.

CMET 121 Strength of Materials 4 Cr. - Covers the relationship between stress and strain in deformable solids. Analysis is applied to circular shafts, beams, columns and pressure vessels. Covers combined stresses, statically indeterminate systems and properties of structural materials. Prerequisites: CMET 110, 112, 113. Corequisite: CMET 122, 123.

CMET 122 Technical Engineering Physics 4 Cr. - Introduces physical properties of matter and energy, includes properties of solids, liquids and gasses. Presents applications of the basic equations of fluid mechanics, heat transfer, and the First Law of Thermodynamics. Corequisites: CMET 121, 123.

CMET 123 Technical Algebra with Analytic Geometry 4 Cr. - Covers algebra and geometry of special interest to engineering technicians including solving higher order equations, determinants, matrix operations, logarithms and trigonometric identities. Plane analytical geometry introduced in preparation for calculus, emphasizing development of skills and confidence to solve advanced pre-calculus problems. Prerequisite: CMET 112 or MTH 111.

CMET 131 Applied Calculus 8 Cr. - Introduces differential and integral calculus, with applications to engineering problems, including kinematics, moments of inertia and deflections of beams. Specific calculator required, see advisor. Prerequisites: CMET 121, 122, 123.

CMET 132 Plane Surveying 3 Cr. - Basic concepts of plane surveying are introduced. Includes use of tape, level, transit, electronic total station (ETS), along with horizontal and vertical control networks. Includes network calculations and adjustments; angles and bearings and topographic surveying and mapping. Prerequisites: CMET 123 or MTH 112; and CMET 123 or DRF 126.

CMET 133 Materials Technology 3 Cr. - Selection of materials for engineering technology applications, structure and properties of metals, ceramics and polymers starting with fundamental atomic arrangements. Microstructural control through thermal and mechanical processing and effects of service environment are covered. Prerequisites: CMET 131; CH 100; WR 121.

CMET 150 Statics 4 Cr. - Covers fundamental concepts of mechanics relating to forces acting on rigid bodies. Includes problems involving actions and reactions on structures and machines in two and three dimensions. Covers friction, moments of inertia and centroids. Concurrent registration: CMET 151. Prerequisite: PHY 201. Corequisite: MTH 112.

CMET 151 Engineering Technology Orientation 3 Cr. - A rigorous practical approach to techniques and problems encountered in the field of engineering technology. Offers abundant opportunity to solve engineering problems. Concurrent: CMET 150. Prerequisite: PHY 201. Corequisite: MTH 112.

CMET 171 Strength of Materials 4 Cr. - Covers the relationship between stress and strain in deformable solids. Analysis is applied to circular shafts, beams, columns, and pressure vessels. Covers combined stresses, statically indeterminate systems and properties of structural materials. Prerequisites: CMET 150, 151; and PHY 201.

CMET 211 Environmental Engineering Technology I 4 Cr. - Introduces physical, chemical and biological parameters relating to the quality of water. Presents sampling systems, data analysis techniques and computational methods, including mathematical models. Recommended: CMET 131. Prerequisites: CMET 110, 122, 123; and CH 100. Corequisites: WR 121; CIS 120.

CMET 212 Thermodynamics I 4 Cr. - Covers principles of classical thermodynamics. Develops understanding of mass energy, heat, work, efficiency, ideal and real thermodynamic cycles and processes. Teaches first and second laws of thermodynamics, perfect gas law, properties of real gases, and the general energy equation for closed and open systems. Prerequisites: CMET 131; CH 100.

CMET 213 Fluid Mechanics 3 Cr. - Covers properties, laws of fluid mechanics and energy relationships for incompressible fluids. Studies flow in closed conduits, including pressure loss, flow measurement, pipe sizing and pump selection. Includes open channel flow analysis. Recommended: CMET 131. Prerequisites: CMET 110, 122, 123.

CMET 214 Route Surveying 3 Cr. - Presents techniques for preliminary, location and construction surveys related roads and pipelines. Includes elements of horizontal and vertical location, including circular, spiral and parabolic curves. Draw plans, profiles and cross sections and use electronic total stations. Prerequisites: CMET 132.

CMET 215 Manufacturing and Robotics 3 Cr. - Covers today's global economy and solutions to problems of manufacturing enterprise. Factors addressed: statistical process/quality control, robotics, CAD, CAM, DFA/DFM, and CIM. Traditional and nontraditional manufacturing processes covered. Prerequisites: CMET 121, 122. Prerequisite or concurrent: CMET 133; WR 121.

CMET 221 Environmental Engineering Technology II 4 Cr. - Explores ground water, air, hazardous waste, and water pollution problems. Addresses technological solutions of these problems, including water, waste water, and air pollution treatment, as well as alternatives. Prerequisite: CMET 211, 213; WR 121

CMET 222 Thermodynamics II 4 Cr. - Covers application of laws and principles of thermodynamics to heat engines and heat pumps. Analyzes performance and design of internal and external combustion engines, steam generators, compressors, heat exchangers and refrigeration machinery. Studies nonreacting ideal gas mixtures. Includes combustion equation analysis and applications. Prerequisite: CMET 212.

CMET 223 Project Management 3 Cr. - Administration of engineering projects. Covers owner-design professional-constructor relationships, law and contracts, specifications writing and interpretation, cost estimating, engineering economy, and planning and scheduling (CPM and time-scaled arrow diagrams). Recommended: SP 100 or 111; CIS 120. Prerequisite or concurrent: WR 121.

CMET 224 Computer Aided Design II 2 Cr. - Introduces more advanced aspects of computer aided drawing relating to disciplines common to civil and mechanical engineering. Three dimensional wire frame and solid modeling are included. Prerequisite: CMET 113.

CMET 225 Soil Mechanics 3 Cr. - Explores soil origin, characteristics, index properties and classification. Covers soil/water relationships, strength concepts, settlement, use of soil as a construction material. Design procedure for footings and retaining walls are introduced. Recommended: CMET 131, 213. Prerequisites: CMET 121, 122, 123; WR 121.

CMET 226 Dynamics 3 Cr. - Covers kinematics and kinetics principles relating to the motion of particles and rigid bodies. Examines force, mass, acceleration and velocity relationships. Practical linear and curvilinear motion problems are solved. Work-energy and impulse-momentum methods covered. Prerequisite: CMET 131.

CMET 227 Applied Electricity Fundamentals 2 Cr. - Introduces fundamental principles of electricity as applied to mechanical systems. Principle topics covered: basic electrical theory, electric motors, controls, and energy consumption considerations. Prerequisite: CMET 112.

CMET 228 Construction Materials 3 Cr. - Covers production, processing, and testing of aggregate, asphalt, concrete, soil and other materials in highway and commercial/industrial building projects. Includes quality assurance concepts, measurements and calculations, terminology and random sampling. Focuses on testing procedures common to construction in the northwest. Recommended: CMET 131. Prerequisites: CMET 121, 122, 123; WR 121.

CMET 231 Reinforced Concrete Technology 3 Cr. - Design, production and use of Portland cement concrete. Includes analysis and design of reinforced concrete structures, including beams, floors, columns, walls and footings. Recommended: CMET 131. Prerequisites: CMET 121, 122, 123; WR 121.

CMET 233 Computer Aided Design III 2 Cr. - Presents advanced topics in computer aided drawing emphasizing drawing meeting industry standards. Prerequisite: CMET 224.

CMET 235 Machine Design 3 Cr. - Examines fundamentals of machine design, including analysis and design of mechanical components. Covers shafts, fasteners, belt and chain drives, brakes, gears, springs and bearings. Includes predicting static and fatigue failures for various loadings and materials. Prerequisite: CMET 226.

CMET 236 Structural Design 3 Cr. - Introduces design of steel, wood, and reinforced concrete structures with emphasis on steel buildings. Covers beam and column design along with bolted and welded connections. Recommended: CMET 131. Prerequisites: CMET 121, 122, 123; WR 121.

CMET 280A Cooperative Ed: Civil/Mechanical Engineering Tech 1-5 Cr. - An opportunity to develop engineering technology skills in a department-approved work setting. Department permission required.

CS - Computer Science

CS 133U C Programming 4 Cr. - Solve real-world problems using structured programming principles and the C programming language in a MS DOS/Windows environment. Introduces with little or no previous programming experience the world of computer programming through development of C programs to solve practical problems. Prerequisites: MTH 65 and Computer Literacy (such as completion of CIS 120), or consent of instructor.

CS 140U Introduction to UNIX 4 Cr. - Provides an in-depth introduction into the UNIX operating system, including: task scheduling and management, memory management, input/output processing, internal and external commands, shell configuration, and shell customization. Explores the use of operating system utilities such as text editors, text formatters, electronic mail, and file management, awk scripts, and C/C++ compilers. Discusses trends in UNIX, including use of graphic user interfaces. Prerequisites: A course in computer literacy (such as completion of CIS 120); MTH 95; placement at WR 121; or instructor permission.

CS 160 Exploring Computer Science 4 Cr. - Explores the field of computer science. Provides an overview of computer architecture, software development engineering, data organization, problem-solving strategies, ethics, and theory of computation. Explores career options and develops rudimentary software development skills. Recommended: Computer Literacy (such as completion of CIS 120); placement at MTH 65 and RD 115.

CS 161 Computer Science I 4 Cr. - Introduces object-oriented design, implementation and testing of software in a platform-independent, event-driven, graphic user interface environment. Covers basic concepts of data representation, user interface design, and software engineering. Prerequisites: MTH 111; CS 160; placement in WR 121; or instructor permission. (For CIS students: please contact instructor if you need prerequisite waiver.)

CS 162 Computer Science II 4 Cr. - Continues study of problem solving, program design and object oriented design. Covers a variety of data structures and algorithms. Topics include: the Unified Modeling Language, streams and files, lists, inheritance, searching and sorting algorithms, computational complexity, and recursion. Recommended: CS 140U. Prerequisites: MTH 112 or MTH 116; WR 121; CS 161.

CS 171 Computer Architecture/Assembler I 4 Cr. - Provides a knowledge of internal organization of a computer and of assembly language programming. Develop programs in the x86 assembler language and gain perspective on performance issues that affect computer software in general. Topics include numeric data representation, instruction formats, instruction fetch and execution, instruction sets, register utilization, interrupt processing and the assembly process. Prerequisite: CS 161.

CS 234U Advanced C++ Programming 4 Cr. - Provides an in-depth introduction to the C++ programming language for students who already possess solid software development and object-oriented skills. Topics include class design, pointers and memory management, single and multiple inheritance, value semantics, polymorphism and dynamic binding, and techniques for effective and efficient implementation in C++. Prerequisites: CS 162, 140U; or instructor permission.

CS 250 Discrete Structures 4 Cr. - Introduces fundamental structures underlying the study of computer science. Includes set theory, functions, relations, induction, recursion and elementary combinatorics. Presents functional programming model as an alternative model of computation. Examines recursive programming and recursive computational structures. Prerequisites: CS 162; MTH 253; WR 121.

CS 251 Logical Structures 4 Cr. - Covers structures related to logic and abstract algebras. Includes formal proof techniques, propositional and predicate calculus, computational logic, automatic theorem proving, the logic and knowledge-based programming model, Boolean algebra and circuit design, and the formal structure of abstract algebras. Prerequisite: CS 250.

CS 260 Data Structures 4 Cr. - Covers abstract data structures used to store, access and manipulate information in computer programs. Implementation language will be C++. Topics include: template functions, template classes, stacks, queues and lists, searching, hashing, sorting, binary trees, general trees and an introduction to the Standard Template Library. Prerequisite: CS 234U, or demonstrated proficiency in C++.

CS 261 Programming Systems 4 Cr. - ANSI C and UNIX programming topics include: shell programming, implementation of abstract data types in C, dynamic memory allocation, and the UNIX programming tools: make, dbg, gdb, sccs, rcs, and profilers. C++ programming topics include: operator overloading, single and multiple inheritance, dynamic function binding, pointers to functions, functions with an unknown number of arguments. Prerequisites: CS 140U, 260.

CS 271 Computer Architecture/Assembler II 4 Cr. - Continues the introduction of computer organization and architecture including a significant treatment of digital logic. Topics include: instruction sets, performance measurements, floating point numbers, logic design, arithmetic and logic units, bus operation/management, memory, hierarchy, input/output, pipelining and multiprocessor systems. Prerequisites: CS 161, 171.

CSS -Crop Soil Science

CSS 200 Soils and Plant Nutrition 3 Cr. - Soils and plant interrelationships. Soil development and terms. Use of organic and inorganic means to provide optimum environment for plant growth. Recommended: MTH 60; or instructor permission.

CST - Computer Software Engineering Technology

CST 106 Windows for Technicians 3 Cr. - Investigates the Windows operating system from the perspective of a technician user including Windows history, terminology, reading documentation, using the mouse and keyboard for data entry and environment control, file management system, file backup and restoration. Windows utilities and DOS under Windows. Labs provide practical application of topics presented. Department permission required.

CST 109 C Programming for Electronics 4 Cr. - Introduces C Programming to include computer terminology, how to read and document code, compile and test, detect and correct defects found in existing program. Students complete a variety of projects to demonstrate their mastery of the basic C programming environment. MS DOS fundamentals required.

CST 115 Introduction to Software Engineering in C++ 4 Cr. - Investigates the concepts, terminology, and tools of object-oriented software engineering and C++. Practices reading program specifications and documentation; documenting software; developing algorithms; coding and compiling programs and library modules; and detecting and correcting defects on a variety of projects. Department permission required.

CST 116 Software Engineering in C++ 4 Cr. - Investigates the fundamental concepts of object-oriented software design and engineering practices including the creation and documentation of algorithms and their translation into C++ and subsequent testing. Students complete a variety of software design and programming projects demonstrating mastery of these topics. Prerequisites: CST 115; MTH 111.

CST 126 Software Methodology 4 Cr. - Investigates the software methodology used in the development of large-scale software by teams of programmers using object-oriented techniques for implementation in C++. Emphasizes software QA and testing strategies. Work in teams to practice using a variety of techniques to facilitate completion of two large-scale projects. Prerequisites: CST 211; MTH 231.

CST 140 UNIX Systems & Script Programming 4 Cr. - Investigates the UNIX operating system from the user's perspective including the organization of UNIX, the effective use of a broad range of system utilities to exercise control over the file system, user environment, and various script programming languages to complete a variety of lab projects. Experience with another operating system helpful.

CST 206 Windows System Administration 3 Cr. - Investigates the Windows environment from the perspective of the technician user including the concepts of graphical user interfaces and windows; application software installation; clipboard, control panel, and pif editor use; system configuration and customization; device driver installation; and troubleshooting system messages. Completes a variety of projects. Prerequisite: CST 106.

CST 211 Data Abstraction in C++ 4 Cr. - Investigates an object-oriented approach to the design and creation of reusable classes in C++. Investigates the algorithms and implementation of advanced data structures, including stacks, queues, sequences, streams, lists, arrays, trees, dictionaries, bags, sets, and hash tables. Examines both static and dynamic representations. Prerequisites: CST 116; MTH 231; WR 121.

CST 240 UNIX Systems Administration 4 Cr. - Investigate the UNIX operating system concerns of the systems administrator including the fundamental duties and responsibilities of systems and network administration. Practice using a broad range of administration utilities to install, maintain, backup, configure, and troubleshoot the file, mail, printer, and network systems of UNIX while developing and using sophisticated scripts. Prerequisite: CST 140.

CST 250 80X86 Assembly Language Programming 4 Cr. - Investigates software engineering concepts applied to low-level languages and tools including assemblers, linkers, debuggers, make utilities and librarians. Topics include assembler directive use, macro creation, the basic instruction set, and the requirements for subroutines and parameter passing. Data topics include arrays, strings, set, BCD integers, IEEE floating point, records, and lists. Prerequisites: CST 116; EET 241; WR 227.

CST 256 Software Engineering in C 4 Cr. - Following a review of the basics of the C language, ANSI standard libraries, and software support facilities for the C language, students will investigate algorithms and implementations of data structures, including stacks, queues, sequences, streams, lists, arrays, and trees. Both static and dynamic representations will be examined. Prerequisites: CST 126, 140; WR 227.

CST 258 Windows Programming 4 Cr. - Investigates object-oriented software engineering in the Microsoft Windows environment including the basic concepts and features of GUI message passing environment. Investigates windows, menus, accelerators, messages, icons, dialog boxes, fonts, controls, and various drawing functions in the Microsoft MFC libraries. Prerequisites: CST 126; WR 227.

CST 260 Advanced 80X86 Assembly Language Programming 3 Cr. - Investigates low-level language skills for writing and documenting medium-scale software involving the specialized use of the keyboard, video device, printer, serial ports, hard and floppy disk DOS and BIOS interrupts, mixed-language programming, and the design and implementation of DOS device drivers to handle specific hardware control problems. Prerequisites: CST 250, 256.

CST 263 Multi-tier Architecture Software Development 3 Cr. - Investigates architectural constraints, operational environment, design issues, programming considerations, and deployment of software systems intended for deployment across two or more computer platforms such as e-business systems. Topics include networking, databases, servers, distributed applications, various scripting languages, and data protocols such as HTML, XSL and XML. Work in teams to develop prototypical multi-tier systems. Prerequisites: CST 240, 250, 256, 258.

CST 266 Advanced Software Engineering in C 4 Cr. - Investigates C programming in the DOS and UNIX operating system environments, with emphasis on the non-ANSI libraries provided by each operating system for data communications, language processing, graphics, and concurrent software applications. Prerequisites: CST 250, 256.

CST 268 Advanced Windows Programming 3 Cr. - Investigates advanced topics of the Microsoft Windows programming environment using MFC. Prerequisite: CST 258.

CST 270 Special Projects: Analysis and Design 4 Cr. - The first of a two-course sequence in which students assume major responsibility for selecting, planning, and completing a large-scale software project. May work individually or in teams. Prerequisite: CST 126 and instructor permission required.

CST 280A Cooperative Education: Computer Software Technology 1-5 Cr. - Fulfills the need for the student to demonstrate and apply the software and electronics knowledge and skills gained from this program of study in a department approved work setting. This elective course must be taken twice for 4 credits in two consecutive terms. Prerequisite: CST 126 and instructor permission required.

D - Dance

D 150 Jazz Dance I 2 Cr. - Introduces fundamentals of jazz dance technique. Emphasizes and develops correct body alignment, coordination, strength, flexibility, rhythm, and movement awareness. Includes jazz dance vocabulary and basic jazz dance combinations. Course may be taken 3 times for credit.

D 151 Jazz Dance II 2 Cr. - Continues development of jazz dance technique beyond the beginning level. Emphasizes increased coordination, strength, control, flexibility, musicality, dynamics, and jazz dance vocabulary in more challenging steps and combinations. Recommended courses: D 150 or PE 186F; or equivalent.

D 152 Jazz Dance III 2 Cr. - Continues development of jazz dance technique at the intermediate level. Emphasizes increased strength, control, flexibility, stamina, musicality, dynamics, and jazz dance vocabulary in more challenging combinations. Recommended courses: D 151 or PE 186G, or equivalent.

D 169 Musical Theater Dance 2 Cr. - Covers dance forms and styles used in the musical theater choreography. Covers basic techniques, vocabulary, and dance excerpts from musical theater shows. Recommended courses: Two dance technique courses or previous dance training.

D 170 Ethnic Dance 2 Cr. - Introduces traditional and popular dance forms and styles from a selection of countries and cultures. Examines and practices dance movement within a culture context. Ethnic dances may vary by term. Course may be taken 3 times for credit.

D 175A Tap Dance I 2 Cr. - Introduces fundamentals of tap dance technique and vocabulary. Develops a sense of timing, rhythm, musicality. Emphasizes basic traditional tap steps, rhythm tap combinations and complete dances. Course may be taken 3 times for credit.

D 192A Ballet I 2 Cr. - Develops skills and examines principles in the fundamentals of classical ballet technique. Emphasizes correct alignment, basic barre and center work, traveling steps, and ballet vocabulary. Course may be taken 3 times for credit.

D 192B Ballet II 2 Cr. - Continues development of knowledge and skills in classical ballet technique beyond the beginning level. Emphasizes correct alignment, increased speed, strength, flexibility, balance, coordination, and ballet vocabulary in more challenging combinations. Recommended courses: D 192A; or PE 186A; or equivalent.

D 192C Modern Dance I 2 Cr. - Introduces beginning modern dance technique. Emphasizes and develops correct body alignment, coordination, strength, flexibility, movement awareness and improvisation. Includes modern dance vocabulary and simple modern dance combinations. Course may be taken 3 times for credit.

D 192D Dance Lab: Modern II 2 Cr. - Continues development of modern dance technique beyond the beginning level. Emphasizes correct body alignment, increased coordination, strength, control, flexibility, stamina, musicality, improvisation and modern dance vocabulary in more challenging combinations. Recommended courses: D 192C; or PE 186I; or equivalent.

D 209A Dance Performance 3 Cr. - Offers practical experience in rehearsing and presenting a dance performance. Recommended courses: Previous dance training or audition.

D 209B Dance Performance 2 Cr. - Offers practical experience in rehearsing and presenting a dance performance. Recommended courses: Previous dance training or audition. Course may be taken 3 times for credit.

D 209C Dance Performance 1 Cr. - Offers practical experience in rehearsing and presenting a dance performance. Recommended courses: Previous dance training or audition.

D 251 Introduction to Dance 3 Cr. - Introduces dance as a performing art through historical overview, examination of techniques and aesthetics of ballet, modern dance, and jazz dance, and viewing dance videos. Examines dance as cultural and creative expression in Western civilization, and the role of dance in contemporary society.

D 260 Dance Improvisation & Composition 2 Cr. - Covers basic elements of dance design and composition. Explores movement in time, space and form through improvisations and assignments. Recommended courses: Two dance technique courses or equivalent.

D 288C Jazz Dance II-C Advanced 2 Cr. - Offers practical experience in the organization, rehearsal, and presentation of dance/movement performances. Students must audition or have instructor permission and may earn one to three credits depending on hours involved. Some technical production elements may also be explored.

D 292 Ballet III 2 Cr. - Continues development of classical ballet technique at the intermediate level. Emphasizes correct alignment, increased speed, strength, flexibility, balance, coordination, stamina, and ballet vocabulary in longer, more challenging combinations. Recommended courses: D 192B or PE 186B; or equivalent.

DA - Dental Assisting

DA 110 Clinical Procedures I 2 Cr. - Introduces clinical dental assisting including operator preparation, sterilization/disinfection procedures, dental equipment, tray set-ups and restorative dental procedures.

DA 111 Clinical Procedures I (Lab) 2 Cr. - Laboratory training and experience in basic dental assisting functions and responsibilities. Students progress to assisting dentists in the dental clinics.

DA 112 Clinical Procedures II 1 Cr. - Intermediate clinical dental assisting with instruction in oral examination, charting and other procedures. Prerequisite: DA 110.

DA 113 Clinical Procedures II (Lab) 3 Cr. - Continued clinic and laboratory experience. Students spend one day per week assisting dental students at the Oregon Health Sciences University Dental School.

DA 114 Clinical Procedures III 1 Cr. - Advanced clinical dental assisting with instruction in dental specialty procedures.

DA 115 Clinical Procedures Lab III 5 Cr. - Advanced clinical experience, including dental specialty procedures. Students spend three days per week in dental office internships.

DA 118 Expanded Duties I 1 Cr. - Studies function and procedures beyond the scope of general dental assisting as allowed by the Oregon Dental Practice Act. Includes amalgam polishing and margination, rubber dam placement and removal.

DA 119 Expanded Duties II 1 Cr. - Continued study of expanded duties to include coronal polishing, cement removal, and other areas needed to meet changes in the field.

DA 120 Dental Radiology I 1 Cr. - Introduces uses of radiographic images in dentistry, including the history, physical and chemical properties, biological effects and safety principles.

DA 121 Dental Radiology I (Lab) 2 Cr. - Practice radiographic techniques on manikins and correlate activities to the DA 120 lecture.

DA 122 Dental Radiology II 1 Cr. - Continued study of the philosophy and principles of dental radiography with review and preparation for National and State certification examinations.

DA 123 Dental Radiology II (Lab) 2 Cr. - Continued experience with radiographic techniques on manikins and clinic patients under direct supervision.

DA 125 Dental Radiology III (Lab) 2 Cr. - Advanced x-ray clinical experience to include extra-oral and x-rays for children and dentulous patients. Radiographic experience during private practice internships.

DA 130 Dental Materials I 1 Cr. - Basic physical and chemical properties of dental materials including resins, gypsum products, impression materials, waxes, cements and bases.

DA 131 Dental Materials I (Lab) 2 Cr. - Lab activities prepare students in the proper handling and manipulation of the materials studied in DA 130 lecture.

DA 132 Dental Materials II 1 Cr. - Continued study of dental materials to include those used specifically in the processes of crown and bridge construction.

DA 133 Dental Materials II (Lab) 2 Cr. - Continued development of skills in the handling and manipulation of dental materials as described in the DA 132 lecture.

DA 135 Dental Materials III (Lab) 2 Cr. - Advanced laboratory activities designed to improve proficiency and efficiency in the handling and manipulation of dental materials. Apply knowledge and skills in dental office internships.

DA 140 Integrated Basic Science I 3 Cr. - Fundamental principles of human anatomy and physiology, plus study of tooth form and function. Introduces dental embryology, microbiology and pathology included.

DA 142 Integrated Basic Science II 2 Cr. - Specialized study of the structures of the head and neck with emphasis on the oral cavity.

DA 145 Dental Health Education 2 Cr. - Basic principles of the prevention of dental disease through patient and public education, with an introduction to individual psychological differences and behavior modification.

DA 150 Dental Office Procedures I 2 Cr. - Overview of procedures associated with reception desk responsibilities and dental office management.

DA 152 Dental Office Procedures II 2 Cr. - Comprehensive course including oral and written communication, computer skills and job search techniques. All study is related to dentistry. Recommended: typing/keyboarding skills.

DA 152L Dental Office Procedures II (Lab) 1 Cr. - Develop skills in the use of computers for dental office management.

DA 156 Ethics and Jurisprudence 1 Cr. - Covers ethical standards established by professional dental organizations through their code of ethics. The legal responsibilities and obligations of the dental assistant and the dentist are also taught.

DA 160 Dental Pharmacology 1 Cr. - Become familiar with medications and drugs used by the dentist in treating patients.

DA 9406 Dental Assisting Practicum 1-5 Cr. - Upgrading for dental assistants who have been out of the field for a prolonged period of time, or who feel their skills are out of date.

DE - Developmental Education

DE 20 Comprehensive Language Development 3 Cr. - Intensive work on all aspects of language use: reading, writing, spelling, listening and speaking. Students build skills through class, small group, and individualized instruction.

DE 21 Comprehensive English Development for the Deaf 6 Cr. - First course of a three-term English program for hearing-impaired students wishing to further develop their English skills in writing, reading, and vocabulary. Instructor permission required.

DE 22 Comprehensive English Development for the Deaf 6 Cr. - Second course of a three-term English program for hearing-impaired students wishing to further develop their English skills in writing, reading, and vocabulary. Instructor permission required.

DE 23 Comprehensive English Development for the Deaf 6 Cr. - Third course of a three-term English program for hearing-impaired students wishing to further develop their English skills in writing, reading, and vocabulary. Instructor permission required.

DE 30 Learning Skills 3 Cr. - Topics include time management, setting priorities, values, and goals clarification, improving basic skills, and planning an individual program.

DE 31 Basic Learning Skills I 1 Cr. - Introduction to study skills required in college. Principle topics include motivation, goal setting, time management, organization of college, and study suggestions and techniques. Course may be taken alone or as part of a three-credit series (DE 31, 32, 33).

DE 32 Basic Learning Skills II 1 Cr. - Introduction to study skills required in college. Principle topics include reading, writing, listening, and speaking better, time management, and goal setting. Course may be taken alone or as part of a three-credit series (DE 31, 32, 33).

DE 33 Basic Learning Skills III 1 Cr. - Introduction to study skills required in college. Principle topics include an overview of college and university education, of resources available at PCC and how to access them, an introduction to college terminology, how to read the PCC catalog, and the preparation of an individual college plan. Course may be taken alone or as part of a three-credit series (DE 31, 32, 33).

DE 50 Vocabulary Building 3 Cr. - Topics include parts of speech, word parts, word relationships and use of the dictionary. Recommended for students in developmental reading and writing. Prerequisite: Reading placement test score above 31.

DE 51 Workplace Essentials: Employment 1 Cr. - Provides assistance with a basic job search and explains how to match skills and talents to a particular job. Takes learners through the process of applying for a job and interviewing.

DE 52 Workplace Essentials: Communication and Writing 1 Cr. - Focuses on helping workers succeed by introducing communication skills like working together and customer relations. Writing skills are also improved as learners discover effective ways of writing memos, letters, and information for forms and charts.

DE 53 Workplace Essentials: Reading 1 Cr. - Emphasizes functional reading skills as learners are taught to read and understand charts, forms, reports and manuals so that students can find what they need and follow written direction.

DE 54 Workplace Essentials: Math 1 Cr. - Basic math skills are improved by instruction on decimals, percentages, fractions, measurements, and formulas. Also covers understanding graphs and predicting trends.

DE 55 Workplace Essential Skills 4 Cr. - Telecourse presenting materials in four major areas: finding a job; communications and writing; reading; and math. Part one provides assistance with a basic job search and explains how to match skills and talents to a particular job. Takes learners through the process of applying for a job and interviewing. Part two focuses on helping workers succeed by introducing communication skills like working together and customer relations. Writing skills are improved as learners discover effective ways of writing memos, letters, and information for forms and charts. In the third part, functional reading skills are emphasized as learners are taught to read and understand charts, forms, reports and manuals so that students can find what they need and follow written direction. In part four, basic math skills are improved by instruction on decimals, percentages, fractions, measurements, and formulas. Understanding graphs and predicting trends also covered.

DE 67 English Language Skills 3 Cr. - Provides overview of English basics including: sentences, verb tenses, parts of speech, punctuation, reading skills, spelling, vocabulary, writing effective paragraphs, and writing essays. Diagnostic activities will also be included to help students who are uncertain or new to college determine next steps. Prerequisite: Reading and writing ASSET placement test scores of 32 or higher.

DE 70 Assistive Technology for College Success 3 Cr. - Explores how technology can affect the success of students with disabilities in a college environment. Students will learn about specific strategies for accessing and learning how to use information technology.

DE 80 Applied Economics/Personal Finance 3 Cr. - the general principles of economics and selected aspects of personal finance, including employment and income, money management, credit, and consumer protection.

DH - Dental Hygiene

DH 100 Special Dental Hygiene Practice 1-5 Cr. - Clinic experience for dental hygiene students or graduates needing to maintain or enhance clinic skills outside the regularly scheduled clinic sequence, especially in preparation for Board examinations. Instructor permission required.

DH 101 Dental Hygiene Theory I 4 Cr. - Study of basic dental hygiene procedures, theory and philosophy as applied to direct patient services.

DH 102 Dental Hygiene Theory II 2 Cr. - Continued study of dental hygiene theory and practices, including oral prophylaxis classifications, alternative orophysiotherapy aids and school clinic policies and procedures.

DH 103 Dental Hygiene Theory III 2 Cr. - Expansion of the concepts of dental hygiene theory to include the more difficult oral conditions and special needs.

DH 104 Dental Hygiene Practice I 3 Cr. - Applies dental hygiene theory and techniques in a laboratory setting on dental manikins. Works with patients will begin when specified skill levels are reached.

DH 105 Dental Hygiene Practice II 3 Cr. - Applies dental hygiene preventive and therapeutic principles while providing patient care in a clinical environment. Patient care includes oral prophylaxis and oral hygiene.

DH 106 Dental Hygiene Practice III 3 Cr. - Continued clinical activities with increased difficulty in the type and number of cases.

DH 109 Dental Radiology I 2 Cr. - Covers basic theory of dental radiography. Practices intra-oral techniques on manikins with emphasis on radiation safety practices and techniques.

DH 113 Dental Anatomy 2 Cr. - Study of anatomical characteristics of all permanent and deciduous teeth and their surrounding tissues.

DH 121 Dental Health Education 2 Cr. - Familiarizes student with selected teaching techniques and organized teaching programs having direct application to dental health education concepts.

DH 127 Medical Emergencies 1 Cr. - Study of medical emergencies that occur in the dental office including prevention, recognition and appropriate intervention.

DH 128 Oral Histology 2 Cr. - Study of microscopic anatomy of the oral tissues. Course serves as an introduction to DH 129 Oral Pathology.

DH 129 Oral Pathology 3 Cr. - Study of oral diseases and recognition of conditions that may require consultation and treatment by a dentist prior to, or concurrent with dental hygiene procedures.

DH 201 Dental Hygiene Theory IV 2 Cr. - Dental hygiene theory applied to patients having moderate to severe periodontal involvement. Instruction includes the use of ultrasonics and advanced techniques.

DH 202 Dental Hygiene Theory V 2 Cr. - Advanced dental hygiene theory to include treatment of periodontal disease and expanded functions.

DH 203 Dental Hygiene Theory VI 3 Cr. - Expansion of dental hygiene theory to include dental specialties and the role of the hygienist in specialty offices. Job search skills and stress management included.

DH 204 Dental Hygiene Practice IV 5 Cr. - Continued clinical activities to include treatment of periodontally involved patient. Activities will correlate to DH 201.

DH 205 Dental Hygiene Practice V 5 Cr. - Continued clinical activities providing treatment to a variety of dental patients. Laboratory activities in expanded functions. Activities correlate to DH 202.

DH 206 Dental Hygiene Practice VI 5 Cr. - Advanced dental hygiene clinic activities to include all aspects of previous training at increased skill levels. Nitrous oxide sedation included, plus simulated private practice and mock board activities.

DH 208 Community Dental Health Education 1 Cr. - Provides knowledge and skills necessary to function as an oral health educator for groups of varied populations.

DH 210 Dental Radiology Lab II 1 Cr. - Continuation of DH 109, Dental Radiology I. Includes provision of basic dental radiographic services to clinic patients including more advanced radiographic techniques.

DH 212 Radiographic Interpretation 1 Cr. - Designed to provide knowledge of, and experience in analysis and recording of dental radiographic images.

DH 228 Oral Anatomy 2 Cr. - Studies the structures and functions of oral anatomy with emphasis on those structures important in the administration of local anesthesia.

DH 229 Local Anesthesia 2 Cr. - Covers the techniques of pain control by the administration of local anesthetics. Prepares student formangement of complex clinical clients during advanced dental hygiene procedures.

DH 230 Dental Materials 2 Cr. - Classification, chemistry, physical properties, and uses of dental materials including manipulation techniques.

DH 231 Oral Anatomy/Pain Control 2 Cr. - Studies the structures in and around the oral cavity, and the theory and practice of local anesthesia for patient comfort during dental procedures.

DH 232 Nitrous Oxide Sedation 2 Cr. - Theory and clinical application of nitrous oxide sedation for dental patients as prescribed by the State Dental Practice Acts of Oregon, Washington and California.

DH 236 Ethics & Jurisprudence 1 Cr. - Studies the legal restrictions and ethical responsibilities associated with the practice of dental hygiene and dentistry.

DH 246 Pharmacology 3 Cr. - Introduces various drugs used in the practice of dentistry. Studies nomenclature, classification, dosage, and effects of different pharmacologic compounds.

DH 250 Public Health 2 Cr. - Introduces public health criteria, epidemiological studies, and basic statistics in preparation for community dental health work.

DH 252 Community Dentistry I 1 Cr. - Students become familiar with, and involved in current community projects which provide dental services, research and education.

DH 253 Community Dentistry II 2 Cr. - Development, evaluation and implementation of dental health projects in the community.

DH 260 Periodontology I 2 Cr. - Introduces the science and management of periodontal diseases. Emphasizes microbial, biochemical and etiological principles. Course will correlate to clinical activities.

DH 261 Periodontology II 2 Cr. - Advanced study of periodontal disease to include the most severe conditions, surgical corrections and research findings.

DRF - Drafting Technology and Design

DRF 117 Drafting Fundamentals 3 Cr. - Introduces skills needed to produce 2-D mechanical drawings, including orthographic projections, sections and pictorial drawings. Covers dimensioning basics and simple architectural plans and sections.

DRF 126 Introduction to AutoCAD 3 cr. - Introduces AutoCAD software as a design tool. Instructions will be given in the operation of both hard disk and flexible disk data storage, and plotting. Covers creation, retrieval and modification of drawings that meet industry standards using basic AutoCAD commands.

DRF 133 Intermediate Drafting 4 Cr. - Reviews and incorporates material presented in DRF 117 and DRF 118. Introduces threads, fasteners, keys and springs, and their applications. Prerequisite: DRF 117.

DRF 134 Introduction to Machine Manufacturing 4 Cr. - Introduces basic machines and practices used in most machine shops. Includes shop safety practices, tool crib and shop procedures, care and use of precision tools and the use of the sensitive drill press, engine lathe, milling machine and band saw. Prerequisite: DRF 117.

DRF 135 Advanced Drafting 4 Cr. - Introduces working drawings, including assemblies and details, weldments, drawing numbering systems and revisions. Covers dimensional tolerancing and fits, surface finishing and welding systems. Prerequisite: DRF 133.

DRF 136 Intermediate AutoCAD 3 Cr. - In-depth study of computer aided drafting using AutoCAD software. Covers slide files, block attributes, user coordinate systems, v-points, 3-D entity creation, external references, and paper/model space drawing manipulation. Prerequisite: DRF 126.

DRF 158 Geometric Dimensioning & Tolerancing 3 Cr. - Introduces the graphical tolerancing technique based on AMSE Y14.5M-1994. Used for designing components that must comply to precision of form, size and/or location for assembly and function. Allows for maximum manufacturing tolerances, common interpretation, and precise definition. Corequisite: DRF 133.

DRF 161 Industry Orientation 2 Cr. - Designed to acquaint students with firms that employ drafters and designers. Observe product lines and manufacturing and production operations through visual media or facility tours. Students become familiar with working conditions and may converse with employees.

DRF 237 Pro/Engineering Basics 3 Cr. - Provides information on the Pro/Engineer Interface, command structure and solid modeling. Develops knowledge and skills in the creations and detailing of solid models.

DRF 240 Casting and Molding Design/Drafting 3 Cr. - Covers components and materials formed by the casting metals and molding (plastics) processes. Prerequisite: DRF 136; MCH 134.

DRF 241 Structural Steel Drafting 4 Cr. - Introduces structural detail drafting of roll form shapes and concrete forms. Covers steel grades and shapes, fabrication and erection drawings for steel structures, detailing of reinforced concrete and steel connections. Prerequisites: DRF 135, 136.

DRF 244 Drafting Math and Problem Solution 4 Cr. - Covers geometry and applied trigonometry as used by drafters. Math knowledge is integrated with that portion of Engineering Mechanics dealing with Statics, and permits the student to calculate reacting forces and stresses in members and structures. Prerequisite: MTH 65.

DRF 246 AutoCAD 3-D and Solid Modeling 3 Cr. - Provides thorough coverage of 3-Dimensional drafting and design procedures. Concepts examined include 2D and 3D primitives, user coordinate systems, 3D v-points, complex extrusions, regions, shading and rendering, 3D solid models, and supportive AutoCAD 3D databases. Prerequisite: DRF 136.

DRF 247 Pro/Engineer Advanced 3 Cr. - Provides information on detailing parts with Pro/Engineer Interface. Develops knowledge and skills in the creation and detailing of solid models including dimensions, notes, bills of materials and drawing formats. Prerequisite: DRF 237.

DRF 250 Fluid Power Design/Drafting 3 Cr. - Introduces specialized manufacturing drawings in the fluid power environments. Includes hydraulic and pneumatic: measurement units and calculation, mechanics and laws of fluids, components symbols, diagrams and circuits (systems). Covers drawing arrangements and terminology found in this field of manufacture. Prerequisites: DRF 135, 158.

DRF 251 Kinematics Drafting 3 Cr. - Introduces mechanisms that translate motion and force, including cams, gears, belts/pulleys and chains/sprockets. Introduces components such as pawls ratchets, linkages and levers. Includes drawings of stock (shelf) items and custom designs. Prerequisites: DRF 135, 136, 244.

DRF 253 Electro Mechanical Design/Drafting 3 Cr. - Introduces specialized manufacturing drawings in the electronic environment. The mechanical side of electronics will be the topic. Drawing arrangements and terminology found in this field of manufacture will be covered. Prerequisites: DRF 135, 136, 244, 158; and MCH 134; or instructor permission.

DRF 254 Drafting Design and Problem Solution 4 Cr. - Presents information and techniques used in the solution of basic mechanical design problems. Includes statics, strength of material, and dynamics. Prerequisite: DRF 244.

DRF 256 Advanced AutoCAD 3 Cr. - Examines customization of AutoCAD menu and Lisp files. Includes buttons, POP, image, screen and tablet sections, creation and implementation of user-defined AutoLISP functions, and basic file management techniques. Prerequisite: DRF 136.

DRF 260 Tool and Fixture Design/Drafting 2 Cr. - Covers specialized design of tools used in manufacturing. Topics include accepted practices in jig and fixture design using custom and standard parts. Also covers derivation of holding procedures by dimensioning and tolerancing and surface texture specifications. Prerequisites: DRF 135, 136, 158; MCH 134.

DRF 262 Machine Design Drafting 3 Cr. - Covers design considerations of "Design for Manufacturability." Topics include applications of dimensioning and tolerancing per current standards, cams, gears, levers, and linkages. Prerequisites: DRF 136, 158, 240, 251, 254.

DRF 270 Beginning SolidWorks 3 Cr. - Introduces SolidWorks software as a 3-D design tool. Covers creation, retrieval and modification of 3-D and layout drawings using basic SolidWorks commands. Includes skills needed to create parametric models of parts and assemblies; generate dimensioned layouts; and Bill of Materials of those parts and assemblies.

DRF 271 Advanced SolidWorks 3 Cr. - Covers advanced editing and modeling options, configurations of assemblies, sheet metal, and top-down assembly modeling. Prerequisite: DRF 270.

DRF 280 Cooperative Education: Drafting 1-4 Cr. - Offered for variable credit. Develops drafting knowledge and skills in a department-approved work setting. The work experiences are designed to be closely aligned with the students' on-campus educational program. Department permission required.

DRF 286 AutoCAD Mechanical Desktop 3 Cr. - A 3-D feature-based parametric modeler that creates complex solid models. Associative 2-D views are generated automatically from the parent model(s). Includes non-uniform B-spline surfaces, constrained assembled models, and customizable bills of materials. Prerequisite: DRF 136.

DS - Diesel Service Technology

DS 101 Engine Rebuild and Lab Procedures 12 Cr. - Covers engine theory, engine components, and proper diesel engine rebuild procedures. Introduces basic engine electrical and fuel systems, shop tool use and maintenance.

DS 102 Truck Power Train 6 Cr. - Introduces gear transmissions, differentials and clutches involved in the application of diesel-powered vehicles.

DS 103 Fuel Injection Systems 6 Cr. - Emphasizes fuel injection systems and how they relate to diesel engine performance and operation. Lecture and hands on training used for instruction. The operations of all major fuel injection devices including diesel fuels, fuel transfer pumps, fuel nozzles, fuel injectors, filtration systems, metering systems and governing systems will be presented.

DS 104 Fundamentals of Electricity & Electronics 6 Cr. - Fundamentals of electricity, electrical circuitry and components. Practice on electrical components and live circuitry.

DS 105 Fundamentals of Hydraulics & Air Conditioning Systems 6 Cr. - Fundamentals of hydraulics in theory and shop practice provides a solid background in applications of hydraulics in the trucking and heavy equipment industry. Heavy duty air conditioning operation, trouble shooting and system repair is incorporated into this class.

DS 106 Engine Diagnostic Tune-up 6 Cr. - Analyze and diagnose each supporting system of the diesel engine to properly tune the engine for peak performance. Develops an understanding of how each of these systems relates to one another.

DS 107 Live Equipment and Lab 6 Cr. - Repair of customer-owned (live) equipment under a minimum of supervision. Department approval required.

DS 202 Heavy Duty Power Train 6 Cr. - Advanced theory and application on automatic and power shift transmissions as used in the heavy equipment industry.

DS 203 Fuel Injection System Diagnostics & Cat Elect Eng Controls 6 Cr. - Designed to cover diesel fuel injection pumps and their applications, timing advance mechanisms, governing systems, electronic engine controls and other related items that effect engine operation and performance.

DS 204 Diesel Starting, Charging & Electronic Control Systems 6 Cr. - Overhaul system components and practice live troubleshooting of heavy duty electrical and electronic systems. Prerequisite: DS 104.

DS 205 Mobile and Hydrostatic Hydraulics 6 Cr. - Covers advanced hydraulics and hydrostatics used on heavy equipment, farm machinery, marine equipment, hydraulic cranes, backhoes and other equipment. Emphasizes troubleshooting. Prerequisite: DS 105.

DS 206 Brakes, Suspension and Steering 6 Cr. - Gain knowledge in brake systems, suspension and steering as used on heavy duty trucks. Covers: air brake systems, truck foundation brakes, antilock brake systems, steering systems, suspension systems, wheels and tires and fifth wheels. Emphasizing safety will be a must in all operations and phases of brakes, suspension and steering. The student must be able to follow verbal and written instructions from instructor and in diesel service manuals and text books.

DS 280A Cooperative Education: Diesel Service Technology 1-10 Cr. - On-the-job work experience related to the individual's education and career goals. Receive one credit for 30 hours of work. Department permission required.

DS 280B Cooperative Education: Diesel Service Technology - Seminar 1-2 Cr. - Share and receive feedback on experiences from other students and instructors. Discuss job survival skills. Department permission required.

DS 9103 Fuel Injection Systems 2 Cr. - Theory of rebuild and calibration procedures for all major fuel injection devices and supply pumps. Introduces the operations of these devices and how they affect engine performance.

DS 9104 Fundamentals of Electricity 2 Cr. - Fundamentals of electricity and electronics. Practice on electrical components and live circuitry.

DS 9105 Fundamentals of Hydraulics 2 Cr. - Covers basic hydraulic theory and its practical application in various systems such as power steering, hydrostats, and backhoes.

DS 9107 Automotive Diesel Engine Tune-up 2 Cr. - Analyze and diagnose each supporting system of the automobile diesel engine to properly tune the engine for peak performance. Department approval required.

DS 9108 Caterpillar Diesel Engine Tune-Up 2 Cr. - Covers familiarization and tune-up procedures for 3116, 3176, 3406B and 3406E. The Caterpillar ECAP and other diagnostic equipment will be used.

DS 9109 Diesel Electronic Control System 2 Cr. - Trouble-shooting and fault code diagnosis for Cummins ECI, Detroit Diesel DDEC, and Caterpillar PEEC systems.

DS 9112 Small Marine Diesel Engine Preventive Maint and Tune-up 2 Cr. - Analyze and diagnose each supporting system of the small diesel engine to properly tune the engine for maximum performance.

DS 9113 Caterpillar Diesel Engine Tune-up 2 Cr. - Covers tune-up procedures on Caterpillar truck engines.

DS 9114 Detroit Diesel Engine Tune-up 2 Cr. - Covers familiarization and tune-up procedures for the 71 series, 92 series and the series 6. A Pro-link 9000 will be used.

DS 9201 Diesel Engine Rebuild 2 Cr. - Provides basic knowledge and skills required to service diesel engines and fuel systems. Demonstrates understanding and proficiency in the theories, principles and operating procedures of hand tools and precision measuring, and test instruments necessary to properly service diesel engines and supporting systems.

DS 9202 Truck Power Train 2 Cr. - Introduces gear transmissions, differentials and clutches involved in the application of diesel-powered vehicles.

DS 9205 Mobile Hydraulics 2 Cr. - Specific components of mixer, truck, application and hydraulic system diagnosis.

DT - Dental Laboratory Technology

DT 101 Dental Technology Lab I 6 Cr. - Initial skill development in the use and operation of dental laboratory equipment, the application of safety principles, and introduction to the fabrication process of complete removable dentures.

DT 102 Dental Technology Lab II 6 Cr. - Continued skill development in complete denture construction. Articulators and immediate overdentures introduced.

DT 103 Dental Technology Lab III 6 Cr. - Advanced complete denture construction to include alternative materials, occlusal patterns and denture individualization.

DT 120 Dental Anatomy 2 Cr. - Studies the basic forms, structures and functions of teeth and their surrounding tissues.

DT 141 Denture Techniques I 2 Cr. - History and philosophy of complete removable dentures with an introduction to the construction process. Artificial tooth selection and setting procedures emphasized.

DT 142 Denture Techniques II 2 Cr. - Continued study of denture construction including the use of articulators, finishing procedures and alternative techniques.

DT 143 Denture Techniques III 2 Cr. - Advanced study of denture construction including alternative occlusal patterns and materials.

DT 151 Science of Dental Materials I 3 Cr. - Overview of materials used in dentistry such as gypsum products, waxes and impression materials.

DT 152 Science of Dental Materials II 3 Cr. - Introduces chemistry and physics, especially as they relate to dental materials. Measurement techniques and unit conversions are stressed.

DT 204 Dental Technology Lab IV 6 Cr. - Skill development in the processes and procedures associated with dental crown and bridge construction. Dental inlays included.

DT 205 Dental Technology Lab V 6 Cr. - The uses of porcelain and acrylic in crown and bridge construction with emphasis on color and form reproduction.

DT 206 Dental Technology Lab VI 6 Cr. - Fabrication of removable partial dentures with emphasis on framework design. Orthodontic appliances included.

DT 253 Science of Dental Materials III 2 Cr. - Continued study of dental materials as related to cast metal alloys and crown and bridge construction.

DT 254 Science of Dental Materials IV 2 Cr. - Advanced study of dental materials including ceramics (porcelain) and high fusing metal alloys.

DT 270 Inlay Casting, Crown and Bridge 3 Cr. - Introduces crown and bridge construction processes and techniques including preparation and waxing of dies, investing, casting, and finishing. Principles also applied to dental inlays.

DT 271 Partials, Clasp and Bar 2 Cr. - Study of the philosophy, materials, design and fabrication processes of removable partial dentures.

DT 272 Dental Ceramics 3 Cr. - Study of dental ceramics (porcelain) including the philosophy, structure, properties, uses, and laboratory procedures associated with this material.

DT 275 Dental Laboratory Management 2 Cr. - Introduces management skills and responsibilities as well as the problems associated with dental laboratory ownership.

DT 276 Dental Laboratory Management Lab 1 Cr. - Computer-based exercises in techniques required for small business management.

DT 284 Dental Specialties 2 Cr. - Introduces dental specialties and advanced techniques that involve participation and skill of the dental lab technician.

DT 285 Dental Seminar 2 Cr. - A workplace preparation course including professional ethics, organizations and opportunities, certification requirements and an overview of the dental care delivery system in Oregon. Also introduces new products and procedures and have an opportunity to visit local laboratories.

DT 9406 Dental Technology Practicum 1-5 Cr. - Covers all steps and procedures in the construction of dental replacements which may include cast metal crowns and bridges, the use of dental ceramics, and/or partial and full dentures.

EC - Economics

EC 115 Outlines of Economics 3 Cr. - Surveys the principles of economics, government economic policies and institutions, and international issues. Emphasizes topics of particular interest to each class.

EC 200 Principles of Economics: Intro, Institutions & Philosophies 3 Cr. - Concepts involving scarcity and choice; the evolution of economic thought; the development of the industrial market system; the present U.S. economic structure; and international trade. Recommended: MTH 95; WR 115.

EC 201 Principles of Economics: Microeconomics 3 Cr. - Covers individual units in the economy, the basics of the price system, production, distribution and market concentration. Recommended: EC 200; MTH 95; WR 115.

EC 202 Principles of Economics: Macroeconomics 3 Cr. - Covers the overall economy. Includes basic reasons for and the problems of recession, inflation and stagflation; the use of monetary, fiscal, and income policies; and other economic management tools. Recommended: EC 200; MTH 95; WR 115.

EC 203 Principles of Economics: Applications to Economic Issues 3 Cr. - International economics: balance of payments, foreign exchange rates and comparative economics. Covers energy, poverty and discrimination, urban, and environmental problems. Includes inflation, unemployment and competing macro management theories. Prerequisites: EC 200, 201 or 202; or instructor permission.

EC 216 Labor Markets: Economics of Gender & Work 3 Cr. - Studies labor markets with emphasis on economic status of women and their decisions about work and family. Includes recent developments in the

labor market; gender pay gap and women-men occupational differences; labor supply decisions; human capital theory; economics of marriage and household decisions.

EC 230 Contemporary World Economic Issues: International Economics 3 Cr. - Selected issues and problems related to international economics and international economic institutions. Includes trade and the balance of payments, trade competition between Japan and the U.S., reform and restructure of the Russian and Eastern European economies, economic development and problems of developing nations.

ECE - Early Childhood Education

ECE 100 Basic Child Development 3 Cr. - Introductory level child development class covering the normal growth and developmental patterns of children from conception through age 10 with emphasis on how adults can support children as their bodies, abilities, needs, and interests change throughout childhood.

ECE 101 Child, Family, Community 3 Cr. - The study of influences on children and their families which impact child and family behaviors, values, attitudes, beliefs, and morals. Topics include: parenting patterns: cultural, religious and socioeconomic influences; peer, school, media, impacts; family development, community ecology, special needs children, prejudice, and public policy.

ECE 102 Guidance of Young Children 3 Cr. - Focuses on age-appropriate guidance techniques for individual and groups of children six weeks to six years. Topics include the ongoing dynamics of relationships and how values and belief systems impact guidance decisions.

ECE 103 Early Childhood Observation 3 Cr. - Examines the importance of record keeping and techniques of observing and recording behavior of infants through five-year olds. Covers observing the caregiver's role in promoting development, including self-observation. Prior HEC 226 or ECE 100 strongly recommended.

ECE 110 Infant/Toddler Environments 3 Cr. - For home or care centers with infants and toddlers. Reviews the developmental stages and needs of children (birth to 2 1/2 years), identifies guidelines for establishing, maintaining and evaluating developmentally appropriate physical and social environments.

ECE 111 Early Childhood Environments 3 Cr. - For home or care centers with 2 1/2 - 5 year-old children. Includes the needs of the child; components of the physical and social environment; assessing, choosing, presenting and evaluating developmentally appropriate environments.

ECE 112 Infant/Toddler Materials and Activities 3 Cr. - Reviews the developmental stages and needs of children (birth to 2 1/2 years). Focuses on the importance of play; how to plan, implement and evaluate activities; and how to select, prepare and evaluate materials.

ECE 113 Early Childhood Materials and Activities 3 Cr. - Focuses on selecting, presenting and evaluating developmentally appropriate materials and activities for 2 1/2-5 year old children in home or center based care.

ECE 150 Infant/Toddler Practicum I (Seminar) 1 Cr. - Reviews lab experiences and observations. Focuses on the role of the teacher in carrying out a developmental philosophy of early childhood education.

ECE 151 Infant/Toddler Practicum I for Experienced Teachers 3 Cr. - Course to improve and strengthen achievement of competencies in working with infants and toddlers in a group setting at their sites. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development and planning a schedule and curriculum. Department permission required based on work experience and course work.

ECE 152 Infant/Toddler Practicum I 2 Cr. - Develops skills in working with infants/toddlers in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development and planning a schedule and curriculum. Prerequisites: HEC 226 or ECE 100. Prerequisite or concurrent: ECE 102 or 103. Corequisite: ECE 150.

ECE 153 Infant/Toddler Practicum I 3 Cr. - Develops skills in working with infants/toddlers in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development and planning a schedule and curriculum. Prerequisites: HEC 226 or ECE 100. Prerequisite or concurrent: ECE 102 or 103.

ECE 154 Infant/Toddler Practicum I 4 Cr. - Develops skills in working with infants/toddlers in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development and planning a schedule and curriculum. Prerequisites: HEC 226 or ECE 100. Prerequisite or concurrent: ECE 102 and 103. Corequisite: ECE 150.

ECE 155 Infant/Toddler Practicum I 5 Cr. - Develops skills in working with infants/toddlers in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development and planning a schedule and curriculum. Prerequisites: HEC 226 or ECE 100. Prerequisite or concurrent: ECE 102 and 103. Corequisite: ECE 150.

ECE 156 Infant/Toddler Practicum I 6 Cr. - Develops skills in working with infants/toddlers in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment using positive guidance techniques; supporting language development and planning a schedule and curriculum. Prerequisites: HEC 226 or ECE 100. Prerequisite or concurrent: ECE 102 and 103. Corequisite: ECE 150.

ECE 160 Early Childhood Practicum I (Seminar) 1 Cr. - Review lab experiences and observations. Focuses on the role of the teacher in carrying out a developmental philosophy of early childhood education.

ECE 161 Early Childhood Practicum I for Experienced Teachers 3 Cr. - Course to improve and strengthen achievement of competencies in working with young children in a group setting at their work sites. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development and planning a schedule and curriculum. Department permission required based on work experience and course work.

ECE 162 Early Childhood Practicum I 2 Cr. - Develop skills in supervision of children in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development; supporting and planning schedule and curriculum. Prerequisites: HEC 226 or ECE 100. Prerequisite or concurrent: ECE 102 and 103. Corequisite: ECE 160.

ECE 163 Early Childhood Practicum I 3 Cr. - Develops skills in supervision of children in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development; supporting and planning schedule and curriculum. Prerequisites: HEC 226 or ECE 100. Prerequisite or concurrent: ECE 102 and 103. Corequisite: ECE 160.

ECE 164 Early Childhood Practicum I 4 Cr. - Develops skills in supervision of children in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development; supporting and planning schedule and curriculum. Prerequisites: HEC 226 or ECE 100. Prerequisite or concurrent: ECE 102 and 103. Corequisite: ECE 160.

ECE 165 Early Childhood Practicum I 5 Cr. - Develops skills in supervision of children in a group setting in the PCC Child Care Center. Includes using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development; supporting and planning schedule and curriculum. Prerequisites: HEC 226 or ECE 100. Prerequisite or concurrent: ECE 102 and 103. Corequisite: ECE 160.

ECE 166 Early Childhood Practicum I 6 Cr. - Develops skills in supervision of children in a group setting in the PCC Child Care Center. Includes teamwork and communication skills using developmentally appropriate methods in recognizing and providing a safe and sanitary environment; using positive guidance techniques; supporting language development; supporting and planning schedule and curriculum. Prerequisites: HEC 226 or ECE 100. Prerequisite or concurrent: ECE 102 and 103. Corequisite: ECE 160.

ECE 175A Infant/Toddler Caregiving: Learning and Development 1 Cr. - Covers growth and development: physical, cognitive, and language; ages of infancy and facilitating learning.

ECE 175B Infant/Toddler Caregiving: Group Care 1 Cr. - Covers group care including: routines, quality, staff relations, environments and welcoming children and families into care.

ECE 175C Infant/Toddler Caregiving: Social/Emotional Growth 1 Cr. - Covers social-emotional growth and socialization including: development, temperament, responsible care, guidance and discipline, and supporting the needs of infants and toddlers.

ECE 175D Infant/Toddler Caregiving: Family/Provider Relationships 1 Cr. - Covers family/provider relationships including: establishing partnerships with parents, listening and responding to families needs, supporting culturally diverse families, culturally sensitive care, conducting business and handling difficult issues.

ECE 192 Reading and Conference in Early Childhood Education 1 Cr. - Meets the unique interests and needs of a student or a small group of students. Focuses on topics not covered in other Early Childhood Education courses through individual or group projects. Offered for variable credit. Instructor permission required.

ECE 200 The Professional in Early Childhood Education 3 Cr. - History, current programs and practices, and future issues of early childhood education. Includes professionalism, historic and current issues, types of programs for young children, parent interaction, job opportunities, ethical/legal issues and community resources. Develops a professional philosophy.

ECE 201 Nutrition in Early Childhood Education 2 Cr. - Foods and nutrients, and their relationship to health, growth and development. Covers planning and serving food to young children, and nutrition education for young children and their parents.

ECE 226 Child Development 3 Cr. - Basic theories, research and principles of physical, cognitive, language, social and emotional development of children from the prenatal period through adolescence. Includes observation and classroom processes. Placement into WR 121 strongly recommended.

ECE 230 Family Child Care: Programs and Practices 2 Cr. - Provides basic information necessary to manage a family day care business. Includes local rules and regulations, small business practices, children's growth and development, learning activities, food, health, and safety.

ECE 231 Family Child Care: Business and Professional Practices 2 Cr. - Builds on family child care practices learned in ECE 230. Focuses on business aspects of family child care including finances, taxes, business licenses, and organization. Develops marketing and professional skills.

ECE 233 Cultural Diversity in Early Childhood Education 3 Cr. - Develops awareness of cultural and ethnic issues as they relate to the early childhood classroom teacher. Focuses on ethnocentrism, racism and discrimination. Includes techniques for developing multi-cultural, anti-bias curriculum.

ECE 234 Children with Special Needs in Early Childhood Education 3 Cr. - Become acquainted with areas of special needs in children from birth through six years of age. Emphasis is on inclusion of children in early childhood settings. Explore services available to children and their families. Child development helpful.

ECE 235 Music and Movement in Early Childhood Education 3 Cr. - Overview of the development of musical and motor skills in children from birth to age 6, learn and develop a variety of music and movement activities, techniques and materials appropriate for them.

ECE 236 Language and Literacy in Early Childhood Education 3 Cr. - Overview of language and literacy development in children from infancy to age 6. Design and use a variety of language and literacy development activities with young children.

ECE 237 Science and Math in Early Childhood Education 3 Cr. - Develops activities and create and maintain a classroom in which young children, 6 weeks to 6 years, can discover and explore scientific and mathematical processes in a developmentally appropriate manner.

ECE 238 Administration of Early Childhood Programs 3 Cr. - Studies various tasks and responsibilities of program administration. Topics include licensing, program planning, organization, financial management, parent and community relationships, and personnel management. Prior ECE coursework and experience working with children in groups is highly recommended.

ECE 239 Helping Children and Families Cope with Stress 3 Cr. - Develops knowledge and understanding of stressors in society that can affect children and families, the effects of stress on children and families, and some ways of actively helping children and families cope successfully with stress. Knowledge of general child development principles is recommended.

ECE 241 Exploring the CDA 1 Cr. - Introduces the national Child Development Associate (CDA) credential for professionals in early childhood care and education. Includes a description of the process of applying, developing competencies, and completing requirements for the CDA.

ECE 250 Advanced Practicum - Seminar 2 Cr. - Refine skills necessary for supporting the total development of children, ages 6 weeks to 6 years, in a group setting and to integrate child development theory and practice in two interdependent components: seminar and field work experience. Department permission required. Prerequisite or concurrent: ECE 270.

ECE 252 Advanced Practicum (Lab) 2 Cr. - Refines skills necessary for supporting the total development of children, ages 6 weeks to 6 years, in a group setting and to integrate child development theory and practice in two interdependent components: seminar and field work experience. Department permission required. Corequisite: ECE 250.

ECE 253 Advanced Practicum (Lab) 3 Cr. - Refines skills necessary for supporting the total development of children, ages 6 weeks to 6 years, in a group setting and to integrate child development theory and practice in two interdependent components: seminar and field work experience. Department permission required. Prerequisite or concurrent: ECE 270. Corequisite: ECE 250.

ECE 254 Advanced Practicum (Lab) 4 Cr. - Refines skills necessary for supporting the total development of children, ages 6 weeks to 6 years, in a group setting and to integrate child development theory and practice in two interdependent components: seminar and field work experience. Department permission required. Prerequisite or concurrent: ECE 270. Corequisite: ECE 250.

ECE 255 Advanced Practicum (Lab) 5 Cr. - Refines skills necessary for supporting the total development of children, ages 6 weeks to 6 years, in a group setting and to integrate child development theory and practice in two interdependent components: seminar and field work experience. Department permission required. Prerequisite or concurrent: ECE 270. Corequisite: ECE 250.

ECE 256 Advanced Practicum (Lab) 6 Cr. - Refines skills necessary for supporting the total development of children, ages 6 weeks to 6 years, in a group setting and to integrate child development theory and practice in two interdependent components: seminar and field work experience. Department permission required. Prerequisite or concurrent: ECE 270. Corequisite: ECE 250.

ECE 257 Advanced Practicum (Lab) 7 Cr. - Refines skills necessary for supporting the total development of children, ages 6 weeks to 6 years, in a group setting and to integrate child development theory and practice in two interdependent components: seminar and field work experience. Department permission required. Prerequisite or concurrent: ECE 270. Corequisite: ECE 250.

ECE 258 Advanced Practicum (Lab) 8 Cr. - Refines skills necessary for supporting the total development of children, ages 6 weeks to 6 years, in a group setting and to integrate child development theory and practice in two interdependent components: seminar and field work experience. Department permission required. Prerequisite or concurrent: ECE 270. Corequisite: ECE 250.

ECE 259 Advanced Practicum (Lab) 9 Cr. - Refines skills necessary for supporting the total development of children, ages 6 weeks to 6 years, in a group setting and to integrate child development theory and practice in two interdependent components: seminar and field work experience. Department permission required. Corequisite: ECE 250.

ECE 270 Integrating Theory and Practice I 3 Cr. - Focuses on integrating knowledge of child growth and development, communication, environments, and curriculum in planning developmentally appropriate programs for groups of children from infancy through age five. Apply knowledge learned in ECE Certificate Level I and II courses. Must meet departmental requirements. Prerequisite: WR 121.

ECE 271 Integrating Theory and Practice II 3 Cr. - Focuses on planning to meet the needs of individual children from infancy through age five. Apply knowledge learned in ECE Certificate Level I and II courses. Includes the comprehensive process involved in gathering relevant information, setting environments, developing curriculum and intervention plans for individual children. Prerequisite: ECE 270.

ECE 273 Team Building and Supervision 3 Cr. - Develops skill in building, maintaining, and working in teams in ECE settings. Develops skill in supervising others including communication, motivation, and assessment.

ECE 274 Expanded Curriculum Pre-K, Kindergarten & Mixed Age Classroom 3 Cr. - Examines the balance between open-ended and task-focused, child-directed activities in developmentally appropriate programs. Includes hand-on materials for skills development, techniques of teacher/child collaboration and the skill of observing children's use of materials as a non-testing diagnostic and assessment tool. Requires ECE 113 Early Childhood Materials and Activities or instructor permission. Geared primarily to teachers working with pre-K and Kindergarten children.

ED - Education

ED 103 Desktop Publishing for Educators 3 Cr. - Introduces desk-top publishing. Produce materials to be used in an educational setting using flat-bed scanners, graphics sources, layout guidelines and design rules. Prerequisites: CAS 121, 216; ED 136, 102.

ED 104 Multimedia for Educators 3 Cr. - Develops and evaluates multimedia presentations for use in schools and libraries. Multimedia presentation guidelines will be used in planning and developing materials.

ED 105 Classroom Use of Photography and Video 3 Cr. - Plans and develops photographic and video sequences for use in classrooms and libraries. Still, digital and video cameras will be used in the making of the projects.

ED 106 Survey of Educational Foundations 1 Cr. - Introduces the history of education in the United States and its relation to current trends in public education.

ED 107 Survey of Special Ed for Speech-Language Pathology Assistant 1 Cr. - Introduces the history of education for exceptional learners in the United States and its relation to current trends in public education. Particular emphasis on legislation for education of exceptional learners.

ED 108 Intro to Intercultural Communication for S-L Pathology 1 Cr. - Introduces the impact of cultural influences on speech and language disorders in the educational setting.

ED 109 Library Procedures 3 Cr. - Introduces structure, functions, and procedures in libraries. Provides a base on which to build specific skills needed for employment in libraries. Covers knowledge and use of the Dewey Decimal System, electronic card catalog/circulation systems, procedures for processing, and maintaining collections, basic terminology and policies. Prerequisite: WR 115.

ED 111 Selection of Library Materials 3 Cr. - Introduces the selections and evaluation of library materials. Covers library standards, selection policies, verification tools, censorship and copyright laws.

ED 112 Introduction to Children's Literature 3 Cr. - Introduces children's literature, authors and illustrators. Covers current and classic works, book awards, artistic and literary elements, introduction to genres, basic book discussion techniques, and audio-visual and electronic formats. Prerequisite: WR 115.

ED 114 Reference Materials 3 Cr. - Introduces reference materials and sources as well as reference procedures in the library. Overview and evaluation of standard reference sources in print format as well as electronic format is central. Learn to design search strategies for efficient location of information and to conduct effective reference interviews. Prerequisites: WR 115.

ED 115 Storytelling 2 Cr. - Introduces how to do storytelling. Different storytelling techniques will be demonstrated and practiced in the course.

ED 116 Literature for Adolescence and Young Adults 3 Cr. - Covers contemporary literature being read by young people of high school age, literature-related audio-visuals, and various specialized reading lists and bibliographies. Includes controversial areas in young adult literature.

ED 123 Math for Young Children 2 Cr. - Presents the "Math-U-See" philosophy to math instruction. Covers carrying and borrowing, multiplication facts, double digit multiplication and division and fractions as a three-step process.

ED 124 Math for Young Children 1 Cr. - Presents the "Math-U-See" philosophy to math instruction. Covers using manipulatives to teach place value, addition and subtraction facts. Includes teaching techniques to help improve students listening, processing, and communication skills.

ED 125 Techniques for Tutoring Adults 3 Cr. - Individualized instruction in teaching required skills. Provides opportunities to practice these skills to become an effective tutor of adult learners. Includes reading, writing, spelling, mathematics and English as a second language.

ED 126 Math for Young Children 3 Cr. - Presents the "Math-U-See" philosophy to math instruction. Covers using manipulatives to teach place value, addition and subtraction facts. It also includes: carrying and borrowing, multiplication facts, double digit multiplication and division and fractions as a three-step process. Includes teaching techniques to help improve students listening, processing, and communication skills.

ED 129 Whole Language Approach to Reading 1 Cr. - Covers various instructional methodologies, practice in theme unit planning, integration of content areas, focus on authors in children's literature, practice and instruction in cooperative groups.

ED 130 Whole Language Approach to Reading 2 Cr. - Covers various instructional methodologies, practice in theme unit planning, integration of content areas, focus on authors in children's literature, practice and instruction in cooperative groups.

ED 131 Whole Language Approach to Reading 3 Cr. - Covers various instructional methodologies, practice in theme unit planning, integration of content areas, focus on authors in children's literature, practice and instruction in cooperative groups.

ED 133 Media and Materials 3 Cr. - Provides basic skills and knowledge of using instructional media in a school classroom. Use audio-visual equipment, design and make displays and bulletin boards, transparencies, and handouts. Learn basic computer use.

ED 136 Computers in Education 3 Cr. - Introduces various software applications in both stand-alone and network environments. Create educational word-processed documents, spreadsheets, databases, graphics, desktop publishing and presentation documents. Demonstrate computer-search skills using various network resources. Prerequisites: Completion of WR 115; RD 115; CAS 121 and CAS 133. Test out option will be available for CAS 121.

ED 151 Braille I 2 Cr. - Emphasizes developing skills in reading and writing of Braille. Focuses on developing a positive attitude toward Braille as a medium of communication.

ED 171 Computers in Education II 3 Cr. - Introduction to all aspects of the Internet and email. Use internet browser. Recommended: Basic computer knowledge.

ED 200 Introduction to Education 3 Cr. - Examines daily experiences in the schools. Includes discussing personal responses to school/library situations, students, personnel, the roles of public schools/libraries in American society and financial, legal and administrative implications for instructional/library assistants.

ED 205 Tutoring Principles and Practices 5 Cr. - Prepare to assist teachers in developing the following skills in children: reading, math, spelling, handwriting, social studies, language arts and reading comprehension. Focuses on learning and motivational theories which apply to instructional situations. Includes creating and studying activities for specific learning problems.

ED 206 Seminar: Advanced Education Techniques 3 Cr. - Provides time and direction for investigating current issues in education.

ED 207 Seminar: Adaptive Sign for Special Populations 3 Cr. - Introduces English sign language and alternative communication modes for adults to use to teach students with no or limited language. Includes techniques to teach these signs and focuses on shaping, adapting signs and breaking signs down into component parts.

ED 209 Practicum 3 Cr. - Spend twelve hours per week in a supervised field experience after an orientation.

ED 210 Practicum 3 Cr. - Spend twelve hours per week in a supervised field experience after an orientation.

ED 211 Practicum 3 Cr. - Spend twelve hours per week in a supervised field experience after an orientation.

ED 212 Practicum 2 Cr. - Spend twelve hours per week in a supervised field experience after an orientation.

ED 214 Practicum: Outdoor School 3 Cr. - Gain training and experience teaching and counseling sixth graders in an outdoor setting. Requires attending two evening training sessions; spending one week at an outdoor camp; keeping a journal and submitting a summation paper to the PCC coordinator.

ED 216 Practicum: Seminar 1 Cr. - Discuss practicum experiences, problems and successes. Concurrent enrollment in a practicum is required.

ED 224 Foundations of Education 3 Cr. - Introduces the field of K-12 education. Helps prospective teachers acquaint themselves with selected facts, themes and ideas pertinent to professional education.

ED 225 Principles of Youth Development 3 Cr. - Provides foundation information for the profession of youth work. Includes an examination of personal and societal attitudes and beliefs about youth, as well as mechanisms for providing the support and opportunities necessary to facilitate positive youth development.

ED 251 Overview of Exceptional Learners 3 Cr. - Introduces diverse conditions of students with special needs in public schools. Identifies and defines the following disabilities: learning disabilities, emotional and behavior disorders, mental retardation, severe and multiple disabilities, autism, health impairments, physical disabilities, communication disorders, vision impairments, hearing loss, and traumatic brain injury.

ED 252 Behavior Management 3 Cr. - Behavior terminology will be defined and applied. Students will demonstrate and practice baselining, setting up a program, reinforcing, modeling, shaping, chaining, monitoring and graphing data.

ED 258 Multicultural Education 3 Cr. - Introduces the philosophy, activities and materials applied in developing a culturally sensitive multicultural classroom and curriculum.

ED 260 Multicultural Literature for Children and Young Adults 3 Cr. - Introduces multicultural literature for early childhood through young adult. Emphasizes contemporary literature representing a range of cultures in the U.S. as well as world-wide. Covers selection and evaluation, cultural considerations, and book awards. Prerequisite: WR 115.

ED 268 Introduction to Developmental Disabilities 3 Cr. - Provides background information on teaching techniques, expected achievement levels, intellectual functioning, goals and objectives for working with students with developmental disabilities. Emphasizes physical and mental development from birth and familiarity with the known causes, classifications and terminology used in the field of special education.

ED 269 Introduction to Teaching the Learning Disabled Student 3 Cr. - Defines terms associated with learning disabilities and behavior disorders. Includes diagnostic procedures, remedial programs and teaching techniques.

ED 271 Voice and Diction for Speech Pathology Assistants 1 Cr. - Principles of voice production and articulation of speech sounds are studied. Various aspects of voice, including pitch, loudness and quality are explored.

ED 272 Phonetics and Acoustics for Speech Pathology Assistants 3 Cr. - The anatomical, physiological, neurological and acoustical bases of speech and hearing are studied. Phonological and articulation disorders are also studied and students gain skill in techniques for facilitating the correct production of phonemes.

ED 273 Language Disorders for Speech-Language Pathology Assistants 3 Cr. - Differentiate between normal and disordered speech and language and classify a variety of communication disorders. The communicative impact of the various delays and disorders is also studied. Prerequisite: ED 270.

ED 274 Methods I: Observation & Screening Procedures f/S-L Path Asst 3 Cr. - Observe and practice a variety of methods, materials and techniques in the intervention and management of students with communication disorders. Prerequisites: Ed 107, 251, 270, 273.

ED 275 Methods II: Clinical Practices for Speech-Language Path Asst 3 Cr. - Expand and increase depth of concepts and skills learned in ED 274. Prerequisites: ED 107, 251, 270, 273, 274.

ED 281 Philosophy and Techniques of Teaching at a Comm Coll 3 Cr. - Develops the capacity to effectively use and manage instructional resources in achieving the learning objectives of vocational programs.

ED 290 Teaching Strategies for English Language Learners 3 Cr. - Introduces learning strategies that will modify content for English Language Learners, and examines current theories in bilingual education. Provides opportunities to explore curriculum development and the needs of the learner.

ED 292 Curriculum Design and Development 3 Cr. - Studies strategy of developing effective instruction based on measurable objectives/outcomes, selects or writes appropriate learning goals, write objectives for a unit of instruction, formulates daily lessons, adapts lessons for the variety of students in the classroom, modifies pace and content of instruction to achieve unit and lesson outcomes, and uses techniques that promote critical thinking and problem solving.

ED 293 Speech-Language Pathology Assistant Practicum (Seminar) 1 Cr. - Review of practicum experiences and observations with emphasis on integration of theory and practice. Corequisite: ED 294.

ED 294 Speech-Language Pathology Assistant Practicum I 3 Cr. - Observe and practice a variety of intervention strategies for patients/clients with communication disorders under the supervision of a licensed speech/language pathologist. Prerequisites: ED 107, 251, 270, 273, 274, 275. Corequisite: ED 293.

ED 295 Leisure for Special Populations 3 Cr. - Provides information on programming and teaching recreational activities that meet the needs of the individual with disabilities.

ED 296 Speech-Language Pathology Assistant Practicum II (Seminar) 1 Cr. - Review of practicum experiences and observations with emphasis on integration of theory and practice.

ED 297 Speech-Language Pathology Assistant Practicum II 3 Cr. - Observe and practice a variety of intervention strategies for patients/clients with communication disorders under the supervision of a licensed speech/language pathologist. Prerequisites: Ed 293, 294. Corequisite: ED 296.

ED 298A Special Projects in Education 1 Cr. - Designed to allow the student to do an individualized study in the area of education. Student required to develop a learning contract with the assigned instructor. Instructor permission required for registration in this course.

ED 298B Special Projects in Education 2 Cr. - Designed to allow the student to do an individualized study in the area of education. The student is required to develop a learning contract with the assigned instructor. Instructor permission required for registration in this course.

ED 298C Special Projects in Education 3 Cr. - Designed to allow the student to do an individualized study in the area of education. The student is required to develop a learning contract with the assigned instructor. Instructor permission required for registration in this course.

ED 298D Special Projects in Education 4 Cr. - Designed to allow the student to do an individualized study in the area of education. Required to develop a learning contract with the assigned instructor. Instructor permission required for registration in this course.

ED 298E Special Projects in Education 5 Cr. - Designed to allow the student to do an individualized study in the area of education. The student is required to develop a learning contract with the assigned instructor. Instructor permission required for registration in this course.

ED 298F Teaching Strategies for English Language Learners 3 Cr. - Introduces learning strategies that will modify content for English Language Learners, and examines current theories in bilingual education. Provides opportunities to explore curriculum development and the needs of the learner.

EDO - Emergency Dispatch Operator 9-1-1

EDO 103 Introduction to Criminal Law 3 Cr. - Covers the origin, structure and definitions of common law and statutory crimes, the Oregon Criminal Code and criminal court procedures.

EDO 105 Crisis Intervention 3 Cr. - Focuses on the needs of local police, dispatchers and other in-service practitioners or pre-service students in crisis intervention. Includes discussing and demonstrating some tools and techniques of crisis intervention through simulation and role playing.

EDO 108 Transcription for Telecommunicators 1 Cr. - Covers how to transcribe information received aurally using actual tape recorded radio transmissions, or recorded scripted exercises. Emphasizes accuracy, spelling and completeness of message. Instructor permission required.

EDO 109 Public Safety Emergency Telecommunications I 3 Cr. - Introduces the field of emergency communications. Includes history, role of the dispatcher, field operations (police, fire and emergency medical), radio broadcasting, telephone techniques, radio codes and equipment operation. Presents an overview of federal, state and local law enforcement computer systems.

EDO 110 Public Safety Emergency Telecommunications II 3 Cr. - Studies the basic principles of call taking and radio broadcasting as it applies primarily to police dispatching. Includes types and classifications of crimes, criminal and civil complaints, interrogation of callers, assignment and direction of field units. Stresses use of departmental policy and procedures, and application of chain of command rules as they pertain to communications.

EDO 111 Public Safety Emergency Telecommunications III 3 Cr. - Develops communications skills necessary to deal with fire and medical emergencies. Focuses on fire terminology, knowledge of fire apparatus, department protocols, triage principles, and medical pre-arrival instructions. Emphasizes the use of resource materials. Includes the interrelationship between field units, police, fire, and medical and their roles at incident scenes.

EDO 120 Emergency Medical Service: First Responder 3 Cr. - Designed for those who are usually first at the scene of trauma or medical emergencies, such as police and fire personnel. Knowledge and skills are developed in procedures to provide basic care to trauma, medical and environmental emergencies. Emphasizes the evaluation of scene and patient(s) and accessing the Emergency Medical Services (EMS) system.

EDO 227 Communication Center Operations I 2 Cr. - Introduces operational procedures used in emergency communications and hands-on use of communication center equipment, such as two-way radios, multi-line telephones, recorders and computers, including record keeping and data retrieval.

EDO 228 Communication Center Operations II 2 Cr. - Focuses on use of the Oregon Law Enforcement Data System and computer software simulating Computer Aided Dispatch programs.

EDO 280A Cooperative Education: 9-1-1 1-2 Cr. - Observe various 9-1-1 and police/fire/emergency medical agencies to learn how they work. Develops emergency dispatch/operator skills in the 9-1-1 simulator. Students will be certified in Emergency Medical Dispatch and Law Enforcement Data System Computer as part of Cooperative Education. Department permission required.

EDO 280B Cooperative Education: 9-1-1 Seminar 1 Cr. - Provides a link between the classroom, work and the field experience. Department permission required.

EET - Electronic Engineering Technology

EET 101 Introduction to Electronic Technology 1 Cr. - Helps students start the EET program. Introduces the electronic industry and the EET course of study. Provides help and information on studying, taking tests, using the calculator, and using software applications in the EET program. Introduces resources available on campus and in the EET department. Prerequisite: Placement in WR 115. Corequisite: MTH 95.

EET 111 Electrical Circuits Analysis I 5 Cr. - International System of Units, engineering notation and prefixes, definitions of current, voltage, resistance, power, work and efficiency. For DC circuits: Ohm's and Kirchhoff's Laws, series, parallel, and series-parallel circuit principles, superposition, Thevenin and Norton theorems, mesh current and node voltage analysis. Includes a 3-hour per week laboratory. Prerequisite: Placement in WR 115. Corequisite: MTH 95.

EET 121 Electrical Circuits Analysis II 5 Cr. - Capacitance, inductance, reactance, and impedance. Transient analysis of RL and RC circuits. AC circuit phasor analysis. Power in AC circuits. Includes a 3-hour per week laboratory. Prerequisite: EET 111. Corequisite: MTH 111C.

EET 131 Electrical Circuits Analysis III 5 Cr. - Superposition, Thevenin and Norton theorems applied to AC circuits, AC power and transformers. Series and parallel resonant circuits, low pass, high pass, bandpass, and band reject filters, Q and selectivity, transfer functions, decibels, frequency response and Bode diagrams. Includes a 3-hour per week laboratory. Prerequisite: EET 121. Corequisite: MTH 112.

EET 176 Digital Fundamentals I 3 Cr. - Brief introduction to electrical fundamentals and circuit analysis. Digital fundamentals including: number systems, logic gates, combinational logic circuits, multiplexers and decoders. Laboratory skills include: component identification, construction and testing of logic circuits using prototype board, and use of an oscilloscope and digital multimeter. Prerequisites: Placement in MTH 65 and WR 115.

EET 177 Digital Fundamentals II 3 Cr. - Second course in digital electronics presents sequential circuit elements (latches and D/JK flip-flops) with applications including counters, registers, and shift registers. Sequential network analysis and synthesis are covered including the use of state tables and state diagrams. Introduces sampling and the Nyquist Sampling Theorem including introductory coverage of analog-to-digital converters (ADC) and digital-to-analog converters (DAC). Includes a 3-hour per week laboratory. Prerequisite: EET 176.

EET 178 Microcomputer Systems Servicing 4 Cr. - Covers the architecture, assembly, and disassembly of IBM PC compatible computers. Includes basic operational concepts and identification, removal/installation, and configuration of motherboards, microprocessors, memory, power supplies, disk drives, video adapter boards, I/O boards and modems. Servicing hardware, software, and documentation will be reviewed. Includes a 3-hour per week laboratory. Prerequisites or concurrent: EET 111 or CST 106 or CIS 120.

EET 179 Digital Systems III 5 Cr. - Third course in digital electronics continues prior coverage of digital-to-analog converters (DACs) and analog-to-digital converters (ADCs) with additional conversion topologies, a more detailed analysis of the Nyquist sampling theorem, additional coverage of programmable logic devices (PLDs), and the implementation of sequential state machines. Includes a 3-hour per week laboratory. Prerequisite: EET 177.

EET 188 Industrial Safety 1 Cr. - Safety practices in the electronics industry. Emphasizes electrical and chemical hazards. Safe handling electronic components in the manufacturing environment including ESD control. Prerequisite: EET 111 or 176.

EET 218 Semiconductor Devices and Circuits 5 Cr. - Introduction to semiconductor devices. Characteristics and biasing of diodes and transistors. Design and analysis of circuits using diodes, bipolar transistors, and field effect transistors. Application of transistors as amplifiers and switches. A 3-hour per week laboratory includes the application of computer tools in circuit design, evaluation, and analysis. Prerequisites: EET 131; MTH 112.

EET 228 RF Communications Circuits 5 Cr. - Transistor and diode AC models and equivalent circuits. Design and analysis of multistate amplifiers and rf communications systems. Frequency response and Bode

plots. A 3-hour per week laboratory includes measuring and analyzing the performance of transistor circuits in rf communications systems. Prerequisite: EET 218. Corequisite: MTH 251.

EET 238 Operational Amplifier Circuits 0-5 Cr. - Characteristics and applications of operational amplifiers (op-amps). Design and analysis of op-amp amplifiers, comparators, voltage and current regulators, summers, integrators, and differentiators. Frequency response of op-amp circuits. Applications of the op-amp in power supplies and control systems. A 3-hour per week laboratory includes project design, evaluation, and documentation. Use of computer tools. Prerequisite: EET 228.

EET 241 Microcomputer Systems I 4 Cr. - Introduces X86 assembly language programming for the IBM PC compatible computer including the use of BIOS and DOS function calls and the use of procedures. Structured programming techniques will be used to write programs and accept keyboard input and create displayed results. Appropriate program testing and debugging methods will be emphasized. Prerequisites: EET 177; and CST 109 or CST 116.

EET 254 Electronic Engineering Technology Seminar 1 Cr. - Topics include information on finding employment in the electronics industry, writing resumes, and interviewing. Prerequisite: Sophomore standing in EET.

EET 255 Industrial Control Systems 4 Cr. - Introduces electronic feedback control systems using analog and digital methods. Topics include temperature control, motor speed control, and servo systems. Lab exercises will include the interfacing and programming of a microcontroller IC. Prerequisite EET 241. Corequisite: EET 238.

EET 280A Cooperative Ed: Electronics Engineering Technology 1-5 Cr. - For students employed in an approved cooperative education position within a local electronic industry. Experiences are closely aligned with the student's on-campus educational program. Department permission required.

EM - Emergency Services

EM 101 Introduction to Emergency Services 4 Cr. - Covers roles and responsibilities of a broad range of emergency services providers and the relationship between these service providers and the community. The interrelationships between police, fire service, emergency medical service, emergency communications and emergency management will be covered, as well as, the organizational structure, terminology, history, training and standards, and ethical and legal responsibilities.

EMT - Emergency Medical Technician

EMT 050 Introduction to Emergency Medical Services 4 Cr. - Covers the roles and responsibilities of the EMT and Paramedic. Topics include an overview of EMS systems, current issues, ethics, medical-legal aspects, scene survey, OSHA regulations and stress management.

EMT 051 EMT-Basic I 4 Cr. - Part 1 of the Oregon EMT Basic Course is designed to develop student skills in the recognition of symptoms of illness and injuries and proper procedures of emergency care. Department permission required. Prerequisites: WR 121; MTH 60; RD 115.

EMT 052 EMT-Basic II 5 Cr. - Part 2 of the Oregon EMT Basic Course is a continuation of EMT 051, including preparation for state and national certification exams. Department permission required. Prerequisite: EMT 051.

EMT 100 Introduction to Emergency Medical Services 3 Cr. - Covers the roles and responsibilities of the EMT, emergency medical services system, medical-legal considerations, major incident response, hazardous materials awareness, and stress management.

EMT 101 EMT Basic Refresher/Recertification Training Program 3 Cr. - Provides the Department of Transportation's (DOT) 32 hour refresher training for EMT Basics and is structured to meet objectives of DOT and the Oregon Health Division EMT Basic certification requirements.

EMT 105 EMT Basic Part I 4 Cr. - Part 1 of the Oregon EMT Basic course is designed to develop student skills in the recognition of symptoms of illness and injuries and proper procedures of emergency care. Department permission required. Prerequisite: WR 115; MTH 20; RD 90.

EMT 106 EMT Basic Part II 5 Cr. - Part 2 of the Oregon EMT Basic course is a continuation of EMT 105, including preparation for state and national certification exams. Department permission required. Prerequisites: Successful completion of EMT 105 at PCC within the last year. Corequisite: EMT 280B.

EMT 111 EMT Intermediate 9 Cr. - Topics include intravenous fluid and medication administration, airway management, pharmacology, ECG and defibrillation, and protocol training. Designed for rural area EMTs providing care above the EMT Basic level. Current HCP level CPR and Oregon EMT Basic Certification required. Prerequisite: WR 121; MTH 60; RD 115.

EMT 115 Crisis Intervention 3 Cr. - Covers intervention in behavioral crises of sudden death, suicide, rape, murder, vehicle accidents, disease, trauma, and child abuse. Includes resources, supporting behavioral patterns and handling emotional stress of the individual as well as coping with emotional conflict within one's self.

EMT 116 Emergency Medical Technology Rescue 3 Cr. - Covers the elementary procedures of rescue practices, systems, components, support and control of rescue operations including ladder procedures and basic rescue tools. Introduces techniques and tools of patient extrication, emphasizing application to traffic accidents.

EMT 117 Emergency Response Communication & Patient Transportation 3 Cr. - Covers ambulance operations, laws, maintenance and safety, emergency response driving and route planning, communication systems, radio types, codes, and proper techniques.

EMT 118 EMT Medical Terminology 3 Cr. - Analysis of anatomical roots, prefixes, and suffixes, and Greek and Latin verbs and adjectives. Helps build a medical vocabulary. Examination of representative anatomical structures, diseases, procedures, tumors, and descriptive terms by simple analysis of words.

EMT 120 Emergency Medical Service: First Responder 3 Cr. - For those who are usually the first persons at the scene of trauma or medical emergencies including law enforcement, fire department personnel, etc. Knowledge and skills are developed to provide basic care for trauma, medical and environmental emergencies; evaluation of scene and patients; and appropriate access and use of the Emergency Medical Services System. Must be 16 years of age.

EMT 121 EMT-Paramedic: Part 1 8 Cr. - Covers the pre-hospital environment, terminology, patient assessment, airway, ventilation, shock and pharmacology. Focus shifts to pathophysiology specific to respiratory and cardiovascular systems. Current Oregon EMT-Basic or Intermediate certification, HCP-CPR, and department permission required. Prerequisite: BI 231, 232, 233; MTH 95; WR 121; SP 111. Corequisite: EMT 122.

EMT 122 EMT-Paramedic: Part 1 Clinical 2 Cr. - In-hospital clinical experience shall include direct patient care responsibilities necessary for completion of the program's educational objectives. The patients to whom the students are exposed shall have disease and injury conditions comparable to those the student will experience in the prehospital care situation. Department permission required. Corequisite: EMT 121.

EMT 123 EMT-Paramedic: Part 2 8 Cr. - Focuses on broad spectrum of emergency presentations relating to cardiac, endocrine, nervous, genitourinary, and reproductive systems. Also covers anaphylaxis, acute abdomen, toxicology, drug and alcohol abuse, infectious disease, environmental emergencies, geriatrics, pediatrics, OB/GYN, neonatal and behavioral problems. Department permission required. Prerequisite: EMT 121. Corequisite: EMT 124.

EMT 124 EMT-Paramedic: Part 2 Clinical 3 Cr. - In-hospital clinical experience shall include direct patient care responsibilities necessary for completion of the program's educational objectives. The patients to whom the students are exposed shall have disease and injury conditions comparable to those the student will experience in the prehospital care situation. Department permission required. Corequisite: EMT 123.

EMT 125 EMT-Paramedic: Part 3 -4 Cr. Includes a series of specialty certification programs such as Pre-Hospital Trauma Life Support, Advanced Cardiac Life Support, and Pediatric Advanced Life Support. Department permission required. Prerequisite: EMT 123. Corequisite: EMT 126.

EMT 126 EMT-Paramedic: Part 3 Clinical 3 Cr. - In-hospital clinical experience shall include direct patient care responsibilities necessary for completion of the program's educational objectives. The patients to whom the students are exposed shall have disease and injury conditions comparable to those the student will experience in the prehospital care situation. Department permission required. Corequisite: EMT 125.

EMT 280A Cooperative Education: Emergency Medical Technology 1 Cr. - This cooperative work experience requires clinical rotation. Designed to expose students to the EMT's role in the hospital emergency department and ambulance ride-along experience. Department permission required. Corequisite: EMT 052.

EMT 280B Cooperative Education: EMT - Seminar 1 Cr. - This cooperative work experience requires clinical rotation. Designed to expose students to the EMT's role in the hospital emergency department and ambulance ride-along experience. Prerequisites: WR 115; MTH 20; RD 90. Corequisite: EMT 106.

EMT 9320 CPR/First Aid 0.50 Cr. - OSHA-approved course teaching airway, breathing, circulation assessment and basic CPR skills. Treatment of bleeding, broken bones and other non-life threatening injuries are practiced. A two-year card will be issued upon completion.

ENG - English

ENG 104 Introduction to Literature (Fiction) 3 Cr. - Enhances enjoyment of short stories and novels, increases understanding of the conventions of fiction, and encourages exploration of human experience. Prerequisite: Placement into WR 121.

ENG 105 Introduction to Literature (Drama) 3 Cr. - Enhances enjoyment of plays - including tragedies and comedies - as literature, increases understanding of the conventions of drama and the theater, and encourages exploration of human experience. Prerequisite: Placement into WR 121.

ENG 106 Introduction to Literature (Poetry) 3 Cr. - Enhances enjoyment of poetry, increases understanding of the conventions of poetry and poetic forms, and encourages exploration of human experience. Prerequisite: Placement into WR 121.

ENG 107 World Literature - Western 3 Cr. - Introduces literature of the Western World in translation from 800 B.C.E. to the present. Compares the cultural perspectives and historical contexts of diverse writers and their works in order to provide insight into the literary past and present of the Western World. Emphasizes literature from the ancient world to 800 B.C.E. Prerequisite: Placement into WR 121.

ENG 108 World Literature - Western 3 Cr. - Introduces literature of the Western World in translation from 800 B.C.E. to the present. Compares the cultural perspectives and historical contexts of diverse writers and their works in order to provide insight into the literary past and present of the Western World. Emphasizes literature from the medieval era through the 17th century. Prerequisite: Placement into WR 121.

ENG 109 World Literature - Western 3 Cr. - Introduces literature of the Western World in translation from 800 B.C.E. to the present. Compares the cultural perspectives and historical contexts of diverse writers and their works in order to provide insight into the literary past and present of the Western World. Emphasizes literature from the 18th century to the present. Prerequisite: Placement into WR 121.

ENG 195 Film Studies: Film as Art 3 Cr. - Enhances understanding of film through analysis of film history and form. Develops visual literacy and analysis skills by offering a range of tools to study any film. Analyze ways in which a film may both contribute and react to its time and culture; analyze film through studying the techniques by which it was made; and substantiate observations with examples taken from film tradition and from the film itself. Prerequisite: Placement into WR 121.

ENG 196 Film Studies: Directors 3 Cr. - Enhances understanding of film through analysis of directorial decisions and film techniques. Develops visual literacy and analysis skills by offering a range of tools to study any film. Analyze ways in which directorial decisions may affect an individual film and viewer; situate a film within a director's body of work; analyze ways in which it may both contribute and react to its time and culture; and substantiate observations with examples taken from the film tradition and from the film itself. Prerequisite: Placement into WR 121.

ENG 197 Film Studies: Contemporary Themes and Genres 3 Cr. - Enhances understanding of film through analysis of contemporary film-making, narrative techniques, genres, themes and critical approaches. Develops visual literacy and analysis skills by offering a range of tools to study any film. Analyze contemporary film techniques and the ways in which the films may both contribute and react to their time and culture; study contemporary film theory; and substantiate observations with examples taken from the film tradition and from the film itself. Prerequisite: Placement into WR 121.

ENG 201 Shakespeare 3 Cr. - Enhances understanding and appreciation of Shakespeare's achievement and contribution to literature. Focuses on five or more plays and selected non-dramatic poetry in order to introduce the study of Shakespeare's dramatic techniques, character development, and language. The works are chosen to reflect a broad range of patterns, themes, and genres. Recommended prior coursework: ENG 105 and 106. Prerequisite: Placement into WR 121.

ENG 202 Shakespeare 3 Cr. - Enhances understanding and appreciation of Shakespeare's achievement and contribution to literature. Focuses on five or more plays and selected non-dramatic poetry in order to introduce the study of Shakespeare's dramatic techniques, character development, and language. The works are chosen to reflect a broad range of patterns, themes, and genres. Recommended prior coursework: ENG 105, 106, and 201. Prerequisite: Placement into WR 121.

ENG 203 Shakespeare 3 Cr. - Enhances understanding and appreciation of Shakespeare's achievement and contribution to literature. Focuses on five or more plays and selected non-dramatic poetry in order to introduce the study of Shakespeare's dramatic techniques, character development, and language. The works are chosen to reflect a broad range of patterns, themes, and genres. Recommended prior coursework: ENG 105, 106, 201, and 202. Prerequisite: Placement into WR 121.

ENG 204 Survey of English Literature 3 Cr. - Literature of the British Isles: Medieval and Renaissance selections, from Beowulf to Shakespeare. Prerequisite: Placement into WR 121.

ENG 205 Survey of English Literature 3 Cr. - Literature of the British Isles: seventeenth, eighteenth, and early nineteenth century selections, from Donne through the Early Romantics. Prerequisite: Placement into WR 121.

ENG 206 Survey of English Literature 3 Cr. - Literature of the British Isles: nineteenth and twentieth century selections, beginning with Wordsworth and ending with contemporary works. Prerequisite: Placement into WR 121.

ENG 207 World Literature - Asian 3 Cr. - English translations of Indian literature from earliest times to modern. May include such works and authors as hymns from the Rigveda, the love stories and the battles of the Ramayana, and the twentieth century authors Tagore and Rushdie. Prerequisite: Placement into WR 121.

ENG 208 World Literature - Asian 3 Cr. - English translations of Chinese literature from earliest times to modern. May include such works and authors as The Book of Songs, Li Po, Tu Fu, The Journey to the West, and the twentieth century authors Lu Xun and Ding Ling. Prerequisite: Placement into WR 121.

ENG 209 World Literature - Asian 3 Cr. - English translations of Japanese literature from earliest times to modern. May include such works and authors as the Manyoshu, selections from Heian court diaries, The Tale of Genji, the No, Kabuki, and puppet theatres, and the twentieth century authors Kawabata, Tanizaki, Hayashi, Fumiko, and Mishima. Prerequisite: Placement into WR 121.

ENG 211 Contemporary African Literature 3 Cr. - Introduces a cross-section of the literature of Africa from 1960 to the present. Students read works of African authors who help readers understand the historical, geographical, and cultural tapestry that make up the African continent. Prerequisite: Placement into WR 121.

ENG 212 Biography 3 Cr. - Explores biography and autobiography from various places and periods. Prerequisite: Placement into WR 121.

ENG 213 Latin American Literature 3 Cr. - Explores fiction, poetry, drama, myths, and more from Latin America. Includes works of hispanic, Indigenous, and Afro-Caribbean origin. All readings are in English. Prerequisite: Placement into WR 121.

ENG 214 Literature of the Northwest 3 Cr. - Studies fictional, factual, and poetic works by Northwest writers from before the arrival of Euro-Americans to the present. Emphasizes relationship between Northwest writing and Northwest social, cultural, and physical environment. Prerequisite: Placement into WR 121.

ENG 222 Images of Women in Literature 3 Cr. - Challenges students to explore images of women in literature. Focuses on portrayal of the feminine in mythology; conventional images in Western literature; literature of non-Western cultures or that of other groups within Western culture in relation to specific themes; or a combination of these. Students practice literary analysis. Prerequisite: Placement into WR 121.

ENG 240 Introduction to Native American Literatures 3 Cr. - Studies oral and written composition by Native Americans from both before and after contact with Euro-Americans. Provides historical, geographical, political, social, religious, linguistic, aesthetic and ethnopoetic contexts for understanding the various tribal literatures studied. Recommended: some background or experience in literature is desirable. Prerequisite: Placement into WR 121.

ENG 244 Introduction to Asian American Literature 3 Cr. - Studies writings in English by American writers of Chinese, Japanese, Korean, Vietnamese, Filipino, Pacific Islander, and other Asian ancestry. Considers the writings in their historical, cultural, political, and social contexts. Emphasizes development of attitudes, values, and identities.

ENG 250 Introduction to Folklore and Mythology 3 Cr. - Explores origins, nature and content of myth and folklore. Offers student ability to recognize and appreciate myths from any culture. Through selected readings, students become aware of questions about life as expressed in myth. Prerequisite: Placement into WR 121.

ENG 253 Survey of American Literature 3 Cr. - Introduces students to the literature of the land which is now the U.S. from before European contact through the early nineteenth century. Revolves around oral and written manifestations of peoples creating and recreating American culture. Prerequisite: Placement into WR 121.

ENG 254 Survey of American Literature 3 Cr. - Introduces students to the literature of the land which is now the U.S. from the mid-nineteenth to the beginning of the twentieth century. Revolves around oral and written manifestations of peoples creating and recreating American culture. Prerequisite: Placement into WR 121.

ENG 255 Survey of American Literature 3 Cr. - Introduces students to the literature of the land which is now the U.S. from the beginning of the twentieth century to the present. Revolves around oral and written manifestations of peoples creating and recreating American culture. Prerequisite: Placement into WR 121.

ENG 256 African-American Literature 3 Cr. - Introduces the literature of the American people whose roots are in Africa, emphasizing the period of the diaspora, the Middle Passage, and the period of slavery. Addresses the African origins of African American writing, the role of oral storytelling, the slave narrative, and the earliest literary publications. Focuses on both oral and written texts that represent the interests, aspirations, and experiences of African Americans. Prerequisite: Placement into WR 121.

ENG 257 African American Literature 3 Cr. - Introduces literature of Americans whose roots are in Africa. Emphasizes period Post Civil War through the Harlem Renaissance. Covers "birth" of African American canon, post-war novels, short stories, poems, autobiographies, and plays. Literary magazines may be read to introduce early African American literary criticism. Focuses on oral and written texts representing interests, aspirations, and experiences of African Americans. Prerequisite: Placement into WR 121.

ENG 258 African American Literature 3 Cr. - Introduces modern and contemporary literature of Americans whose roots are in Africa. Emphasizes period following Harlem Renaissance. Introduces writings which came to age after the Harlem Renaissance as well as contemporary writings. May focus on experimental writings to understand ways of African and early African American tropes as used in new and innovative ways. Focuses on oral and written texts representing interests, aspirations, and experiences of African Americans. Prerequisite: Placement into WR 121.

ENG 260 Introduction to Women Writers 3 Cr. - An examination of writing by women. Students read poetry, fiction, plays, diary and journal entries by women from various places and periods. Prerequisite: Placement into WR 121.

ENG 261 Literature of Science Fiction 3 Cr. - Introduces literature of speculative or science fiction. Explores historical and contemporary themes. Covers a variety of authors, and examines the art and function of this genre of fiction. Recommended: student should possess sufficient aural/oral skills to fully participate in large and small group activities. Prerequisite: Placement into WR 121.

ENG 265 International Political Poetry 3 Cr. - Develops students' understanding of how poets address issues of class oppression, economic inequality, racism, sexism, war, and peace. Shows how poets function as prophets, precursors, dissidents, and recorders. Prerequisite: Placement into WR 121.

ENG 275 Bible as Literature 3 Cr. - Examines selected Biblical literature which continues to influence literary imagination. Studies literary, cultural, and interpretive contexts in which Biblical literature was created, and in which it is currently read. Prerequisite: Placement into WR 121.

ENL - English as a Non-Native Language

ENL 140 American Culture & Communication I 5 Cr. - Introduction and illustration of American cultural themes and values through instruction in reading, discussion, journal writing, film, and speeches. Introduction and beginning application of academic study skills. May include a service learning component. Prerequisite: ENL 150 level or higher. Does not replace courses in the core curriculum.

ENL 150 Intermediate Reading 5 Cr. - Content comprehension, textual analysis, critical thinking skills, study skills, and language analysis. Readings from textbooks and literature. Includes use of the dictionary, finding main ideas, summarizing, inferencing, using context clues, review of prereading techniques. Study of word forms, common affixes, synonyms and antonyms. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 152 and 154 or higher.

ENL 152 Intermediate Writing 5 Cr. - Introduction to the writing process. Descriptive, narrative, and process paragraphs; introduction to comparison/contrast. Review of basic grammar, (including present simple and continuous, past simple and continuous, and future tenses) sentence patterns, capitalization, punctuation, spelling patterns; introduction to present perfect, adverb clauses of time. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 150 and 154 or higher.

ENL 154 Intermediate Speaking & Pronunciation 5 Cr. - Identification and production of English consonants and vowels; common sound substitutions; basic stress and intonation. Listening comprehension, discussion, and conversation skills. Public speaking, including prepared speeches of two to three minutes with written outlines; impromptu speeches. Prerequisite: ENNL test; or instructor permission; concurrent placement in ENL 150 and 152 or higher.

ENL 156 Intermediate Pronunciation 3 Cr. - Identification of English consonants and vowels; common sound substitutions; basic stress and intonation. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 150, 152, and 154 or higher.

ENL 158 Intermediate Vocabulary Building 3 Cr. - Emphasis on word analysis, specialized vocabulary, and dictionary skill building. Basic sight words, homophones, synonyms, antonyms; government terminology, measurement terms, basic math terms. Study of syllabication, pronunciation symbols, and alphabetization. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 150, 152, and 154 or higher.

ENL 160 Upper Intermediate Reading 5 Cr. - Content comprehension, textual analysis, critical thinking skills, study skills, and language analysis. Readings from textbooks, literature, and newspapers. Includes finding themes and main ideas, summarizing, paraphrasing, inferencing, using context clues, review of prereading techniques. Study of word forms and common affixes. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 152 and 154 or higher.

ENL 162 Upper Intermediate Writing 5 Cr. - Review of the writing process and introduction to the essay. Descriptive, narrative, process, and comparison/contrast paragraphs and essays; introduction to cause/effect. Review of verb tenses, sentence types, punctuation, and spelling patterns. Introduction to adverb and adjective clauses, reported speech, passive voice, and gerunds and infinitives. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 150 and 154 or higher.

ENL 164 Upper Intermediate Speaking & Pronunciation 5 Cr. - Review of English consonants and vowels, consonant clusters, past tense and plural endings; common sound substitutions; intonation, phrasing, reductions and stress patterns. Listening comprehension, discussion, and conversation skills. Public speaking including prepared speeches of three to five minutes with written outlines; impromptu speeches. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 150 and 152 or higher.

ENL 166 Upper Intermediate Pronunciation 3 Cr. - Review of English consonants and vowels, consonant clusters, past and plural endings; common sound substitutions; intonation, phrasing, and reduced stress. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 150, 152, and 164 or higher.

ENL 168 Upper Intermediate Vocabulary Building 3 Cr. - Emphasis on word analysis, specialized vocabulary, and dictionary skill building. Two-word verbs, compound words, stems and affixes, social science terminology, words shortened by common usage, grammatical terms, and test-taking vocabulary included. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 150, 152, and 154 or higher.

ENL 173 Grammar 1 4 Cr. - Includes the identification and practice of the following grammatical structures: subject-verb agreement; verb tenses; question and negation structure; gerunds and infinitives; and articles. Designed to reinforce concepts in both oral and written contexts. Does not replace courses in the core curriculum. Prerequisite: placement in ENL 160 levels or above.

ENL 183 Grammar 2 4 Cr. - Includes the identification and practice of the following grammatical structures: verb tense review, active/passive voice, simple, compound and complex sentences, transitional words and phrases, clause and phrase reduction, parallel structures, modals, conditionals, and reported speech. Designed to reinforce concepts in both oral and written contexts. Does not replace courses in the core curriculum. Prerequisite: ENL 173; or instructor approval.

ENL 240 American Culture & Communication II 5 Cr. - Continued illustration of American cultural themes and values. Instruction through reading, discussion, journal-writing, film and speeches. Overview and application of academic study skills. May include a service learning component. Prerequisite: ENNL placement test; or instructor permission. Students must be placed at the ENL 250 level, or higher. Does not replace courses in the core curriculum.

ENL 250 Advanced Reading 5 Cr. - Content comprehension, textual analysis, critical thinking skills, study skills, and language analysis. Readings from textbooks, short stories and/or a short novel, newspapers, and popular magazines. Includes finding themes and main ideas, summarizing, paraphrasing, inferencing, using context clues, review of prereading techniques. Study of word forms, common affixes and stems, figurative language. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 162 and 164 or higher.

ENL 252 Advanced Writing 5 Cr. - Review of the writing process. Descriptive and expository essays (e.g. narration, description, cause/effect). Review and instruction in English grammar, punctuation, and sentence structure. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 160 and 164 or higher.

ENL 253 Advanced Supplementary Writing 3 Cr. - Emphasizes the refinement and development of conscious control of English sentence and paragraph structure as well as the correction of persistent errors in writing. ENL 253 provides a bridge course between ENL 252 and ENL 262 or between ENL 262 and WR 115.

ENL 254 Advanced Speaking and Pronunciation 5 Cr. - Review of English consonants and vowels: emphasis on correcting persistent sound problems. Review of intonation, phrasing, and stress patterns. Discussion and listening comprehension, including lecture/note-taking. Public speaking, including prepared speeches of five minutes with written outlines; impromptu speeches. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 160 and 162 or higher.

ENL 255 Advanced Speaking 3 Cr. - Discussion and listening comprehension, including lecture/note-taking. Public speaking, including prepared speeches of five minutes with written outlines; impromptu speeches. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 160 and 162 or higher.

ENL 256 Advanced Pronunciation 3 Cr. - Review of English consonants and vowels, final consonants, past and plural endings; common sound substitutions; intonation, phrasing, and stress changes. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 160, 162, and 254 or higher.

ENL 257 Advanced Pronunciation 2 Cr. - Review of English consonants and vowels, final consonants, past and plural endings; common sound substitutions; intonation, phrasing, and stress changes. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 160, 162, and 255 or higher.

ENL 258 Advanced Vocabulary Building 3 Cr. - Emphasis on word analysis, specialized vocabulary, and dictionary skill building. Homographs, synonyms, antonyms, analogies; advanced math, science, and social science vocabulary, and word origins are presented. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 160, 162, and 164 or higher.

ENL 259 Advanced Vocabulary Building 2 Cr. - Designed to improve students' collegiate vocabulary skills. Focuses on word analysis and dictionary skill building as well as vocabulary acquisition and application in a variety of contexts related to the student and society.

ENL 260 Upper Advanced Reading 5 Cr. - Content comprehension, textual analysis, critical thinking skills, study skills, and language analysis. Readings from textbooks, short stories and/or a novel, newspapers, and popular magazines. Includes finding themes and main ideas, summarizing, paraphrasing, inferencing, evaluation of sources and analysis of arguments. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 252 and 254/255 or higher.

ENL 262 Upper Advanced Writing 5 Cr. - Review of the writing process. Descriptive, and expository essays (e.g. cause/effect, problem/solution, classification). Introduction to argument and principles of research. General review of English grammar, punctuation, and sentence structure. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 250 and 254/255 or higher.

ENL 264 Upper Advanced Speaking and Pronunciation 5 Cr. - Review of English consonants and vowels: emphasis on correcting persistent sound problems caused by omissions, substitutions, and additions. Review of intonation, phrasing, and stress patterns. Discussion and listening comprehension, including lecture/note-taking. Public speaking, including prepared speeches of five minutes with written outlines; impromptu speeches. Prerequisite: ENNL test; or instructor permission; concurrent placement in ENL 250 and 252 or higher.

ENL 265 Upper Advanced Speaking 3 Cr. - Discussion and listening comprehension, including lecture/note-taking. Public speaking including prepared speeches of five minutes with written outlines; impromptu speeches. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 250 and 252 or higher.

ENL 266 Upper Advanced Pronunciation 3 Cr. - Review of English consonants and vowels: emphasis is on correcting persistent sound problems caused by omissions, substitutions, and additions. Review of intonation, phrasing, and stress patterns. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 250, 252, and 264 or higher.

ENL 267 Upper Advanced Pronunciation 2 Cr. - Review of English consonants and vowels: emphasis is on correcting persistent sound problems caused by omissions, substitutions, and additions. Review of intonation, phrasing, and stress patterns. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 250, 252, and 265 or higher.

ENL 268 Upper Advanced Vocabulary Building 3 Cr. - Emphasis on word analysis, specialized vocabulary, and dictionary skill building. Acronyms, foreign words and phrases, literary vocabulary, and stems and affixes are included. Prerequisite: ENNL placement test; or instructor permission; concurrent placement in ENL 250, 252, and 254 or higher.

ENL 272 Advanced Supplementary Writing 5 Cr. - Review of the writing process. Descriptive and expository essays (e.g. cause/effect, classification, argument). Emphasizes refinement and conscious control of English sentence structure; correction of persistent personal errors in writing. Prerequisite: ENL 262 and instructor permission; concurrent placement in ENL 260 and 264/265 or higher.

ESL - English in the Workplace

ESL 0150 English in the Workplace 0 Cr. - Available to participants who are non-native speakers of English enrolled in programs at the Capital Career Center. Instruction focuses on work search related skills and communication in the workplace.

ESL 0155 ESL High Beginning, Listening, Speaking & Pronunciation 0 Cr. - First of three levels of speaking, pronunciation and listening classes in English as a Second Language. Develops comprehensibility in pronunciation and speaking skills. Speaking skills taught in the context of adult life roles as family and community members, workers, citizens, and lifelong learners. A language placement test is required for enrollment.

ESL 0156 Low Intermediate Listening, Speaking & Pronunciation 0 Cr. - Second of three levels of speaking, pronunciation and listening classes in English as a Second Language. Develops comprehensibility in pronunciation and speaking skills. Speaking skills taught in the context of adult life roles as family and community members, workers, citizens and lifelong learners. A language placement test is required for enrollment.

ESL 0157 ESL Intermediate Listening, Speaking & Pronunciation 0 Cr. - Third of three levels of speaking, pronunciation and listening classes in English as a Second Language. Develops comprehensibility in pronunciation and speaking skills. Speaking skills are taught in the context of adult life roles as family and community members, workers, citizens, and lifelong learners. A language placement test is required for enrollment.

ESL 0721 ESL A - Integrated Skills 0 Cr. - Listening/Speaking: Stresses beginning survival skills in English related to work, education, community, and personal goals. Reading/Writing: Focuses on pre-reading, reading, pre-writing, writing including letters, numbers, words, simple sentences, and sight-word recognition using practical material. Grammar: Introduces basic grammar to support functional communication. Prerequisite: ESL placement test.

ESL 0722 ESL B - Integrated Skills 0 Cr. - Listening/Speaking: Focuses on high beginning survival skills in English related to work, education, community and personal goals. Reading: Emphasizes practical materials such as forms, letters, instructions, fiction and non-fiction; increases basic vocabulary and sight-word recognition. Writing: Stresses correct sentence structure leading to simple paragraphs. Grammar: Develops basic grammar to support functional communication. Prerequisite: ESL Level A or the ESL placement test.

ESL 0723 ESL C - Integrated Skills 0 Cr. - Listening/Speaking: Emphasizes low-intermediate survival skills in English related to work, education, community, and personal goals. Reading: Focuses on practical reading, fiction and non-fiction; improves reading comprehension and increases vocabulary. Writing: Stresses sentence level leading to paragraph development; focuses on clarity of meaning. Grammar: Emphasizes functional and communicative grammar. Prerequisite: Level B or the ESL placement test.

ESL 0724 ESL D - Integrated Skills 0 Cr. - Listening/Speaking: Develops intermediate survival skills in English related to work, education, community, and personal goals. Reading: Focuses on a variety of material from books and newspapers, fiction and non-fiction; improves reading skills such as skimming, scanning, inference, main idea, and vocabulary development. Writing: Introduces process writing including the paragraph and short essay. Grammar: Emphasizes grammar for functional, communicative and academic purposes. Prerequisite: ESL Level C or the ESL placement test.

ESL 0725 ESL - Beginning Writing/Reading 0 Cr. - Offers intensive practice in reading and writing on a beginning level. Reading/Writing: Emphasizes pre-reading, reading, pre-writing, writing including letters, numbers, words, simple sentences, and sight-word recognition using practical material. Prerequisite: The ESL placement test.

ESL 0726 ESL - High Beginning Writing and Reading 0 Cr. - Offers intensive practice in reading and writing on a high-beginning level. Reading: Emphasizes practical materials such as forms, letters, instructions, fiction and non-fiction; increases basic vocabulary and sight-word recognition. Writing: Stresses correct sentence structure leading to simple paragraphs. Prerequisite: Level A or the ESL placement test.

ESL 0727 ESL - Low Intermediate Writing and Reading 0 Cr. - Offers intensive practice in reading and writing on a low-intermediate level. Reading: Focuses on practical reading, fiction and non-fiction; improves reading comprehension and increases vocabulary. Writing: Stresses sentence level leading to paragraph development; focuses on clarity of meaning. Prerequisite: ESL Level B or the ESL placement test.

ESL 0728 ESL - Intermediate Writing/Reading 0 Cr. - Offers intensive practice in reading and writing on an intermediate level. Reading: Focuses on a variety of material from books and newspapers, fiction and non-fiction; improves reading skills such as skimming, scanning, inference, main idea, and vocabulary development. Writing: Introduces process writing including the paragraph and short essay. Prerequisite: ESL Level C or the ESL placement test.

ESR - Environmental Studies

ESR 150 Environmental Studies Orientation 1 Cr. - Serves to orient students to environmental information available through campus library and computer resources. Uses assignments aimed at gathering and summarizing information on academic preparation of environmental professionals.

ESR 160 Introduction to Environmental Systems 4 Cr. - Introduces the structure and function of terrestrial, aquatic and atmospheric systems, including the human actions that affect them. Includes lab sections that introduce basic quantitative techniques for collecting and analyzing data from environmental systems. Prerequisite: ESR 150 (previous or concurrent).

ESR 171 Environmental Science: Biological Perspectives 4 Cr. - Develops an understanding of environmental topics that are primarily biological in nature. Includes human population issues, matter and energy resources, ecosystems, environmental ethics, and food and land resources. The associated laboratories will illustrate these topics.

ESR 172 Environmental Science: Chemical Perspectives 4 Cr. - Develop an understanding of environmental topics that are primarily chemical in nature. Includes air pollution, global warming, toxicology, risk assessment, water pollution, and hazardous waste. The associated laboratories will illustrate these topics.

ESR 173 Environmental Science: Geological Perspectives 4 Cr. - Develops an understanding of environmental topics that are primarily geological in nature. Includes geology basics, soil resources, hydrogeology, nonrenewable mineral and energy resources, perpetual energy resources, and solid waste. The associated laboratories will illustrate these topics.

ESR 201 Applied Environmental Studies: Science/Policy Consideration 4 Cr. - Introduces environmental laws and the regulations promulgated under them. Includes examinations of the genesis of these laws (eg. NEPAA, Clean Air and Water Acts, RCRA, Endangered Species Act) and their history of compliance and violation. Prerequisite: ESR 160.

ESR 202 Applied Environmental Studies: Prep for Problem Solving 4 Cr. - Includes environmental sampling, sampling design, and measurement in relation to the field experience. Prerequisite: ESR 160.

ESR 203 Applied Environmental Studies: Project 4 Cr. - Uses project work involving work with an environmental agency, industry, service or research organization. Prerequisite: ESR 202.

ESR 298 Special Topics: Environmental Science 1 to 4 Cr. - Covers special topics, activities or projects in an area of environmental science not usually covered in depth in other environmental science courses.

FN - Foods and Nutrition

FN 110 Personal Nutrition 2 Cr. - Basic nutrition course for students with little or no science background. Explores personal food habits and beliefs. Emphasizes practical application of nutrition knowledge to enhance general health. Analyze present diet and evaluate it according to latest nutritional guidelines.

FN 220 Nutrition Services 2 Cr. - Covers nutritional assessment and intervention, interpretation of laboratory values, implications of food and medication interactions, and calculation of nutritional needs. Required for Dietary Manager and Dietetic Technician Programs. With instructor permission, open to public and health care personnel for occupational upgrading. Prerequisites: MTH 20 or higher or PCC numerical skills test score of 42 or higher; and WR 115 or higher or PCC test score of 41 or higher in writing and score of 42 or higher in reading; or FN 225, or 270.

FN 222 Life Cycle Nutrition 2 Cr. - Expands basic nutrition principles, covers the role nutrition plays during the life cycle. Explores seven stages of human development: pregnancy, lactation, infancy, young children, adolescence, middle age and the elderly. Menu planning for the various ages is included.

FN 225 Nutrition 4 Cr. - Introduces components of an adequate diet, cultural/environmental influences, human digestion and absorption, nutrient retention in processed foods, and federal food labeling standards. Project includes dietary analysis of one three-day period. Prerequisites: Completion of MTH 20 or higher or placement into MTH 60; and WR 115 or higher, or PCC Writing placement score of 45 or higher; and PCC Reading placement score of 45 or higher.

FN 270 Normal and Applied Clinical Nutrition 4 Cr. - Introduces relationship of foods to health, factors affecting food/nutrient intake, and role of food processing in nutrient availability. Evaluates use of modified diets used in treatment of disease. Primary emphasis: nutritional status of the young adult. Secondary emphasis, institutionalized patient. Project includes a nutritional self-assessment. Required for PCC Nursing Program. Prerequisites: MTH 20 or higher, or placement into MTH 60; WR 115 or higher; or PCC writing placement score of 45 or higher; reading placement score of 45 or higher; BI 103, or 122, or 231.

FOT - Fiber Optics Technology

FOT 101 Fiber Optics I 4 Cr. - Origins of Fiber Optics and Fiber Optic solutions for communications. Introduction to design and plant cabling, cable preparation, pulling techniques, termination, splices, and cable testing. Includes cable and closure preparation, fiber cleaving and splicing.

FOT 102 Fiber Optics II 4 Cr. - Develops skills in fiber optics connections and testing. Connector assembly and polishing techniques, system losses and testing. Fault location, repair and restoration are included. Prerequisite: FOT 101.

FOT 103 Fiber Optics: Inside Plant 4 Cr. - Application of enclosures and the use of special splicing techniques. Includes test sets and fault locating equipment. Placing, splicing, and testing of fiber optic cables in campus applications is included. Plant design, layout, and planning also included. Prerequisite: FOT 102.

FOT 104 Fiber Optics: Outside Plant 4 Cr. - Application of ready access, pressurized, direct buried, and pedestal-type enclosures, and the use of special splicing techniques. Includes test sets and fault locating equipment. Placing, splicing, and testing of fiber optic cables in aerial applications is included. Prerequisite: FOT 102.

FP - Fire Protection Technology

FP 101 Introduction to Fire Protection 3 Cr. - Studies the history and development of fire service as well as safety and security movements. Identifies general fire hazards and their causes and how to apply fire protection principles.

FP 111 Firefighting Skills I 5 Cr. - Studies basic tools, procedures, techniques and safety precautions utilized by the fire fighter during fire ground operations. Covers cardiopulmonary resuscitation, hazardous materials awareness and FSAB Basic Fire Fighter training requirements. PCC department application acceptance required.

FP 112 Firefighting Skills II 5 Cr. - Continues to develop basic fire fighter skills learned in FP 111 while increasing technical knowledge of fire ground operations. Emphasizes team skills performed as an evolution by an engine company. Ladder and hose evolutions, power tools, rescue practices and procedures requiring teamwork are practiced. Prerequisite: FP 111.

FP 112A Fireground Operations 5 Cr. - Continues to develop basic fire fighter skills learned in FP 111 while increasing technical knowledge and skills through simulated fireground operations. Includes fireground safety, team work, and command responsibilities by functioning as a firefighter, apparatus operator, and company officer.

FP 113 Firefighting Skills III 4 Cr. - Studies advanced fire fighting skills and applies these skills during weekly drill activities. Equipment and procedures learned in FF Skills I & II are utilized in an operational format. Students function as a firefighter, apparatus operator, company officer, and training officer during drill activities. Prerequisite: FP 111 and 112.

FP 121 Fire Science I 3 Cr. - Studies characteristics and behavior of fire, fundamentals of physical laws and chemical reactions occurring in fire and fire suppression. Analyzes factors contributing to fire, its cause, rate of burning, heat generation and travel, by-products of combustion, and its confinement, control, and extinguishment. Math competency required.

FP 122 Fundamentals of Fire Prevention 3 Cr. - Studies fundamentals of fire inspection standards and techniques of evaluation, identification of hazards and making practical recommendations. Students study fire prevention and education programs and conduct presentations.

FP 123 Hazardous Materials Technician I 3 Cr. - Reviews basic chemistry. Studies the identity of hazardous materials by color, symbol and marking. Covers recommended practices for storage and handling of solids, liquids and gases, and study fire control methods for these materials. Meets FSAB standards for awareness and operations level.

FP 131 Introduction to High Angle Rescue 0.5 Cr. - Studies practical procedures, techniques, and safety procedures utilized by rescue personnel during rope rescue. Covers organization of a rope rescue team, equipment, requirements, scene evaluation, and rescuer safety will be covered. Practices basic rappel, relay and victim retrieval techniques.

FP 132 Fire App/Pump Construction Operation and Hydraulics 3 Cr. - Studies practical procedures, techniques, and safety precautions utilized during apparatus operations. Covers engine capabilities, pump construction, procedures for operation and hydraulic formulas utilized to calculate flow requirements. Prerequisite: FP 111.

FP 133 Natural Cover/Forest Firefighting 3 Cr. - Studies tools and equipment used in natural cover fire fighting as well as tactics and procedures of federal, state and local organizations.

FP 141 Introduction Water Rescue 0.5 Cr. - Studies practical procedures, techniques, and safety precautions utilized by rescue personnel during water rescue response. Practices organization of a water rescue team, equipment requirements, scene evaluation, rescuer drown-proofing and basic victim retrieval techniques.

FP 151 Aircraft Crash and Rescue Basics 0.5 Cr. - Studies aircraft and airport systems, practical procedures, techniques, and safety precautions utilized by rescue personnel during aircraft crash and rescue response. Organization of a crash rescue team, equipment requirements, scene evaluation, and tactical and strategic considerations are covered. Prerequisite: FP 111.

FP 152 Emergency Response to Terrorism 2 Cr. - Covers special needs of responders to incidents which may have been caused by terrorists. Includes definitions of terrorism, history of terrorists, suspicious circumstances, agents utilized by terrorists, self-protection, crime scene considerations, and special command issues.

FP 161 Vehicle Extrication Basics 0.5 Cr. - Studies procedures utilized for extrication of injured victims from motor vehicles, tools, equipment and hazards associated with vehicle extrication and safety considerations during rescue operations.

FP 181 Intro to Natural Cover Fire Protection 0.5 Cr. - Studies tools, equipment and supplies utilized during natural cover fire suppression. Become familiar with command procedures, tactics, strategies and safety precautions used by personnel during natural cover fire suppression operations. Emphasizes inter-agency response and urban interface operations.

FP 201 Emergency Service Rescue 4 Cr. - Studies a variety of procedures, equipment, and tools utilized by emergency rescue personnel. Become familiar with building search, auto extrication, aircraft crash, high angle, and water rescue. Prerequisite: FP 111.

FP 202 Fixed Systems and Extinguishers 3 Cr. - Studies portable extinguisher equipment, fire alarm and detection systems, sprinkler systems and standpipes, protection systems for special hazards, explosion release, ventilation systems, inert atmospheres and static bonding. Prerequisite: FP 111.

FP 203A Introduction to Firefighting Tactics & Strategy 3 Cr. - Studies fireground tactics and strategy, responses and size-up, protection of exposures, containment, extinguishment, the command post, combined operations, analysis and post-mortem evaluation, pre-fire surveys and planning. Prerequisite: FP 111.

FP 211 Building Construction for Firefighters 3 Cr. - Offers knowledge and skills in the various construction features of buildings. Includes structural features affecting fire spread and building collapse, the effect of fire on materials, fire stops and ratings. Use of blueprints and plans to understand building features and pre-fire planning emphasized. Prerequisite: FP 111.

FP 212 Fire Investigation (Cause Determination) 3 Cr. - Studies burning characteristics of combustibles. Interprets clues and burn patterns leading to point of origin. Identifies incendiary indications, sources of ignition and materials ignited and how to preserve the fire scene evidence. Prerequisite: FP 111.

FP 213 Principles of Supervision for Firefighters 3 Cr. - Studies fireline supervision. Future fire supervisors concentrate on the responsibilities of and opportunities for supervision, develop an understanding of human relations and study how to stimulate personal development of supervisory skills. Prerequisite: FP 111.

FP 215 Urban Interface Fire Operations 3 Cr. - Studies strategies for fire attack, action plans, tactics, structural triage, action plan assessment, public relations and safety precautions used in wildland fires during urban interface operations. Practices the sizing up and operational procedures required to operate as initial command on urban interface fires. Prerequisite: FP 133.

FP 231 Aircraft Crash Rescue Practices 3 Cr. - Studies current techniques of aircraft firefighting and rescue, principles associated with aircraft design and mock situations involving varieties of aircraft disasters. Prerequisite: FP 111.

FP 232 Pump Construction and Hydraulics II 2 Cr. - Practical procedures, techniques, and safety precautions used during apparatus operations. Covers the history and development of fire apparatus capabilities, pump construction, procedures for operation and hydraulic formulas used to calculate flow requirements. Operational techniques required to operate an engine at a multiple alarm fire will be practiced. FSAB Apparatus Operator II (26-01), (26-02), (26-03). Prerequisite: FP 132.

FP 233 Aerial Ladder Operations for Firefighters 3 Cr. - Studies the concepts of aerial ladder operation and becomes familiar with equipment used in construction, operation and maintenance. Situations involving field use, deployment and operation of equipment are explored. Prerequisite: FP 132.

FP 242 Flammable, Explosive and Toxic Materials 3 Cr. - Studies electrical exotic metal fires and space age fuel fires; how to handle radioactive materials involved in fire, the use of monitoring equipment and personnel safety practices. Prerequisite: FP 123.

FP 243 Laws Affecting Fire Fighting 1 Cr. - Covers various federal, state and local statutes, codes and ordinances that have a bearing on fire fighters. Personal and organizational responsibilities will be covered. Equal employment opportunity, operation of emergency vehicles and fire codes are included.

FP 252 High Angle Rescue I 3 Cr. - Offers knowledge and skills to select, maintain, inspect and use basic high angle rescue equipment. Hands-on experience helps the student develop confidence in high angle rescue techniques, an appreciation for safety considerations used and provides a good foundation for continuation training. Prerequisite: FP 201.

FP 253 Fire Service Instructional Techniques I 2 Cr. - Examines purposes of fire service drills and training programs and offers an understanding of how adults learn. Studies the stages of instruction, lesson preparation and presentation techniques. Prerequisite: FP 113.

FP 262 Water Rescue for Emergency Services 3 Cr. - Studies practical procedures, techniques, and safety precautions utilized by rescue personnel during water rescue response. Covers organization of a water rescue team, equipment requirements, scene evaluation and rescuer drown-proofing will be covered. Victim retrieval, rescue swimming and search techniques will be practiced. Prerequisite: FP 201.

FP 263 Fire Service Instructional Techniques II 2 Cr. - Covers lesson plan preparation, selection and use of audio/visual aids, the teaching process, test development and practice teaching by the student.

FP 280A Cooperative Education: Fire Science 3 Cr. - Field placement in a municipal fire department as a fire intern, volunteer fire fighter or cadet/explorer. Students are evaluated by a PCC field representative from Cooperative Education. Department permission required.

FP 280B Cooperative Education: Fire Science - Seminar 2 Cr. - Department permission required.

FP 283 Public Sector Employment Workshop (Fire) 3 Cr. - Provides the opportunity to develop skills needed to successfully complete Civil Service and Public Sector employment examinations.

FP 293 Advanced Firefighting Tactics & Strategy 1 Cr. - Studies response and size-up, fire-ground tactics and analysis, post-mortem, pre-fire survey and planning, combined operations, mutual aid, disaster planning and problems in unusual fire operations. Prerequisite: FP 203A.

FP 9010 Fire Management Practices 1 Cr. - Outlines basic management skills for the mid-level manager. Includes organizational structure, communicating, financial management and controlling resources. Prerequisite: FP 213.

FP 9020 Fire Department Budgets 1 Cr. - Outlines the budget process as required by Oregon laws to include types of budgets, the process of preparing the budget and classifying expenditures. Prerequisite: FP 213.

FP 9030 Planning Fire Protection 1 Cr. - Covers the elements that are considered when planning for fire protection needs of a community. The techniques of risk analysis and problem solving are used. Prerequisite: FP 213.

FP 9040 Managing Fire Personnel 1 Cr. - Covers the appointment/promotional process to include desirable traits of personnel. Discusses motivation and counseling as well as the legal responsibilities of management and utilization of employees. Prerequisite: FP 213.

FP 9050 Public Relations Information and Education 1 Cr. - Covers company officer responsibilities for a basic understanding of public relations, information and fire education. Designed to offer a brief overview of these topics. Prerequisite: FP 213.

FP 9060 Fire Science II Chemistry 3 Cr. - Studies physical and chemical properties of substances, chemical changes, elements, compounds, gases, chemical combinations, weights and measurements, as well as theories of metals, acids, bases, salts, solvents, solutions and emulsions. Prerequisite: MTH 60.

FP 9070 Major Emergency Tactics/Strategy 1 Cr. - Studies response and size-up, fire-ground tactics and analysis, post-mortem, pre-fire survey and planning, combined operations, mutual aid, disaster planning and problems in unusual fire operations.

FP 9080 Fire Fighting Safety & Survival for Company Officers 1 Cr. - Covers safety on the fireground, equipment, the officer's role in modifying behavior and identifying hazardous situations. Identifies state safety rules.

FP 9090 Incident Command 2 Cr. - Covers current incident command systems and how to improve fireground operational techniques through a structured process. Prerequisite: FP 113.

FP 9110 Fire Inspection Practices 3 Cr. - Studies the various steps to be followed prior to and during an actual fire inspection. The legal aspects of fire inspections on both new and existing structures are covered. Prerequisites: FP 122, 202, 211.

FP 9120 Fire Codes & Related Ordinances 3 Cr. - Studies fire, building, exit, flammable liquid and other fire prevention codes. Students go on supervised building inspection field trips. Primarily for fire department inspectors. Prerequisites: FP 122, 202, 211.

FP 9130 Hazardous Materials Inspection 3 Cr. - Studies state codes and regulations pertaining to hazardous material storage, labeling, incident reporting, inspection and handling. Discusses characteristics and identification of hazardous materials, hazards associated with flammable, explosive, toxic, radioactive, corrosive and oxidizing agents. Prerequisites: FP 122, 202, 211.

FP 9140 Fire Officer I 4 Cr. - Designed to meet National Fire Protection Association Standard 1021(NFPA). Includes a contemporary look at the duties and responsibilities of first level supervisors. Covers first level supervisory functions associated with human resource management, community and government relations, fire administration, inspection and investigation, emergency service delivery and safety.

FP 9150 Fire Officer II 4 Cr. - Designed to meet NFPA qualifications. Includes a contemporary look at duties and responsibilities of the fire service supervisor. Covers company officer supervisory functions associated with human resource management, community and government relations, fire administration, inspection and investigation, emergency service delivery and safety. First level supervisory and middle management responsibilities will be discussed and contrasted with Fire Officer II duties and responsibilities.

FP 9210 Arson Law, Evidence, Motives 3 Cr. - Introduces common law, statutory law and case law pertaining to arson and other willful burning. Arson as an economic crime and a part of organized crime operation is also discussed. Prerequisite: FP 212.

FP 9250 Advanced Fire and Arson Investigation 4 Cr. - Examines areas of knowledge necessary for the identification and investigation of specific causes of fires. Designed to expand on information introduced in FP 212. Prerequisite: FP 212; or instructor permission.

FP 9330 Fire Service Hydraulics 3 Cr. - Covers various fire apparatus used in the fire service, the construction of fire pumps, and the utilization of this equipment. Fireground hydraulics and other calculations are studied.

FP 9340 Water Distribution Systems 3 Cr. - Studies water main systems and hydrants in residential and commercial districts, fire flow requirements, pumping stations, high pressure systems, storage tanks and cisterns and mobile supplies. Prerequisite: FP 111.

FP 9410 Public Relations for Fire Service 3 Cr. - Studies the fundamentals of public relations as they pertain to fire service, including emergency operations, general public appearances, writing news releases, articles and speeches and general media contact.

FP 9520 Advance Wildland Fire Behavior 3 Cr. - Covers fuels, topography, and weather factors which affect wildland fire behavior; theories, principles and techniques of calculating and predicting fire spread. Prerequisite: FP 133.

FR - French

FR 101 First Year French 4 Cr. - Introduction to French stressing the development of listening, speaking, reading, writing, and cultural awareness through a communicative approach. Primary emphasis on the student's active use of the language. Proficiency target level: Novice high. For beginners.

FR 102 First Year French 4 Cr. - Continues work of FR 101, further developing all skills. Primary emphasis on the student's active use of the language. Proficiency target level: Intermediate low. Recommended: Completion of: FR 101 or 150 or instructor permission.

FR 103 First Year French 4 Cr. - Continues the work of FR 102, further developing all skills. Primary emphasis on the student's active use of the language. Proficiency target level: Intermediate mid. Recommended: Completion of: FR 102 or instructor permission.

FR 111A First Year French Conversation 3 Cr. - Practice of structures and vocabulary of first year French in a conversational format. Recommended: Completion of or simultaneous enrollment in FR 101 or 150; or instructor permission.

FR 111B First Year French Conversation 2 Cr. - Practice of structures and vocabulary of first year French in a conversational format. Recommended: Completion of or simultaneous enrollment in FR 101 or 150; or instructor permission.

FR 111C First Year French Conversation 1 Cr. - Practice of structures and vocabulary of first year French in a conversational format. Recommended: Completion of or simultaneous enrollment in FR 101 or 150; or instructor permission.

FR 112A First Year French Conversation 3 Cr. - Practice of structures and vocabulary of first year French in a conversational format. Recommended: Completion of or simultaneous enrollment in FR 102 or 151; or instructor permission.

FR 112B First Year French Conversation 2 Cr. - Practice of structures and vocabulary of first year French in a conversational format. Recommended: Completion of or simultaneous enrollment in FR 102 or 151; or instructor permission.

FR 112C First Year French Conversation 1 Cr. - Practice of structures and vocabulary of first year French in a conversational format. Recommended: Completion of or simultaneous enrollment in FR 102 or 151; or instructor permission.

FR 113A First Year French Conversation 3 Cr. - Practice of structures and vocabulary of first year French in a conversational format. Recommended: Completion of or simultaneous enrollment in FR 103 or 151; or instructor permission.

FR 113B First Year French Conversation 2 Cr. - Practice of structures and vocabulary of first year French in a conversational format. Recommended: Completion of or simultaneous enrollment in FR 103 or 151; or instructor permission.

FR 113C First Year French Conversation 1 Cr. - Practice of structures and vocabulary of first year French in a conversational format. Recommended: Completion of or simultaneous enrollment in FR 103 or 151; or instructor permission.

FR 150 First Year French 6 Cr. - For beginners. First of a two term sequence in French stressing developing listening, speaking, reading, writing, and cultural awareness through a communicative approach. Primary emphasis on the student's active use of the language. Proficiency target level: Novice high to intermediate low.

FR 151 First Year French 6 Cr. - Continues the work of FR 150, further developing all skills. Primary emphasis on the student's active use of the language. Also provides a review before entering second year French. Proficiency target level: Intermediate mid. Recommended: Completion of FR 102 or 150 or instructor permission.

FR 201 Second Year French 4 Cr. - Continues the work of first year French, reviewing, expanding, and perfecting listening, speaking, reading, writing, and cultural awareness through a communicative approach. Primary emphasis on the student's active use of the language. Proficiency target level: Intermediate mid. Recommended: Completion of first year French at the college level; or the equivalent.

FR 202 Second Year French 4 Cr. - Continues the work of FR 201, further developing and perfecting all skills. Primary emphasis on the student's active use of the language. Proficiency target level: Intermediate mid to high. Recommended: Completion of FR 201 or 250; or instructor permission.

FR 203 Second Year French 4 Cr. - Continues the work of FR 202, further developing and perfecting all skills. Primary emphasis on the student's active use of the language. Proficiency target level: Intermediate high. Recommended: Completion of FR 202; or instructor permission.

FR 211A Intermediate French Conversation 3 Cr. - Stresses conversational skills at the second year level. Recommended: Completion of or simultaneous enrollment in FR 201, 250 or instructor permission.

FR 211B Intermediate French Conversation 2 Cr. - Stresses conversational skills at the second year level. Recommended: Completion of or simultaneous enrollment in FR 201, 250 or instructor permission.

FR 211C Intermediate French Conversation 1 Cr. - Stresses conversational skills at the second year level. Recommended: Completion of or simultaneous enrollment in FR 201, 250 or instructor permission.

FR 212A Intermediate French Conversation 3 Cr. - Continuation of FR 211A. Recommended: Completion of or simultaneous enrollment in FR 202, 250 or instructor permission.

FR 212B Intermediate French Conversation 2 Cr. - Continuation of FR 211B. Completion of or simultaneous enrollment in FR 202, 251 or instructor permission.

FR 212C Intermediate French Conversation 1 Cr. - Continuation of FR 211C. Recommended: Completion of or simultaneous enrollment in FR 202, 251 or instructor permission.

FR 213A Intermediate French Conversation 3 Cr. - Continuation of FR 212A. Recommended: Completion of or simultaneous enrollment in FR 203, 251 or instructor permission.

FR 213B Intermediate French Conversation 2 Cr. - Continuation of FR 212B. Recommended: Completion of or simultaneous enrollment in FR 203, 251 or instructor permission.

FR 213C Intermediate French Conversation 1 Cr. - Continuation of FR 212C. Recommended: Completion of or simultaneous enrollment in FR 203, 251 or instructor permission.

FR 250 Second Year French 6 Cr. - Continues the work of first year French, reviewing, expanding, and perfecting listening, speaking, reading, writing, and cultural awareness through a communicative approach. Primary emphasis on the student's active use of the language. Proficiency target level: Intermediate mid to high. Recommended: Completion of first year French at the college level; or the equivalent.

FR 251 Second Year French 6 Cr. - Continues the work of FR 250, further developing and perfecting all skills. Primary emphasis on the student's active use of the language. Proficiency target level: Intermediate high. Recommended: Completion of FR 250 ; or instructor permission.

FR 255 Accelerated French 8 Cr. - For beginners. Covers the material of FR 101 and FR 102 in an accelerated format. Stresses the development of listening, speaking, reading, writing, and cultural awareness through a communicative approach. Primary emphasis on the student's active use of the language. Recommended to the highly motivated student. Proficiency target level: Intermediate low; the successful student will be able to handle a limited number of interactive social situations.

FR 256 Accelerated French 8 Cr. - Covers the material of FR 103 and FR 201 in an accelerated format. Stresses the development of listening, speaking, reading, writing, and cultural awareness through a communicative approach. Primary emphasis on student's active use of the language. Recommended to the highly motivated student. Proficiency target level: Intermediate mid; the successful student will be able to handle a variety of basic communicative tasks and social situations. Recommended: Completion of FR 102 or 255 or instructor permission.

FR 257 Accelerated French 8 Cr. - Covers the material of FR 202 and FR 203 in an accelerated format. Stresses the development of listening, speaking, reading, writing, and cultural awareness through a communicative approach. Primary emphasis on student's active use of the language. Recommended to the highly motivated student. Proficiency target level: Intermediate high; the successful student will be able to handle most uncomplicated communicative tasks and social situations. Recommended: Completion of FR 201 or 256 or instructor permission.

FR 260A French Culture 3 Cr. - Studies and discusses contemporary thought and life of the French speaking world. Recommended: Completion of one term of second year French at the college level; or instructor permission.

FR 260B French Culture 2 Cr. - Studies and discusses contemporary thought and life of the French speaking world. Recommended: Completion of one term of second year French at the college level; or instructor permission.

FR 260C French Culture 1 Cr. - Study and discussion of contemporary thought and life of the French speaking world. Recommended: Completion of one term of second year French at the college level; or instructor permission.

FR 261A French Culture 3 Cr. - Continuation of FR 260A. Recommended: Completion of two terms of second year French at the college level; or instructor permission.

FR 261B French Culture 2 Cr. - Continuation of FR 260B. Recommended: Completion of two terms of second year French at the college level; or instructor permission.

FR 261C French Culture 1 Cr. - Continuation of FR 260C. Recommended: Completion of two terms of second year French at the college level; or instructor permission.

FR 262A French Culture 3 Cr. - Continuation of FR 261A. Recommended: Completion of second year French at the college level; or instructor permission.

FR 262B French Culture 2 Cr. - Continuation of FR 261B. Recommended: Completion of second year French at the college level; or instructor permission.

FR 262C French Culture 1 Cr. - Continuation of FR 261C. Recommended: Completion of second year French at the college level; or instructor permission.

FR 270A Readings in French Literature 3 Cr. - Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry. Recommended: Completion of second year French at the college level; simultaneous enrollment in FR 203, 251 or 257; or instructor permission.

FR 270B Readings in French Literature 2 Cr. - Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry. Recommended: Completion of second year French at the college level; simultaneous enrollment in FR 203, 251 or 257; or instructor permission.

FR 270C Readings in French Literature 1 Cr. - Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry. Recommended: Completion of second year French at the college level; simultaneous enrollment in FR 203, 251 or 257; or instructor permission.

FR 271A Readings in French Literature (African & Caribbean) 3 Cr. - Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry written by African and Caribbean writers. Fulfills diversity requirement for AAOT degree. Recommended: Completion of second year French at the college level; simultaneous enrollment in FR 203, 251, or 257; or instructor permission.

FR 271B Readings in French Literature (African & Caribbean) 2 Cr. - Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry written by African and Caribbean writers. Recommended: Completion of second year French at the college level; simultaneous enrollment in FR 203, 251, or 257; or instructor permission.

FR 271C Readings in French Literature (African & Caribbean) 1 Cr. - Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry written by African and Caribbean writers. Recommended: Completion of second year French at the college level; simultaneous enrollment in FR 203, 251, or 257; or instructor permission.

FR 272A Readings in French Literature (Women Writers) 3 Cr. - Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry written by women. Fulfills diversity requirement for AAOT degree. Recommended: Completion of second year French at the college level; simultaneous enrollment in FR 203, 251, or 257; or instructor permission.

FR 272B Readings in French Literature (Women Writers) 1 Cr. - Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry written by women. Recommended: Completion of second year French at the college level; simultaneous enrollment in FR 203, 251, or 257; or instructor permission.

FR 272C Readings in French Literature (Women Writers) 1 Cr. - Emphasizes skills for reading in French. Reading and discussion of accessible works of French prose and poetry written by women. Recommended: Completion of second year French at the college level; simultaneous enrollment in FR 203, 251, or 257; or instructor permission.

FR 290A French Speaking and Writing 3 Cr. - Expands and perfects skills learned in second year French. Emphasizes speaking and writing, but students also practice listening and reading. Recommended: Successful completion of second year French at the college level; or instructor permission.

FR 290B French Composition 2 Cr. - Practice in developing composition skills. Recommended: Instructor permission and either second year college French with grades of A or B, or native or near native ability in French.

FR 290C French Composition 1 Cr. - Practice in developing composition skills. Recommended: Instructor permission and successful completion of either second year college French with grades of A or B, or native or near native ability in French.

FR 291A French Composition 3 Cr. - Practice in developing composition skills. Recommended: Instructor permission.

FR 291B French Composition 2 Cr. - Continuation of FR 290B. Recommended: Instructor permission.

FR 291C French Composition 1 Cr. - Continuation of FR 290C. Recommended: Instructor permission.

FR 292A French Composition 3 Cr. - Continuation of FR 291A. Recommended: Instructor permission.

FR 292B French Composition 2 Cr. - Continuation of FR 291B. Recommended: Instructor permission.

FR 292C French Composition 1 Cr. - Continuation of FR 291C. Recommended: Instructor permission.

FT - Fitness Technology

FT 101 Fitness Technology Seminar 2 Cr. - Explore careers in the fitness and health industry. Obtain practical experience and insight into the role of a fitness/health professional in health and fitness clubs and community based wellness centers. Recommended: Interest in Fitness Technology Program. Prerequisites: ASSET scores of 40 in reading, 38 in writing, and 38 in math.

FT 102 Injury Prevention & Management 2 Cr. - Gain skills and knowledge for prevention and management of injuries that occur in a variety of recreational and fitness activities. Corequisite: FT 106. Prerequisites: ASSET scores of 40 in reading, 38 in writing, and 38 in math.

FT 103 Nutrition for Fitness Instructors 2 Cr. - Presents an overview of basic principles of nutrition and weight management with particular application to fitness and sport. Recommended: Completion of FN 225. Prerequisites: HPE 295; ASSET scores of 40 in reading, 38 in writing, and 38 in math.

FT 104 Fitness Assessment & Programming I 3 Cr. - Introduces fitness testing and exercise prescription for apparently healthy individuals and special populations. Covers cardiovascular fitness, muscular strength and endurance, flexibility, nutrition, and body composition. Prerequisites: ASSET scores of 40 in reading, 38 in writing, and 38 in math.

FT 105 Fitness Assessment & Programming II 3 Cr. - Second course in sequence of Fitness Assessment and Programming. Introduces group assessments, individual and group exercise plans and progressions, and recreational program planning. Covers reassessment, exercise compliance. Prerequisite: FT 104.

FT 106 Analysis of Movement 3 Cr. - Studies and analyzes human posture and movement as it applies to physical fitness and sport. Uses knowledge to design effective and safe exercise programs. Corequisite: FT 102. Prerequisite: BI 121; or equivalent.

FT 107 Exercise Science 3 Cr. - Surveys scientific principles, methodology, and research as applied to exercise and physical fitness. Emphasizes physiological responses and adaptations to exercise. Prerequisite: BI 121; or equivalent.

FT 201 Fitness Assessment and Program III 3 Cr. - Third in sequence of Fitness Assessment and Programming. Covers advanced testing procedures, assessments for special populations, exercise programming for special populations, and exercise programming for group exercise. Prerequisites: FT 105; PE 281, 282B, 282A or 287.

FT 202 Fitness and Aging 3 Cr. - Explores physiological aspects of aging as applied to fitness and exercise. Prerequisite: FT 107; HPE 295. Prerequisite or may be taken concurrently: FT 204, PE 282B.

FT 203 Fitness Promotion 3 Cr. - Develops skills to promote healthy and fit lifestyles to both individuals and groups. Learn skills to promote oneself in the job market. Applies skills gained from a variety of fitness disciplines. Prerequisites: MSD 117; SP 111; FT 105.

FT 204 Exercise Science II 2 Cr. - Continues application of physiological concepts from Exercise Science I. Introduces special populations, environmental conditions, nutritional and pharmacological ergogenic aids, training, and exercise prescription. Prerequisite: FT 107.

FT 280 Cooperative Education: Fitness Technology 3-10 Cr. - Provides required practicum experiences for Fitness Technology majors. Requires third term standing, current First Aid and CPR cards, and instructor permission.

G - Geology

G 160 Geology: Oregon Coast - Cr. - Designed to introduce the relationships between the biology and geology of the Oregon Coast.

G 161 Geology: Malheur Region 2 Cr. - This field trip experience is designed to introduce the relationships between the biology and geology of the Malheur geographical area.

G 200 Principles of Geology: Field Geology 4 Cr. - Introduces basic concepts in geology through field experience. Includes both lecture and field components. Content varies based on site location. Prerequisite: G 201 or higher; or instructor permission.

G 201 Physical Geology 4 Cr. - Introduces physical geology which deals with minerals, rocks, internal structure of the earth and plate tectonics.

G 202 Physical Geology 4 Cr. - Introduces physical geology which deals with mass wasting, streams, glaciers, deserts, beaches, groundwater, and use of topographic maps.

G 203 Historical Geology 4 Cr. - Introduces historical geology which deals with geologic time, fossils, stratigraphic principles, and the geologic history of the North American continent.

G 207 Geology of the Pacific Northwest 3 Cr. - Introduces the regional geology of the Pacific Northwest with emphasis on Oregon geology. Includes basic geologic principles, earth materials and geology of Pacific Northwest provinces.

G 208 Volcanoes and Their Activity 3 Cr. - Covers the origin, activity, products, classification and hazards of volcanoes.

G 209 Earthquakes 3 Cr. - Covers the nature and origin of earthquakes, the characteristics of seismic waves, how earthquakes are measured, the hazards of earthquakes and the historical and geological record of earthquakes.

G 291 Elements of Rocks and Minerals 4 Cr. - Introduces the study of rocks and minerals that includes their classification, origin and identification. Recommended for persons interested in rock and mineral collecting, mining and prospecting.

GD - Graphic Design

GD 114 Introductory Typography 3 Cr. - Designed to introduce type as a design element. This non-computer course emphasizes exploration of letter forms through hand-rendering. Focuses on interaction of letter forms from single letters through multiple words. Includes font classification, composition and production techniques.

GD 116 Intermediate Typography 3 Cr. - An intermediate typography course continuing the study of type as a design element. Concentration on typographic composition, hierarchy, type identification and typographic systems. Traditional and digital methods of production will be used. Student required to use some page layout software and output outside of class. Prerequisites: GD 120, 114.

GD 120 Graphic Design 1 3 Cr. - Introduces the basic concepts of graphic design, including design elements and principles. Emphasizes the design process, developing an idea from thumbnail sketch, through tight roughs, to a comprehensive design. Focuses on the importance of presentation, industry standards and professional tools and techniques.

GD 122 Graphic Design 2 3 Cr. - Second in a series of six graphic design courses. Builds on the basic concepts of graphic design. Emphasizes color, including color theory, vocabulary, color schemes, and the effects of color. Focuses on identifying graphic styles, brainstorming techniques, and introduces 3-dimensional design. Attention continues being placed on design process, presentation, and industry standards. Prerequisites: GD 120, 114.

GD 124 Graphic Design 3 3 Cr. - Third in a series of six graphic design courses. Builds on basic concepts of graphic design. Emphasizes research, identifying specific graphic design needs for a business, symbol design, and maintaining continuity while working with multiple colors, sizes and materials. Studies in-depth the relationships of type, layout and color in two- and three-dimensional graphic design projects. Prerequisites: GD 122, 140.

GD 140 QuarkXPress Design 1 3 Cr. - Explores beginning level graphic design and publishing using Macintosh computers with QuarkXPress software. Introduces typography design, basic page layout, computer file management, professional methods of design organization, keyboard work and the foundations of computer use for the graphic designer. To be taken sequentially. Placement permission slip required. Prerequisite: PT 131 or 136; GD 114, 120.

GD 141 QuarkXPress Design 2 3 Cr. - Uses QuarkXPress to explore document design, construction, elementary digital prepress, and output. Covers the design and creation of electronic documents to develop design skills and achieve complete command of the software. To be taken sequentially. Software subject to change. Placement permission slip required. Prerequisite: GD 140.

GD 221 Graphic Design 4 3 Cr. - Second-year course focusing on Publication Design. Single-page and multiple-page projects will emphasize hierarchy, eyeflow, structure and organization. Projects, lessons

and exercises are intended to build on first-year skills in typography and design using QuarkXPress for page layout. Advanced computer production techniques. Prerequisites: GD 124, 141; second-year standing in the Graphic Design program.

GD 222 Graphic Design 5 3 Cr. - Second-year course focusing on Logo Design and Identity Systems. Create design solutions to communicate client and product image through logos, logotypes, icons, and symbols. Projects, lessons and exercises draw on previous coursework in typography and design using QuarkXPress and Adobe Illustrator. Prerequisites: GD 240, 241, 221; second-year standing in the Graphic Design program.

GD 223 Graphic Design 6 3 Cr. - Second-year course exploring 3-Dimensional Graphics and Package Design. Create graphic design projects combining handbuilt structures and computer generated graphics. Projects, lessons and exercises draw on previous work in typography and design using QuarkXPress, Adobe Illustrator and Adobe Photoshop. Prerequisites: GD 222, 240, 241; second-year standing in the Graphic Design program.

GD 228 Professional Studio Practices 3 Cr. - Prepare self-promotion resume packages, visit graphics businesses and receive industry insights from guest speakers. Offered to second-year, graduating Graphic Design majors intending to seek employment in the industry. To be taken concurrently with GD 222. Prerequisites: GD 221, 240, 241.

GD 229 Portfolio Preparation 3 Cr. - Develop a professional portfolio comprised of design work that may be revised, redone or created. Define employment goals and participate in practice interviews and critiques. Offered to second-year, graduating Graphic Design majors intending to seek employment in the industry. To be taken concurrently with GD 223. Prerequisite: GD 228.

GD 237 Black and White Illustration Techniques 3 Cr. - Introduces materials and techniques used to produce camera ready black and white line illustration. Focuses on line illustrations of products and subjects suitable for insertion into magazines and catalogs. Uses a variety of dry and wet media and textured and smooth drawing surfaces to create images involving perspective, realism and abstract ideas. Second year status in Graphic Design program required. Corequisites: GD 221 and 241.

GD 238 Color Illustration Techniques 3 Cr. - Expands upon tools and techniques used to produce color product design. Line art is combined with wash using a variety of wet and dry media including crayon, prisma pencils, colored paper, gouache, acrylics, watercolor, and ink. Second year status in Graphic Design program required. Corequisites: GD 222 and 240.

GD 239 Illustration for Graphic Designers 3 Cr. - Covers basic spot illustration techniques used by graphic designers in print and web. Emphasizes generating illustration from photo references. Color, and black and white illustrations include traditional as well as technology-enhanced techniques. Production issues focus on the illustration's eventual placement in the computer environment. Prerequisites: GD 120; ART 131.

GD 240 Adobe Illustrator Design 3 Cr. - Explores tools and techniques of Adobe Illustrator, and its use in creating appropriate solutions to graphic design problems. To be taken sequentially. Placement permission slip required. Prerequisite: GD 140.

GD 241 Adobe Photoshop Design 1 3 Cr. - Using Adobe Photoshop to explore digital image editing, photo manipulation and layer compositing. File formats, techniques and tools most used by graphic designers emphasized. Projects are designed to achieve basic understanding of the software. To be taken sequentially. Placement permission slip required. Second year status in the Graphic Design program required. Prerequisite: GD 240.

GD 242 Combined Graphic Programs 3 Cr. - Create graphic elements in multiple programs and explore importing, exporting and assembling in other programs. Advanced QuarkXPress, Adobe Illustrator, Adobe Photoshop and Macromedia Dreamweaver techniques are used to study cross-application issues. Placement permission slip required. Prerequisites: GD 241, 240.

GD 243 Adobe Photoshop 2 3 Cr. - Introduces advanced techniques in color correction and image manipulation for print and web-based graphics using Adobe Photoshop. The study of masks, channels and advanced selection methods will be incorporated in professional-level design projects. Export formats and cross-application issues are covered. Prerequisites: Second year standing in Graphic Design program and GD 241.

GD 244 Designing Files for Print 3 Cr. - Focuses on the process that occurs with graphic design work after the design process. What it takes to prepare a design and computer files for commercial printing, going beyond the desktop printing. Introduces the business relationship between the designer, the printer and the service bureau. Prerequisite: GD 240. Corequisite: GD 222.

GD 249 Design Studio 3 Cr. - Exercise graphic design theory in actual client-directed projects. Course is set up to simulate a working design studio providing the opportunity to experience the requirements and roles of a designer in the field, as well as the administrative tasks. Emphasizes client communication and professional practices. Acceptable substitution: PT280 Cooperative Work Experience. Second year status in the Graphic Design program required. To be taken concurrently with GD 221 and 241.

GE - General Engineering

GE 100 Exploring Engineering 1 Cr. - Exploration of the engineering profession. Includes education, ethics, and licensing issues, along with presentations by practicing engineers.

GE 101 Engineering Fundamentals 4 Cr. - Introduces engineering occupations, registration laws, and ethics. Emphasizes engineering problem solving, and use of computer applications. Scientific, programmable, graphing calculator required. Prerequisite: Placement in MTH 251. Corequisite: WR 115.

GE 102 Engineering Graphics 3 Cr. - Introduces manual and computer-aided drafting including hand sketching, drafting standards, pictorial drawings, and dimensioning. Includes creation of 2-D drawings and 3-D solid models with AutoCAD. Prerequisite: GE 101.

GE 114 Engineering Programming 4 Cr. - Introduces structured programming with applications to engineering problems. Prerequisite: GE 101; or department-approved equivalent.

GE 171 Introduction to Logic Design 5 Cr. - Introduces switching theory and logic design. Number systems, logic families, Boolean algebra, minimization, flip-flops, registers and counters, are covered. Analysis and design of finite state machines with discrete and programmable devices. Prerequisite: GE 221.

GE 198 Independent Studies 1-5 Cr. - Independent study and/or participation in an engineering project related to student's academic area of interest. Project suitability to be determined by faculty.

GE 211 Statics 4 Cr. - Analysis of forces acting on particles and rigid bodies. Force systems, centroids, and moments of inertia are covered. Scientific, programmable, graphing calculator required. Prerequisites: MTH 253; PHY 211; GE 101.

GE 212 Dynamics 4 Cr. - Kinematics and kinetics of particles and rigid bodies are analyzed by Newton's laws, work-energy and impulse-momentum methods. Prerequisite: GE 211.

GE 213 Strength of Materials 4 Cr. - Relationships between stress and strain in deformable solids are studied. Analysis is applied to axially-loaded members, circular shafts, beams and columns. Combined stresses, statically indeterminate systems and properties of structural materials are included. Prerequisite: GE 211.

GE 221 Electrical Circuits I 5 Cr. - DC and AC circuit analysis. Ohm's and Kirchhoff's Laws, network theorems, node voltage and mesh current methods. Includes computer circuit simulation, math analysis using Maple, and laboratory experiments. Recommended: MTH 253 and PHY 213. Prerequisites: GE 101; MTH 252.

GE 222 Electrical Circuits II 5 Cr. - Circuit analysis using Laplace and Fourier transforms. Fourier series, convolution integral, transfer functions, and frequency response. Includes computer analysis using Maple, lab experiments using LabView, GPIB and DAQ, and computer circuit simulation. Prerequisites: GE 221; MTH 256.

GE 223 Signals and Systems 5 Cr. - Emphasizes discrete time analysis of electrical circuits, including sampling and the discrete time Fourier Transform. Discrete time and linear time invariant systems. Characterization and Fourier Series representation of signals and systems, communications systems, and the z-transform. Includes a 3-hour per week laboratory. Prerequisite: GE 222.

GE 226 Plane Surveying 4 Cr. - Introduces basic concepts of plane surveying. Includes use of tape, level, transit, electronic total station (ETS), along with horizontal and vertical control networks. Includes network calculations and adjustments, angles and bearings, and topographic surveying and mapping. Prerequisite: GE 102.

GE 231 Material Science 4 Cr. - Selection of materials for modern engineering applications. Structure and properties of metals, ceramics and polymers starting with fundamental atomic arrangements. Microstructural control through thermal and mechanical processing and effects of service environment are covered. Prerequisites: PHY 211; MTH 252; CH 201 or 221.

GE 262 Manufacturing Processes 4 Cr. - The interaction of design with industrial materials and processes is considered in connection with technical and economic feasibility, trade-offs and automation. Prerequisite: GE 102.

GE 275 Microprocessor Systems 4 Cr. - Introduction to microprocessor architecture, assembly language programming and basic microcomputer system design. Use specialized software development tools to write applications programs and test/debug programs in prototype systems. Corequisite: GE 171.

GE 280A Cooperative Education: Engineering 1-5 Cr. - For students employed in an approved co-op education position with a local company. Credits do not ordinarily transfer for an engineering degree. Department permission required.

GEO - Geography

GEO 105 Introduction to Human Cultural Geography 3 Cr. - Introduces cultural geography themes: location, human-environment interaction, place, movement, regions, environmental perception, spatial perspective and cultural landscapes.

GEO 106 Introduction to Human Cultural Geography 3 Cr. - Topics include world population and food issues, settlement patterns and the spatial examination of cities, and environmental modifications.

GEO 107 Introduction to Human Cultural Geography 3 Cr. - Covers spatial analyses and cross-cultural comparisons of international cities and regions with emphasis on international economic development.

GEO 202 Geography of Europe 3 Cr. - Examines various historical, social, economic and geographic factors that make European landscape unique. Reviews Europe's changing patterns of settlement, pattern and variety of populations, urbanization and economic development, the natural environment and regional variations.

GEO 206 Geography of Oregon 3 Cr. - Examines various historical, social, economic and geographic factors that have made the Oregon landscape unique. Slides, films, videos, and overhead transparencies are utilized.

GEO 208 Physical Geography: Geomorphology 3 Cr. - Examines the processes of landform evolution and their expression on the surface of the earth. Humankind's modification of physical processes and resulting environmental impact are studied.

GEO 209 Physical Geography: Weather and Climate 3 Cr. - Examines processes of the atmosphere, the distribution and character of climate types, climate change and humankind as a modifier of climate.

GEO 210 The Natural Environment 3 Cr. - Focuses on natural processes that create physical diversity on the earth. Includes weather and climate, vegetation, soils, landforms, ecosystems, their distribution and significance.

GEO 214 Geography of Mexico 3 Cr. - Examines various historical, social, economic and geographic factors that make Mexican landscape unique. Reviews Mexico's changing patterns of settlement, pattern and variety of populations, urbanization and economic development, the natural environment and regional variations. Much of the information will be presented through detailed case studies.

GEO 221 Field Geography: The Local Landscape 3 Cr. - Includes use of field research methods, preparation of field base maps and cartographic presentation of results of field studies in the local area.

GEO 250 Geography of Africa 3 Cr. - Provides an understanding of the geographical perspectives - physical and cultural landscapes, people, natural resources, economic activities, regions, and political divisions of Africa south of the Sahara or Sub-Saharan Africa. Special emphasis on the region's historical geography and on its political, cultural and demographic ramifications to explain its problems and the changes now occurring in the region.

GEO 265 Introduction to GIS (Geographical Information Systems) 3 Cr. - Provides conceptual overview and hands-on experience using ArcView GIS software. Introduces basic principles of maps and map design and use ArcView GIS to create, edit, display, query and analyze geographic and tabular data and create maps and charts. An introduction to GPS is included.

GEO 280A CE: Geography 1-4 Cr. - Extends knowledge of Geography through work in settings which provide learning experiences that are not available in the classroom, but which supplement classroom learning. Under employer's supervision learn to apply classroom theory to actual work situations. Department permission required.

GEO 280B CE: Geography - Seminar 1 Cr. - Provides a forum in which to discuss work experiences with peers and instructor. Department permission required.

GEO 290 Environmental Problems 3 Cr. - Provides an opportunity to carry out geographic research related to the resource, urban and environmental problems examined in GEO 105, 106, 107, 208, and 209.

GEO 298 Independent Study: Geography 3 Cr. - Offers individualized study at an advanced level in areas of geography not considered in other courses to meet special interests or program requirements. Students complete a term project and readings approved by the instructor. Recommended: prior study of geography.

GER - German

GER 101 First Year German 5 Cr. - Emphasizes active communication in German which includes listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture. Proficiency target level: Novice high.

GER 102 First Year German 5 Cr. - Continues the work of GER 101. Emphasis on active communication in German. Proficiency target level: Intermediate low. Recommended: Completion of GER 101 or 150; or instructor permission.

GER 103 First Year German 5 Cr. - Continues the work of GER 102. Emphasizes active communication in German. Proficiency target level: Intermediate mid. Recommended: Completion of GER 102; or instructor permission.

GER 111A First Year German Conversation 3 Cr. - Practice of structures and vocabulary of first year German in a conversational format. Recommended: Completion of or simultaneous enrollment in GER 101 or 150; or instructor permission.

GER 111B First Year German Conversation 2 Cr. - Practice of structures and vocabulary of first year German in a conversational format. Recommended: Completion of or simultaneous enrollment in GER 101 or 150; or instructor permission.

GER 111C First Year German Conversation 1 Cr. - Practice of structures and vocabulary of first year German in a conversational format. Recommended: Completion of or simultaneous enrollment in GER 101 or 150; or instructor permission.

GER 112A First Year German Conversation 3 Cr. - Practice of structures and vocabulary of first year German in a conversational format. Recommended: Completion of or simultaneous enrollment in GER 102 or 151; or instructor permission.

GER 112B First Year German Conversation 2 Cr. - Practice of structures and German vocabulary of first year German in a conversational format. Recommended: Completion of or simultaneous enrollment in GER 102 or 151; or instructor permission.

GER 112C First Year German Conversation 1 Cr. - Practice of structures and German vocabulary of first year German in a conversational format. Recommended: Completion of or simultaneous enrollment in GER 102 or 151; or instructor permission.

GER 113A First Year German Conversation 3 Cr. - Practice of structures and vocabulary of first year German in a conversational format. Recommended: Completion of or simultaneous enrollment in GER 103 or 151; or instructor permission.

GER 113B First Year German Conversation 2 Cr. - Practice of structures and vocabulary of first year German in a conversational format. Recommended: Completion of or simultaneous enrollment in GER 103 or 151; or instructor permission.

GER 113C First Year German Conversation 1 Cr. - Practice of structures and vocabulary of first year German in a conversational format. Recommended: Completion of or simultaneous enrollment in GER 103 or 151; or instructor permission.

GER 150 First Year German 6 Cr. - For beginners. Emphasizes active communication in German. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture. Proficiency target level: Novice high to intermediate low.

GER 151 First Year German 6 Cr. - Continues the work of GER 150. Further emphasis on active communication in German. Also provides review for students entering second year. Proficiency target level: Intermediate mid. Recommended: Completion of GER 150; or instructor permission.

GER 201 Second Year German 4 Cr. - Continues work of first year German, reviewing, expanding, and perfecting pronunciation, structure, and vocabulary for the purpose of active communication. Proficiency target level: Intermediate mid. Recommended: Completion of first year German at the college level; or instructor permission.

GER 202 Second Year German 4 Cr. - Continuation of GER 201. Emphasizes active communication in German with additional practice in reading and writing. Proficiency target level: Intermediate mid to high. Recommended: Completion of GER 201, 250; or instructor permission.

GER 203 Second Year German 4 Cr. - Continuation of GER 202. Emphasizes active communication in German with additional practice in reading and writing. Proficiency target level: Intermediate high. Recommended: Completion of GER 202; or instructor permission.

GER 211A Intermediate German Conversation 3 Cr. - Stresses conversational skills at the second year level. Recommended: Completion of one year of college level German, simultaneous enrollment in GER 201; or instructor permission.

GER 211B Intermediate German Conversation 2 Cr. - Stresses conversational skills at the second year level. Recommended: Completion of one year of college level German, simultaneous enrollment in GER 201; or instructor permission.

GER 211C Intermediate German Conversation 1 Cr. - Stresses conversational skills at the second year level. Recommended: Completion of one year of college level German, simultaneous enrollment in GER 201; or instructor permission.

GER 212A Intermediate German Conversation 3 Cr. - Stresses conversational skills at the second year level. Continues the work of GER 211A. Recommended: Completion of or simultaneous enrollment in GER 202; or instructor permission.

GER 212B Intermediate German Conversation 2 Cr. - Stresses conversational skills at the second year level. Continues the work of GER 211B. Recommended: Completion of or simultaneous enrollment in GER 202; or instructor permission.

GER 212C Intermediate German Conversation 1 Cr. - Stresses conversational skills at the second year level. Continues the work of GER 211C. Recommended: Completion of or simultaneous enrollment in GER 202; or instructor permission.

GER 213A Intermediate German Conversation 3 Cr. - Stresses conversational skills at the second year level. Continues the work of GER 212A. Recommended: Completion of or simultaneous enrollment in GER 203; or instructor permission.

GER 213B Intermediate German Conversation 2 Cr. - Stresses conversational skills at the second year level. Continues the work of GER 212B. Recommended: Completion of or simultaneous enrollment in GER 203; or instructor permission.

GER 213C Intermediate German Conversation 1 Cr. - Stresses conversational skills at the second year level. Continues the work of GER 212C. Recommended: Completion of or simultaneous enrollment in GER 203; or instructor permission.

GER 250 Second Year German 6 Cr. - Continues the work of first year German, reviewing, expanding, and perfecting pronunciation, structure, and vocabulary for the purpose of active communication. Includes practice in reading and writing. Recommended: Completion of first year German at the college level; or instructor permission.

GER 251 Second Year German 6 Cr. - Continuation of GER 250. Emphasizes active communication in German with additional practice in reading and writing. Recommended: Completion of GER 202, 250; or instructor permission.

GER 255 Accelerated German 8 Cr. - For beginners. Covers material of GER 101 and 102 in an accelerated format. Listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture are stressed. Emphasizes active communication in German. This class is recommended to the highly-motivated student. Proficiency target level: Intermediate low.

GER 256 Accelerated German 8 Cr. - Covers materials of GER 103 and 201 in an accelerated format. Emphasizes active communication in German. Additional practice with reading and writing skills. Proficiency target level: Intermediate mid. Recommended: GER 102 or 255; or instructor permission.

GER 257 Accelerated German 8 Cr. - Covers materials of GER 202 and 203 in an accelerated format. Emphasis remains on active communication in German with additional practice in reading and writing skills. Proficiency target level: Intermediate high. Recommended: GER 201 or 256; or instructor permission.

GER 260A German Culture 3 Cr. - Studies and discusses contemporary thought and life of the German-speaking world in a conversational format. Recommended: Completion of one year of German at the college level; or instructor permission.

GER 260B German Culture 2 Cr. - Studies and discusses contemporary thought and life of the German-speaking world in a conversational format. Recommended: Completion of one year of German at the college level; or instructor permission.

GER 260C German Culture 2 Cr. - Studies and discusses contemporary thought and life of the German speaking world in a conversational format. Recommended: Completion of one year of German at the college level; or instructor permission.

GER 261A German Culture 3 Cr. - Continuation of GER 260. Recommended: GER 260; or instructor permission.

GER 261B German Culture 2 Cr. - Continuation of GER 260B. Recommended: GER 260B; or instructor permission.

GER 261C German Culture 1 Cr. - Continuation of GER 260C. Recommended: GER 260C; or instructor permission.

GER 262A German Culture 3 Cr. - Continuation of GER 261. Recommended: GER 261; or instructor permission.

GER 262B German Culture 2 Cr. - Continuation of GER 261B. Recommended: GER 261B; or instructor permission.

GER 262C German Culture 1 Cr. - Continuation of GER 261C. Recommended: GER 261C; or instructor permission.

GER 270A Readings in German Literature 3 Cr. - Read and discuss literary works of German prose and poetry. Skills for reading in German are also emphasized. Conducted in German. Recommended: Second year German at the college level; simultaneous enrollment in GER 203, 251 or 257; or instructor permission.

GER 270B Readings in German Literature 2 Cr. - Read and discuss literary works of German prose and poetry. Skills for reading in German are also emphasized. Conducted in German. Recommended: Second year German at the college level; simultaneous enrollment in GER 203, 251 or 257; or instructor permission.

GER 270C Readings in German Literature 1 Cr. - Read and discuss literary works of German prose and poetry. Skills for reading in German are also emphasized. Conducted in German. Recommended: Second year German at the college level; simultaneous enrollment in GER 203, 251 or 257; or instructor permission.

GER 271A Readings in German Literature 3 Cr. - Continuation of GER 270. Recommended: GER 270; or instructor permission.

GER 271B Readings in German Literature 2 Cr. - Continuation of GER 270B. Recommended: GER 270B; or instructor permission.

GER 271C Readings in German Literature 1 Cr. - Continuation of GER 270C. Recommended: GER 270C; or instructor permission.

GER 272A Readings in German Literature 3 Cr. - Continuation of GER 271. Recommended: GER 271; or instructor permission.

GER 272B Readings in German Literature 2 Cr. - Continuation of GER 271B. Recommended: GER 271B; or instructor permission.

GER 272C Readings in German Literature 1 Cr. - Continuation of GER 271C. Recommended: GER 271C; or instructor permission.

GER 290A German Composition 3 Cr. - Practice in developing composition skills. Conducted in German. Recommended: Instructor permission and completion of second year college German with grades of A or B; or native or near native ability in German.

GER 290B German Composition 2 Cr. - Practice in developing composition skills. Conducted in German. Recommended: Instructor permission and completion of second year college German with grades of A or B; or native or near native ability in German.

GER 290C German Composition 1 Cr. - Practice in developing composition skills. Conducted in German. Recommended: Instructor permission and completion of second year college German with grades of A or B; or native or near native ability in German.

GER 291A German Composition 3 Cr. - Continuation of GER 290. Instructor permission required.

GER 291B German Composition 2 Cr. - Continuation of GER 290B. Instructor permission required.

GER 291C German Composition 1 Cr. - Continuation of GER 290C. Instructor permission required.

GER 292A German Composition 3 Cr. - Continuation of GER 291. Instructor permission required.

GER 292B German Composition 2 Cr. - Continuation of GER 291B. Instructor permission required.

GER 292C German Composition 1 Cr. - Continuation of GER 291C. Instructor permission required.

GS - General Science

GS 106 Physical Science (Geology) 4 Cr. - Covers minerals, rocks, volcanism, earthquakes, plate tectonics, erosion and deposition by wind, glaciers and streams, on by wind, streams, weathering, fossils and geologic history.

GS 107 Physical Science (Astronomy) 4 Cr. - Surveys astronomy to include historical development of the universe, earth as a planet, earth's moon, planets of the solar system, the sun, stars and galaxies.

GS 108 Physical Science (Oceanography) 4 Cr. - Includes the chemical, biological, physical and geological nature of the oceans.

GS 109 Physical Science (Meteorology) 4 Cr. - Covers characteristics of our atmosphere, air pressure and winds, atmospheric moisture, large air masses, violent storms, the effect of oceans on weather, and climates.

HC - Health Careers

HC 101 Introduction to Health Careers 3 Cr. - Explores various health career options including educational requirements, professional responsibilities, and health care delivery systems common to each. Nursing, radiography, and dental careers are primary focus. Group discussion includes health career concepts related to communications, safety, vital signs, and team collaboration. Addresses educational survival in the college setting. Interdisciplinary focused laboratory experiences proved opportunity to develop basic health care skills. All students who have been accepted into the PCC Nursing Program must successfully complete this course prior to beginning program.

HE - Health

HE 110 Cardiopulmonary Resuscitation 1 Cr. - Provides education and training in infant, child and adult CPR, respiratory emergencies and cardiac arrest.

HE 112 First Aid and Emergency Care 1 Cr. - Provides basic first aid education and training along with infant, child and adult CPR instruction.

HE 120 Health in the Dental Workplace 2 Cr. - Provides opportunity to examine current health issues for personnel working in the dental areas. Topics include ergonomics, managing stress, nutrition, personal and dental health.

HE 125 First Aid & Industrial Safety 3 Cr. - Overview of industrial safety regulations, accident prevention, ergonomics, hazardous materials, first aid and adult CPR. Successful students attain a First Aid and Adult CPR card.

HE 212 Women's Health 3 Cr. - Examines current women's health issues in the United States, such as heart disease, osteoporosis, depression, cancer, domestic violence, and how they influence women's personal and academic success.

HE 213 Men's Health 3 Cr. - Examines general and specific men's health issues such as heart disease, prostate disorders, impotence and sexual dysfunction, HIV disease, human relationships and accidents/violence from a holistic wellness perspective.

HE 250 Personal Health 3 Cr. - Explores current general health issues in emotional health and stress, physical fitness, nutrition, human sexuality, communicable and degenerative diseases and drugs from a wellness perspective.

HE 251 Community Health 3 Cr. - Inquires into the causes and potential solutions for current community health issues, overviews health care agencies, and explores career opportunities in community health.

HE 252 First Aid - Basics and Beyond 3 Cr. - Explores and demonstrates basic first aid, addresses first aid in remote settings, and provides education and training in Automated External Defibrillation (AED).

HE 262 Children's Health, Nutrition & Safety 3 Cr. - Explores current health and safety issues for infants and young children. Issues examined include childhood illnesses and ailments, nutrition, obesity, stress, safe environment, self esteem and general first aid.

HEC - Consumer and Family Studies

HEC 157 Parenting Skills 1 Cr. - Designed for parents or prospective parents to examine the current issues affecting the role of parents in today's society. Studies the stages of child development, influences parents have on their child's development and how those influences can shape their child's development over time.

HEC 226 Child Development 3 Cr. - Basic theories, research and principles of physical, cognitive, language, social and emotional development of children from the prenatal period through adolescence. Includes observation and classroom processes. Placement into WR 121 strongly recommended.

HEC 280A Cooperative Education: Consumer and Family Studies 1-10 Cr. - Offers hands-on skill in planned, supervised and regularly evaluated experiences at appropriate work sites. Each cooperative education placement site is planned to meet the student's individual and specific skill needs. Department permission required.

HEC 9402 Parents and Child Learn Together 1 Cr. - Parents participate with their child in a class designed to meet the developmental needs of preschool aged children. Parents also participate in supervised activities with their child and a parent study group.

HEC 9420 Living and Learning with Your Baby 1 Cr. - Participation class for parents of infants from birth to beginning walkers. Parents bring child to class, where they participate in supervised age appropriate activities and a parent study group.

HEC 9421 Living and Learning with Your Toddler 1 Cr. - Designed for parents and their children between the walking stage and two and one-half years of age. Parents observe and participate with their children in developmentally designed activities. In addition, they participate in a parent seminar focusing on parenting topics and needs.

HEC 9422 Living and Learning with Your Two Year Old 1 Cr. - Parents participate with their child in a class designed to meet the developmental needs of the two-year-old. Parents also participate in supervised activities with their child and a parent study group.

HIM - Health Information Management

HIM 270 Classification Systems I 3 Cr. - Classification of diseases and current reimbursement systems utilizing ICD. Prerequisite: BI 122 or 233; MP 111, 131, 105, 107, 140, 182.

HIM 271 Quality Improvement in Healthcare 3 Cr. - Covers medical staff organization, physician credentialing, and quality improvement techniques in the healthcare setting. Prerequisite: MP 140, 121.

HIM 272 Health Information Management 5 Cr. - Principles of personnel supervision and management of a health information department. Corequisite: MP 140. Prerequisite: MP 110, 120, 131.

HIM 273 Classification Systems 2 3 Cr. - Continuation of HIM 270. Prerequisite: HIM 270.

HIM 274 Quality Improvement in Healthcare Lab 1 Cr. - Concurrent enrollment in HIM 271.

HIM 275 Classification Systems 3 2 Cr. - Introduces coding and classification systems for outpatient procedures and ambulatory care facilities. Prerequisite: HIM 273.

HIM 277 Health Information Management Lab 2 Cr. - Develop proficiencies in the skills included in HIM 272. Concurrent enrollment in HIM 272.

HIM 281 Data Management & Analysis 1 3 Cr. - Collection, retrieval, analysis, and quality review of administrative and clinical information and data. Corequisite: MP 136 and 140. Prerequisite: MP 105, 107, 131, 140.

HIM 282 Data Management & Analysis 2 3 Cr. - Statistical analysis and presentation of administrative and clinical information and data. Prerequisite: HIM 281.

HIM 283 Health Information Systems 3 Cr. - Examines the goals and features of health information systems including administrative and clinical applications. Teaches health information management students strategies and tools to insure the development and/or selection of health information systems. Prerequisite: MP 110, 140, 182.

HIM 292 Health Information Directed Practice 1 1 Cr. - Work under supervision of facility personnel in local health care facilities. Experience actual working conditions and various aspects of medical records. Department permission required. Concurrent enrollment in HIM 270. Prerequisite: MP 104.

HIM 293 Health Information Directed Practice 2 2 Cr. - Work under supervision of facility personnel in local health care facilities. Experience actual working conditions and various aspects of medical records. Prerequisite: HIM 292.

HIM 294 Health Information Directed Practice 3 4 Cr. - Work under supervision of facility personnel in local health care facilities. Experience actual working conditions and various aspects of medical records. Prerequisite: MP 141; HIM 293.

HOR - Horticulture

HOR 226 Plant Materials - Deciduous 4 Cr. - Botanical characteristics and field identification. Cultural requirements, pests, diseases, and landscape uses of plants with concentration on deciduous material and plants of Fall interest.

HOR 227 Plant Materials - Evergreens 4 Cr. - Botanical characteristics and field identification. Cultural requirements, pests, diseases, and landscape uses of plants with concentration on deciduous material and plants of Winter interest.

HOR 228 Plant Materials - Flowering 4 Cr. - Botanical characteristics and field identification. Cultural requirements, pests, diseases, and landscape uses of plants with concentration on flowering plants and plants of Spring interest.

HOR 255 Spring Annuals and Perennials 3 Cr. - Identification of herbaceous annuals and perennials most commonly used in landscape. Care, culture, pests, diseases, propagation and landscape use.

HOR 272 Summer Annuals & Perennials 3 Cr. - Identification of summer herbaceous annuals and perennials most commonly used in landscapes. Care, culture, pests, diseases, propagation and landscape use.

HOR 290 Introduction to Landscape Design 3 Cr. - Basic steps and elements used in landscape design. Establishment of specific design criteria, field measurements and basic drawing techniques required in production of finished design.

HOR 291 Landscape Design Process 3 Cr. - Critical thinking approach to landscape design. Methods of developing use of line, proportion, color, scale and texture in the creation of landscape spaces. Landscape architectural history and sites used as background material. Prerequisites: HOR 226, 227, 228, 290; LAT 106, 108, 110, 111, 236; CSS 200; and concurrent enrollment or completion of LAT 217; or department permission.

HPE - Health and Physical Education

HPE 295 Health and Fitness for Life 3 Cr. - Explores the role of wellness, physical fitness, stress, nutrition and cardiovascular health in promoting an individual's health & well-being. Fitness testing and fitness lab are included.

HPE 296 Health and Fitness for Industry I 2 Cr. - Explores the role of wellness, physical fitness, stress, nutrition and cardiovascular health in promoting an individual's health & well-being. Individual exercise program planning with emphasis on skills needed for industry and non-traditional occupations. Corequisite: Concurrent enrollment in HPE lecture section.

HPE 297 Health and Fitness for Industry II 2 Cr. - Continuation of fitness lab principles begun in HPE 296. Prerequisite: HPE 296.

HR - Culinary Assistant

HR 107 Culinary Assistant Training 15 Cr. - Complete individualized vocational training in food services or clerical areas. Classroom sessions cover customer service skills, and developing effective communication and appropriate social skills at work.

HR 108 Culinary Assistant Training 15 Cr. - Complete individualized vocational training in food services or clerical areas. Classroom sessions cover career exploration. Topics include: identification of values, interests, skills, and barriers to employment.

HR 109 Culinary Assistant Training 15 Cr. - Complete individualized vocational training in food services or clerical areas. Classroom sessions cover job search skills including ADA regulations, identifying accommodations needed for employment, resume writing, developing a portfolio, preparing for interviews, and contacting potential employers.

HST - History

HST 101 Western Civilization: Ancient World to Early Medieval Europe 3 Cr. - Studies the ancient civilizations of Egypt, Mesopotamia, Greece and Rome. Covers development of Judeo-Christian beliefs and early Medieval Europe.

HST 102 Western Civilization: Medieval to Early Modern Europe 3 Cr. - Studies the High Middle Ages and early modern Europe, including the Renaissance, Reformation, Scientific Revolution and the French Revolution.

HST 103 Western Civilization: Modern Europe 3 Cr. - Studies history of the 19th and 20th centuries, including the Industrial Revolution, nationalism, imperialism, socialism, the Russian Revolution, Nazism, world wars and their aftermath.

HST 104 History of Eastern Civilization: Middle East 3 Cr. - Surveys the Middle East from ancient to modern times. Includes political, economic, social, religious and diplomatic events from pre-history to modern times.

HST 105 History of Eastern Civilization: India and Subcontinent 3 Cr. - Surveys India and Subcontinent. Includes political, economic, social, religious, and diplomatic events from pre-history to modern times.

HST 106 History of Eastern Civilization: Far East 3 Cr. - Surveys the Far East regions of Asia. Includes political, social, religious and diplomatic events from pre-history to modern times.

HST 198 Independent Study: History 3 Cr. - Covers special topics, activities or projects in the area of history not usually covered in depth in other history courses. Recommended: Previous study in history. Instructor permission required.

HST 201 History of the United States - I 3 Cr. - Studies cause and effect, and significant trends and movements related to political, social and economic ideas and events from Colonial times to 1840.

HST 202 History of the United States - II 3 Cr. - Studies cause and effect, and significant trends and movements related to political, social and economic ideas and events from 1840 to 1914.

HST 203 History of the United States - III 3 Cr. - Studies cause and effect, and significant trends and movements related to political, social and economic ideas and events from 1914 to present.

HST 204 History of Women in the U.S. : Colonial to 1848 3 Cr. - Examines women's work, both domestic and in the labor force, education, religion, voluntary activities, social reform, and suffrage. Explores class, ethnic, racial, and regional diversity.

HST 205 History of Women in the U.S. : 1848 to 1920 3 Cr. - Examines women's work in a maturing industrial economy, women's social reform activities, and changing family and social relationships. Explores class, ethnic, racial, and regional diversity.

HST 206 History of Women in the U.S. : 1920 to Present 3 Cr. - Examines women's work, family, social reform, and educational experiences in modern America and traces the history of the feminist movement. Explores class, ethnic, racial, and regional variation.

HST 218 Native American Indian History 3 Cr. - Explores examples of Indian culture, general history of Indian life during the white occupation of North America and nature and effects of Native American and European American contact and conflict.

HST 225 History of Women, Sex, and the Family 3 Cr. - Examines the role of women, sex and family in the social development of Europe and America from ancient time to present.

HST 240 Oregon's Social History 3 Cr. - Studies how people lived throughout different periods of Oregon history, focusing on various social factors and institutions that influence the lives of people in Oregon.

HST 246 Religion in the United States to 1840 3 Cr. - Studies basic features of native American religions, European backgrounds of Christianity in the United States, development of different religious groups in America and their impact on American life, and trends and development of religion in the United States in the first half of the 19th century.

HST 247 Religion in the United States since 1840 3 Cr. - Covers basic features of native American religions, European backgrounds of Christianity, development of different religious groups in the United States and their impact on American life.

HST 270 History of Mexico 3 Cr. - Surveys Mexican history from pre-Columbian to modern times. Focus on post contact history: the Spanish conquest, colonial Mexico, independence and its aftermath to contemporary times. Emphasizes social, political and cultural developments and contributions by a diversity of Mexico's peoples.

HST 274 African-American History I 3 Cr. - Presents a framework for understanding the early Black experience in America. Examines Western African societies, the Diaspora, and the development of African American culture from colonial times through the Civil War and the abolition of slavery.

HST 275 African American History II 3 Cr. - Focuses on interpretation of major events in the Black experience from emancipation at the end of the Civil War to the beginning of the civil rights movement at the outbreak of World War II. Examines social, political, economic, artistic and intellectual endeavors.

HST 276 African-American History III 3 Cr. - Offers historical perspective of political, economic, social and cultural development of the Black experience in the United States from 1941 to present.

HST 277 Oregon Trail 3 Cr. - Covers predecessors of the route, motivations of the people who used the route, the trail and its variations, life along the trail, and impact of the migration.

HST 278 Russian History I 3 Cr. - Helps to build historical basis to better understand current issues. Main lines of Russian history reviewed: the rise of Kiev to the reign of Catherine the Great. Through historical analyses, a critical understanding will be gained of the cultural, social, political, and economic forces that shaped Russian history from the ninth through the eighteenth centuries.

HST 279 Russian History II 3 Cr. - Helps to build historical basis from which to better understand current issues. Main lines of Russian history will be reviewed, from the reign of Paul and Alexander I to the present. Through historical analyses, a critical understanding will be gained of the cultural, social, political, and economic forces that shaped Russian history from the late eighteenth century to the present.

HST 280A Cooperative Education: History 1-4 Cr. - Extends knowledge of history through work in settings which provide learning experiences supplementing classroom learning. Department permission required.

HST 280B Cooperative Education: History - Seminar 2 Cr. - Offers the chance to extend knowledge of history through work in settings which provide learning experiences supplementing classroom learning. Department permission required.

HST 285 The Holocaust 3 Cr. - The aftermath of World War I and the rise of the Nazis, the historical roots of anti-Semitism, the evolution of the Final Solution and its coordination in Nazi-occupied Europe, the victims of Nazi policies, the camps, the perpetrators, bystanders, and resistance will be discussed. Videos, documents, and personal accounts will be used to explore interpretations of the Holocaust.

HST 298 Independent Study: History 3 Cr. - individualized study at an advanced level. Emphasizes areas of history not considered in other courses which meet special interests or program requirements. Complete a term project and readings approved by the instructor. Recommended: Prior study in history.

HUM - Humanities

HUM 106 British Life and Culture 3 Cr. - This class is attached to the Oregon International Education Consortium's London Quarter program in London, England. Consists of guest lecturers, field trips, independent study projects and a daily journal about life in London. Pass/No Pass only.

HUM 121 Leadership Training I 3 Cr. - Provides basic understanding of leadership and group dynamics theory and to assist in developing a personal philosophy of leadership, an awareness of the moral and ethical responsibilities of leadership, and an awareness of one's own style of leadership.

HUM 122 Leadership Training II 3 Cr. - Provides basic understanding of leadership and group dynamics theory and to assist in developing a personal philosophy of leadership, an awareness of the moral and ethical responsibilities of leadership, and an awareness of one's own style of leadership.

HUM 125 International Education 1-9 Cr. - Students have the opportunity to become immersed in foreign culture. Focus includes history, geography, art, architecture, religion, philosophy, and unique cultural perspectives. Program guest lecturer's include in-country experts: educators, government officials, archaeologists, and artists.

HUM 201 Humanities & Technology: Exploring Origins 3 Cr. - Introduces concepts and approaches used in study of humanistic disciplines and surveys visions and perspectives that our culture has inherited from literature, philosophy, theology, visual arts, music, history, and mythology of Western and non-Western traditions. Focuses on selected historical periods and themes. Demonstrates quest for knowledge as asynthetic activity, relating various disciplines, traditions, and historical periods to each other.

HUM 202 Humanities & Technology: Contemporary Issues 3 Cr. - Offers critical examination of the relationship between people and technology. Uses insights derived from a study of the Humanities in conjunction with those from the Social Sciences to inquire into the appropriate use and possible misuse of technology in contemporary society.

HUM 203 Humanities & Technology: Future Directions 3 Cr. - Looks for ways in which technology can be applied in new, socially and ethically responsible forms. Recommended: Courses should be taken sequentially; students should be writing at the WR 121 level.

HUM 204 African History 3 Cr. - Introduces some major themes in the history of African continent from ancient times to the present. The first course in the Humanities sequence on Africa, and provides a wide background for subsequent courses. Prerequisites: ASSET scores of 45 or above in reading and writing; or completion of WR 115 with a C or higher.

HUM 205 African Literature 3 Cr. - Introduces written and oral literature of the African continent, from ancient to modern and from many different geographic regions, cultures and religions. Prerequisites: ASSET scores of 45 or above in reading and writing; or completion of WR 115 with a C or higher.

HUM 206 African Art 3 Cr. - Introduces a variety of art forms from different time periods and geographic areas of the African Continent. Explores how art is influenced by culture, myth, economics, politics, gender, and region. Ability to understand and participate in class discussions required. Prerequisites: ASSET scores of 45 or above in reading and writing; or completion of WR 115 with a C or higher.

HUM 221 Leadership Through the Classics 3 Cr. - Provides emerging and existing leaders the opportunity to explore concept of leadership and to develop and improve their leadership skills. Integrates readings from the classics, experiential exercises, films, and contemporary readings on leadership. Recommended: Sufficient oral skills to fully participate in small group activities. Prerequisites: ASSET scores of 45 or above in reading and writing; or completion of WR 115 with a C or higher.

HUM 225 International Education 3 Cr. - Gives students an opportunity for in-depth immersion in a foreign culture. Participants will live, work, and study with host families. Academic focus will include first-hand cultural understanding, language study, and lectures from in-country experts in historical, political, and cultural topics.

HUM 230 Transformations of Myth Through Time 3 Cr. - Chronological overview of the world's mythologies. Through literature, religion, music, and art we see universal ideas expressed in changing forms; from the paleolithic cave paintings to the legends of King Arthur's court. Noted mythologist Joseph Campbell presents myths from various perspectives in the video taped lectures. Prerequisites: ASSET scores of 45 or above in reading and writing; or completion of WR 115 with a C or higher.

ID - Interior Design

ID 120 Interior Products and Materials I 3 Cr. - Analyzes and evaluates products used in the design profession including selecting case goods, upholstered goods and wood. Emphasizes measuring and specifying floor coverings and window treatments.

ID 121 Interior Products and Materials II 3 Cr. - Analyzes and evaluates materials utilized in interior design including walls, ceilings, counters, accessories and other products. Recommended: ID 120.

ID 122 History of Furniture-Ancient to 1800 3 Cr. - Studies and analyzes styles of furnishings from antiquity through the 18th century. Includes contemporary usage as well as the mixing of period furniture styles.

ID 123 History of Furniture-1800 to Present 3 Cr. - Studies and analyzes furnishings from the 19th century to the present. Includes contemporary usage as well as the mixing of period furniture styles. ID 122 recommended.

ID 125 Computer Drafting for Interior Designers 3 Cr. - Introduces computer aided design software as a drafting tool for residential interior design. Covers creation and modification of drawings such as floor plans, elevations, furniture and lighting plans, and three-dimensional projections. Focuses on interior plans and elevations of cabinetry for kitchen/bath design, writing/calculating specifications, and how to use drawings to communicate design concepts to clients. Prerequisite: ID 131.

ID 131 Introduction to Interiors 3 Cr. - Covers design elements and principles as applied to interiors. Includes skill development in drawing floor plans, analyzing furniture arrangement, and basic techniques for creating interior design presentation boards including floor plans, color boards, and elevation drawings.

ID 132 Planning Interiors 3 Cr. - Covers designing interiors utilizing design and furniture arrangement skills, and developing skills in selection of furniture, floor coverings, wall and window treatments, color, fabric and pattern, lighting and accessories. Prerequisite: ID 131.

ID 133 Space Planning and Design 3 Cr. - Studies functional and aesthetic design requirements in residential space planning, kitchens, storage space, and energy conservation. Relates housing and environmental aspects to needs of individuals, families, and special groups. Prerequisite: ID 131.

ID 135 Professional Practice/Interior 3 Cr. - Covers the business aspects in creating interiors. Includes topics on ethics, contracts, licensing, ordering, client-designer relationships, costs, billing and fee structures, and legal considerations.

ID 230 Textiles for Interiors 3 Cr. - Provides knowledge and critical thinking skills required for the identification, selection, usage and care of textile products.

ID 234 Advanced Interiors 3 Cr. - Creative problems in interior design intended to develop an analytical approach to interiors. Based upon individual projects and includes advanced presentation skills. Prerequisites: ID 120, 121, 122, 123, 131, 132, 133, 135, 237; ARCH 101, 111, 124. A "C" grade or better is required in all prerequisites.

ID 236 Lighting Design 3 Cr. - Studies interior lighting as relates to residential interiors including terminology, lamps, fixtures, cost factors, developing lighting plans, design techniques, and energy-saving concerns. ID 131 recommended; or occupational experience in design field.

ID 237 Kitchen Planning 2 Cr. - Analyzes and evaluates basic functional and aesthetic design principles for residential kitchen design and includes overview of the kitchen construction process from concept to completion. ID 131 recommended; or occupational experience in design field.

ID 240 Interior Design Internship 3 Cr. - Supervised and educationally directed internship. Weekly lectures relate on-the-job experiences with academic program. Prerequisites: ID 120, 121, 122, 123, 131, 132, 133, 135, 236, 237; ARCH 101, 111, 124. A "C" grade or better is required in all prerequisites.

INSP - Building Science Technology

INSP 101 Architectural Graphics 1 2 Cr. - Introduction to design and drawing for residential design. Includes programming, code/zoning/site analysis, concept diagrams, and design development for plans and elevations.

INSP 102 Architectural Graphics 2 2 Cr. - Introduction to design and drafting for a small commercial project. Includes programming, code/zoning/site analysis, concept diagrams, and design development for plans and elevations.

INSP 151 International 1 & 2 Family Structural Code 4 Cr. - Covers Code as applied to residential buildings and basic methods of wood framing. This course is 40 total contact hours and also worth 80 HSW credits to AIA members.

INSP 152 International 1 & 2 Family Mechanical Code 3 Cr. - Covers the Mechanical code as applied to residential buildings including heating and cooling systems. This course is 30 total contact hours and also worth 60 LU credits to AIA members.

INSP 201 Plans Exam - Commercial 3 Cr. - Covers development of procedures in plans examination to determine code compliance of building permit applications. Includes blueprint reading and code administration. This course is 30 total contact hours and also worth 60 LU credits to AIA members. Recommended: ARCH 161, 162; INSP 251, 252 253.

INSP 202 Plans Exam - Residential 4 Cr. - Covers development of procedures in residential plan examination to determine code compliance of building permit applications. This course is 30 total contact hours and also worth 60 LU credits to AIA members. Prerequisites: ARCH 122; INSP 151.

INSP 211 Building Department Administration 1 3 Cr. - Prepares students in understanding the responsibilities of the Building Official under State of Oregon guidelines.

INSP 212 Building Department Administration 2 3 Cr. - Prepares students in understanding the responsibilities of the Building Official under State of Oregon guidelines.

INSP 251 Uniform Building Code 1 3 Cr. - Covers non-structural standards of the Uniform Building Code including occupancy classifications, building area height and location limits, exit requirements and fire resistive standards. This is 30 total contact hours and is also worth 60 HSW credits to AIA members.

INSP 252 Uniform Building Code 2 3 Cr. - Study of the Uniform Building Code including occupancy requirements, finish materials, glazing, plastics, chimneys, and fireplaces. This course is 30 total contact hours and also worth 60 HSW credits to AIA members.

INSP 253 Uniform Building Code 3 3 Cr. - Study of Uniform Building Code, including handicapped access requirements, energy conservation and prefabricated construction. This course is 30 total contact hours and also worth 60 HSW credits to AIA members.

INSP 255 International Mechanical Code 1 3 Cr. - Study of Uniform Mechanical Code, including combustion air, warm-air heating systems, venting of appliances and ducts. This course is 30 total contact hours and also worth 60 LU credits to AIA members.

INSP 256 International Mechanical Code 2 3 Cr. - Study of Uniform Mechanical Code, including ventilation systems, cooling, mechanical refrigerating equipment, heat producing appliances, commercial hoods and kitchen ventilation. This course is 30 total contact hours and also worth 60 LU credits to AIA members.

INSP 257 International Mechanical Code 3 3 Cr. - Study of International Mechanical Code, including new code requirements, application of code to inspection requirements and methods used to inspect mechanical installations. This course is 30 total contact hours and is also worth 60 LU credits to AIA members.

INSP 280A Cooperative Education: Field Examination 1-5 Cr. - Student receives as varied and complete an experience as possible inspecting a building. Student will complete all necessary forms. Credits are variable and based on experience required. Department permission required.

INSP 280B Cooperative Education: Field Experience 1-5 Cr. - Work on approved job sites receiving as varied and complete an experience as possible under job conditions. Credits are variable and based on the number of clock hours student spends on job site. Must be coordinated with supervisor, instructor, and cooperative education specialist. Department permission required.

IS - Integrated Services

IS 251 Population and Global Resources 3 Cr. - Examines the causes and effects of a rapidly expanding human population and the effects of modern technology on the ecosystem. Emphasis is on land use, air and water quality natural resources and food supplies. Various solutions to population growth and to population-related problems are examined. The ultimate goal is to help students make lifestyle choices that will reduce, rather than add to the problems we face.

ITP - Sign Language Interpretation

ITP 111 American Sign Language I 5 Cr. - Accelerated course designed for interpreting students. Focuses on grammar features, non-manual behaviors and higher language skill development in ASL. Admission into Sign Language Interpretation program and department permission required.

ITP 112 American Sign Language II 5 Cr. - Continues work of ITP 111. Accelerated course designed for interpreting students. Focuses on grammar features, non-manual behaviors and higher language skill development in ASL. Includes wide range of topics. Admission into Sign Language Interpretation program and department permission required.

ITP 113 American Sign Language III 5 Cr. - Continues work of ITP 112. Focuses on additional grammar features, non-manual behaviors, higher language skill development including discourse skill in ASL. Includes wide range of topics. Admission into Sign Language Interpretation program and department permission required.

ITP 120 Fingerspelling I 2 Cr. - Emphasizes increased fingerspelling skill by incorporation into context of ASL conversation. Introduces some strategies and proper position when fingerspelling. Admission into Sign Language Interpretation program required.

ITP 121 Fingerspelling II 2 Cr. - Continues work of ITP 120. Emphasizes increased fingerspelling skill by incorporation into the context of ASL conversation in depth. Admission into Sign Language Interpretation program required. Prerequisite: ITP 120.

ITP 131 Deaf Culture 4 Cr. - Studies values, social customs, literature, folklore, language, Deaf-hearing interaction, cross-cultural issues and current perspectives of Deaf-World. Admission into Sign Language Interpretation program required. Prerequisite: ASL 130.

ITP 180 Field Experience 1 Cr. - Provides practical experience through observations of professional interpreters. Participation in professional development, Deaf community activities, and contact with Deaf children/adults. Discusses relevant issues through journals and recitation. Criminal background check required. Good standing in Sign Language Interpretation program required. Department permission may be required. Corequisites: ITP 113, 260.

ITP 201 American Sign Language IV 3 Cr. - Develops conversational competence. Includes basic American Sign Language vocabulary and grammar used for meeting communication needs such as asking for meaning, defining, describing objects, expressing feelings, telling about disrupted plans, using numbers to 1,000, directing and maintaining attention, controlling conversational pace, resuming an interrupted conversation, and asking for help. Prerequisite: ITP 103.

ITP 202 American Sign Language V 3 Cr. - Develops conversational competence. Includes American Sign Language vocabulary and grammar used for meeting communication needs as described in ITP 201 as they relate to more intermediate conversational skills. Prerequisite: ITP 201.

ITP 203 American Sign Language VI 3 Cr. - Develops conversational competence. Covers American Sign Language grammar features, focusing on high intermediate conversational and discourse skills in work of ASL poetry and literature.

ITP 211 American Sign Language IV 3 Cr. - Continues work of ITP 113. Focuses on more advanced grammar features, non-manual behaviors, language skill development, register continuum, and discourse skill in ASL. Includes wide range of topics. Admission into Sign Language Interpretation program and department permission required.

ITP 212 American Sign Language V 3 Cr. - Continues work of ITP 211. Focuses on more advanced grammar features, non-manual behaviors, language skill development, register continuum, and discourse skill in ASL. Includes wide range of topics. Admission into Sign Language Interpretation program and department permission required.

ITP 230 American Sign Language Linguistics I 3 Cr. - Explores the basic concepts of linguistics as they pertain to ASL structure. Analyzes and discusses phonology, morphology, syntax, semantics, use of language, and socio-linguistic structure of ASL. Examines current research. Admission into Sign Language Interpretation Program and instructor permission required.

ITP 231 American Sign Language Linguistics II 2 Cr. - Continues work of 230. Analyzes and explores additional phonology, morphology, syntax, semantics, variation and historical change of ASL. Analyzes and explores the discourse organization of ASL. Admission into Sign Language Interpretation Program and instructor permission required. Prerequisite: ITP 230.

ITP 260 Interpreting Theory I 4 Cr. - Introduces profession of sign language interpretation, role and function of an interpreter, National Registry of Interpreters for the Deaf Code of Ethics, professionalism, history of the profession, and basic theories and practices of interpretation. Admission into Sign Language Interpretation Program or department permission required.

ITP 261 Interpreting Theory II 3 Cr. - Focuses on role and function of interpreters and interpreting theories, principals and practices in educational settings: K-12 and post-secondary. Prerequisite: ITP 260.

ITP 262 Interpreting Theory III 4 Cr. - Covers special settings and clients, including the following: oral, deaf/blind, minimal language competency, telephone, religious, performing arts, social service, medical, mental health and legal. Freelance practices and national, state, and local certification evaluations are covered. Prerequisite: ITP 260.

ITP 270 Interpreting Process I 4 Cr. - Introduces interpreting process, beginning with theories of discourse/text analysis and a view of "dynamic equivalency" between source and target languages. Applies principles of text analysis to interpreting from ASL to English and English to ASL. Admission to the Sign Language Interpretation Program; or department permission required.

ITP 271 Interpreting Process II 3 Cr. - Continues work on consecutive interpretation from ASL to English and from English to ASL. Department permission may be required. Prerequisite: ITP 270.

ITP 272 Interpreting Process III 4 Cr. - Continues to develop students' consecutive interpretation skills, and introduces simultaneous interpretation from ASL to English and from English to ASL. Department permission may be required. Prerequisite: ITP 271.

ITP 273 Interpreting Process IV 6 Cr. - Increases simultaneous ASL to English and English to ASL interpreting skills. Focuses on individual areas of needed skill growth. Includes in-and out-of class interpretation practice sessions. Department permission may be required. Prerequisite: ITP 272.

ITP 274 Interpreting Process V 6 Cr. - Increases simultaneous ASL to English and English to ASL interpreting skills. Focuses on individual areas of needed skill growth. Includes in-class interpretation of live presenters, specialized topics and group discussions. Department permission may be required. Prerequisite: ITP 273.

ITP 275 Interpreting Process VI 4 Cr. - Develops interpretation skill development appropriate for educational settings K-12 and community college, and introduces transliteration, including the use of Signed English. Department permission may be required. Prerequisite: ITP 274.

ITP 276 Specialized Discourse I 3 Cr. - Introduces Deaf guest speakers (live or on videotape) to talk about wide range of specialized topics in ASL. Explores wide range of topics incorporating the skill to know about and discuss in ASL. Admission into Sign Language Interpretation Program and department permission required.

ITP 277 Specialized Discourse II 3 Cr. - Continues work of ITP 276. Introduces Deaf guest speakers to talk about wide range of specialized topics in ASL. Explores wide range of topics incorporating the skill to know about and discuss in ASL. Admission into Sign Language Interpretation Program and department permission required.

ITP 281 Mock Interpreting II 2 Cr. - Practices interpreting in ongoing classroom settings where interpreting services are not needed. Develops simultaneous interpreting skills and stamina. Qualifying exam given at end of course to assess readiness to enter ITP 283. Prerequisite: ITP 271. Corequisite: ITP 273.

ITP 283 Interpreting Internship I 3 Cr. - Applies interpreting skills in business, agency, or college settings to gain practical experience assuming the role of a professional interpreter in a structured setting with on-going feedback from professional interpreters acting as mentors. Passing the qualifying exam the term prior to enrollment is required.

ITP 284 Interpreting Internship II 3 Cr. - Applies interpreting skills in educational settings to gain practical experience assuming the role of an educational interpreter in a structured setting with on-going feedback from professional educational interpreters acting as mentors. Passing the qualifying exam the term prior to enrollment or completion of ITP 283 is required.

IVP - Video Production Internship

IVP 101 Video Production I 9 Cr. - Provides experience setting up and operating studio and portable cameras; setting up and operating video recorders; setting up lighting for studio and field production; setting up and operating sound equipment; operating video switchers and operating the character generator; performing cuts-only post-production editing; scheduling equipment and facilities as required; directing a distance learning class, participating in student and distance learning productions and performing other duties as required. Pre-admission required. Prerequisite: WR 121.

IVP 102 Video Production II 9 Cr. - Provides opportunity to produce and direct studio productions; produce, direct, shoot and edit field productions; establish proficiency in shooting and editing continuity; editing to the beat and multiple channel audio mixing; editing with an A/B roll match frame editor; learn to operate electronic graphics systems; directing a distance learning class; participating in student and distance learning productions and performing other duties as required. Prerequisite: IVP 101.

IVP 103 Video Production III 9 Cr. - Receives production ideas, interview client and establish target audience and production purpose; establish production calendar and timelines; investigate and identify all resources; produce a budget breakdown; scout locations; assemble resources and supervise pre-production, production and post-production activities; responsible for final budget analysis; present the finished video to the client; acquire experience in non-linear editing, off line, on line, EDL's; advanced lighting for student and client productions; direct a distance learning class; participate in student and distance learning productions and perform other duties as required. Prerequisite: IVP 102.

IVP 280A Cooperative Education: Video Production 1-10 Cr. - Persons, currently enrolled or having completed the Video Production Internship, may extend their knowledge and skills through work in settings which provide learning experiences beyond the formal PCC-IVP Internship environment. Department permission required.

IVP 280B Cooperative Education: Video Production - Seminar 1 Cr. - Provides opportunity for the student to share and receive feedback on experiences from other students and/or instructors. Department permission required.

J - Journalism

J 201 Mass Media and Society 3 Cr. - Survey of various media of mass communication and their effects on society. Introduces the history and development of mass communication systems and their role in society. Analysis of print and broadcast journalism, advertising, public relations, television and film. public relations, television and film. Prerequisite: Placement in WR 121 or successful completion of WR 115.

J 202 Information Gathering 3 Cr. - Surveys methods and strategies for acquiring information for the various mass media. Examines records, databases, sources and interview methods. Prerequisite: Successful completion of WR 121.

J 203 Writing for the Media 3 Cr. - Introduces the basic process and practice of writing for media. Discusses style and story structure for print and electronic media and the rights and responsibilities of the public communicator. Emphasizes journalistic style and format, accuracy and clarity in writing. Includes a Service Learning component. Recommended: Successful completion, or concurrent enrollment in WR 122. Prerequisite: WR 121.

J 204 Visual Communication for the Media 3 Cr. - Theory and application of visual communication in newspapers, magazines, television news, advertising, and public relations. Includes a Service Learning component. Recommended: Successful completion or concurrent enrollment in CIS 120.

JPN - Japanese

JPN 101 First Year Japanese 5 Cr. - Emphasizes the spoken language of Japanese. Skills of listening, speaking, reading, and writing are developed with emphasis on active use of these skills. Hiragana and Katakana syllabaries are introduced. Information is offered to help gain cultural awareness and appreciation. For beginners.

JPN 102 First Year Japanese 5 Cr. - Expands communicative use of Japanese and cultural awareness. Practice of Hiragana and Katakana syllabaries continued. Kanji characters are introduced. Communicative proficiency is the main objective of the sequence. Recommended: Completion of JPN 101; or instructor permission.

JPN 103 First Year Japanese 5 Cr. - Expands further the communicative use of Japanese and cultural awareness. The practice of Hiragana and Katakana syllabaries, and Kanji characters are continued. Communicative proficiency is the main objective of the sequence. Recommended: Completion of JPN 102; or two and a half to three years high school Japanese.

JPN 111A First Year Japanese Conversation 3 Cr. - Offers a review of and additional practice with structures and vocabulary presented in JPN 101. For beginners.

JPN 111B First Year Japanese Conversation 2 Cr. - Provides extended practice for better understanding of the materials presented in JPN 150. Recommended: Concurrent enrollment in JPN 150; or instructor permission.

JPN 111C First Year Japanese Conversation 1 Cr. - Provides extended practice for better understanding of the materials presented in JPN 101. For beginners.

JPN 112A First Year Japanese Conversation 3 Cr. - Offers a review of and additional practice with structures and vocabulary presented in JPN 102. Recommended: Completion of JPN 101; or instructor permission.

JPN 112B First Year Japanese Conversation 2 Cr. - Provides extended practice for better understanding of the materials presented in JPN 151. Recommended: Concurrent enrollment in JPN 151; or instructor permission.

JPN 112C First Year Japanese Conversation 1 Cr. - Provides extended practice for better understanding of the materials presented in JPN 102. Recommended: Completion of JPN 101; or instructor permission.

JPN 113A First Year Japanese Conversation 3 Cr. - Offers a review of and additional practice with structures and vocabulary presented in JPN 103. Recommended: Completion of JPN 102; or instructor permission.

JPN 113B First Year Japanese Conversation 2 Cr. - Provides extended practice for better understanding of the materials presented in JPN 103. Recommended: Completion of JPN 102; or instructor permission.

JPN 113C First Year Japanese Conversation 1 Cr. - Provides extended practice for better understanding of the materials presented in JPN 103. Recommended: Completion of JPN 102; or instructor permission.

JPN 150 First Year Japanese 6 Cr. - Emphasizes the spoken language of Japanese. Skills of listening, speaking, reading, and writing are developed with emphasis on active use of these skills. Hiragana and Katakana syllabaries are introduced. Offers to enhance cultural awareness and appreciation. For beginners. Recommended: Concurrent enrollment in JPN 111B.

JPN 151 First Year Japanese 6 Cr. - Continuation of JPN 150. Expands the communicative use of Japanese and cultural awareness. Practice of Hiragana and Katakana syllabaries are continued. Kanji characters are introduced. Recommended: Completion of JPN 150; or instructor permission and concurrent enrollment in JPN 112B.

JPN 201 Second Year Japanese 5 Cr. - Development of the four skills of listening, speaking, reading, and writing is continued. Kanji characters are further explored. Offers to expand cultural awareness and appreciation. Recommended: Completion of first year Japanese at the college level; or three years high school Japanese; or instructor permission.

JPN 202 Second Year Japanese 5 Cr. - Continues work begun in JPN 201, expanding the communicative use of Japanese and cultural awareness. Study of Kanji characters is further explored. Recommended: Completion of JPN 201; or instructor permission.

JPN 203 Second Year Japanese 5 Cr. - Continues work begun in JPN 201 and 202, expanding further the communicative use of Japanese and cultural awareness. Kanji characters are further explored. Recommended: Completion of JPN 202; or instructor permission.

JPN 211A Intermediate Japanese Conversation 3 Cr. - Offers a review of and additional practice with structures and vocabulary presented in JPN 201. Recommended: Completion of first year Japanese at the college level; or three years of high school Japanese; or instructor permission.

JPN 211B Intermediate Japanese Conversation 2 Cr. - Provides extended practice for better understanding of the materials presented in JPN 201. Recommended: Completion of JPN 103 or 151; or concurrent enrollment in JPN 250; or instructor permission.

JPN 211C Intermediate Japanese Conversation 1 Cr. - Provides extended practice for better understanding of the materials presented in JPN 201. Recommended: Completion of first year Japanese at the college level; or three years of high school Japanese; or instructor permission.

JPN 212A Intermediate Japanese Conversation 3 Cr. - Review of and additional practice with structures and vocabulary presented in JPN 202. Recommended: Completion of JPN 201; or instructor permission.

JPN 212B Intermediate Japanese Conversation 2 Cr. - Provides extended practice for better understanding of the materials presented in JPN 202. Recommended: Completion of JPN 201 or 250; or concurrent enrollment in JPN 251; or instructor permission.

JPN 212C Intermediate Japanese Conversation 1 Cr. - Provides extended practice for better understanding of the materials presented in JPN 202. Recommended: Completion of JPN 201 or 250; or instructor permission.

JPN 213A Intermediate Japanese Conversation 3 Cr. - Review of and additional practice with structures and vocabulary presented in JPN 203. Recommended: Completion of JPN 202; or instructor permission.

JPN 213B Intermediate Japanese Conversation 2 Cr. - Provides extended practice for better understanding of the materials presented in JPN 203. Recommended: Completion of JPN 202; or instructor permission.

JPN 213C Intermediate Japanese Conversation 1 Cr. - Provides extended practice for better understanding of the materials presented in JPN 203. Recommended: Completion of JPN 202; or instructor permission.

JPN 250 Second Year Japanese 6 Cr. - Emphasizes the spoken language of Japanese. Skills of listening, speaking, reading, and writing are continued. Kanji characters are further explored. Offers to expand cultural awareness and appreciation. Recommended: Completion of first year Japanese at the college level; or three years of Japanese in high school; or instructor permission; or concurrent enrollment in JPN 211B.

JPN 251 Second Year Japanese 6 Cr. - Continues work begun in JPN 250, expanding the communicative use of Japanese and cultural awareness. Kanji characters are further explored. Recommended: Completion of JPN 250; or equivalent, or concurrent enrollment in JPN 212B.

JPN 260A Japanese Culture 3 Cr. - Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking and vocabulary usage and to gain cultural awareness. Recommended: Completion of JPN 203; 251; or instructor permission or concurrent enrollment in JPN 201.

JPN 260B Japanese Culture 2 Cr. - Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking and vocabulary usage and gain cultural awareness. Recommended: Completion of JPN 203, 251; or instructor permission; or concurrent enrollment in JPN 201.

JPN 260C Japanese Culture 1 Cr. - Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking, and vocabulary usage and to gain cultural awareness. Recommended: Completion of JPN 203, 251 or instructor permission; or concurrent enrollment in JPN 201.

JPN 261A Japanese Culture 3 Cr. - Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking and vocabulary usage and to gain cultural awareness. Recommended: Completion of JPN 203, 251; or instructor permission; or concurrent enrollment in JPN 202.

JPN 261B Japanese Culture 2 Cr. - Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking and vocabulary usage and to gain cultural awareness. Recommended: Completion of JPN 203, 251; or instructor permission; or concurrent enrollment in JPN 202.

JPN 261C Japanese Culture 1 Cr. - Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking and vocabulary usage and to gain cultural awareness. Recommended: Completion of JPN 203, 251; or instructor permission; or concurrent enrollment in JPN 202.

JPN 262A Japanese Culture 3 Cr. - Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking and vocabulary usage and gain cultural awareness. Recommended: Completion of JPN 203, 251; or instructor permission; or concurrent enrollment in JPN 203.

JPN 262B Japanese Culture 2 Cr. - Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking and vocabulary usage and to gain cultural awareness. Recommended: Completion of JPN 203, 251; or instructor permission; or concurrent enrollment in JPN 203.

JPN 262C Japanese Culture 1 Cr. - Provides intermediate level students of Japanese with opportunity to increase skills in listening, reading, speaking and vocabulary usage and to gain cultural awareness. Recommended: Completion of JPN 203, 251; or instructor permission; or concurrent enrollment in JPN 203.

JPN 270 Reading in Japanese Literature 3 Cr. - Emphasizes Japanese reading skills. Reading and discussion of accessible works of Japanese prose and poetry. Prerequisite: Second year Japanese at the college level or equivalent; or instructor permission.

JPN 271 Reading in Japanese Literature 3 Cr. - Emphasizes Japanese reading skills. Reading and discussion of accessible works of Japanese prose and poetry. Prerequisite: Second year Japanese at the college level or equivalent; or instructor permission.

JPN 272 Reading in Japanese Literature 3 Cr. - Emphasizes Japanese reading skills. Reading and discussion of accessible works of Japanese prose and poetry. Prerequisite: Second year Japanese at the college level, or equivalent; or instructor permission.

JPN 290 Japanese Composition 3 Cr. - Practice in developing composition skills. Prerequisite: Second year Japanese at the college level, or equivalent; AND instructor permission.

JPN 291 Japanese Composition 3 Cr. - Practice in developing composition skills. Prerequisite: Second year Japanese at the college level, or equivalent; AND instructor permission.

JPN 292 Japanese Composition 3 Cr. - Practice in developing composition skills. Prerequisite: Second year Japanese at the college level, or equivalent; AND instructor permission.

LA - Paralegal/Legal Assistant

LA 101 Introduction to Law - Fundamentals 3 Cr. - Covers sources and function of law in the United States, court systems and procedure, introductory legal analysis, and an overview of civil and administrative law. Prerequisite: WR 121.

LA 102 Introduction to Law - Substantive Areas 3 Cr. - Continues the study of several substantive areas of law. Prerequisite: LA 101.

LA 103 Introduction to Law - Ethics 3 Cr. - Covers Oregon ethics rules and their practical application for the legal assistant. Includes application of rules via systems and procedures used in law practice. Prerequisites: LA 102; WR 121.

LA 104 Investigation Techniques for Legal Assistants 3 Cr. - Explores fundamental techniques of legal investigation from the incident scene to the courtroom. Includes ethics, research techniques, investigative strategies, recordkeeping, information sources, witness location, report writing, subpoenas, physical and demonstrative evidence. Prerequisite: LA 101.

LA 105 Litigation 3 Cr. - Covers litigation process with emphasis on civil litigation. Includes study of tort law principles focusing on the trial process (investigation, discovery and motion practice) emphasizing preparation of documents and pleadings. Prerequisites: LA 101.

LA 106 Computer Research in Law 3 Cr. - Covers how and when to use computers for legal research and operational content differences between Westlaw and Lexis. Includes retrieving specific documents, checking citations, and practice research. Prerequisite: LA 203.

LA 107 Techniques of Interview 3 Cr. - Study and conduct simulated interviews. Prerequisites: WR 121; Prerequisite or concurrent: LA 101.

LA 109 Estate Planning 3 Cr. - Approaches to estate planning, including wills, trusts, shared ownership, gifts and life insurance are covered. Includes objectives people have for estate planning, probate and the estate, and structures and results of different estate plans.

LA 111 Probate Practice 3 Cr. - Covers preparation and filing of necessary papers used to administer an estate under Oregon state law.

LA 113 Income Tax Law 3 Cr. - Covers how to assist the attorney in preparation of income tax returns for estates, trusts and individuals and study Oregon and federal income tax law.

LA 116 Real Property Law I 3 Cr. - Covers introductory principles and procedures in real and personal property law including possessory interests, estates, deeds, contracts, servitudes, leases, title issues and real estate transactions.

LA 124 Law Office Management 3 Cr. - Covers law office organization and management, personnel management, accounting, procedural and automated systems, and other aspects of law office management.

LA 128 Legal Correspondence and Forms 3 Cr. - Covers basic forms of legal writing generally required of a legal assistant in a general law practice. Uses writing techniques and tools common to internal law office communications as well as communicating techniques between lawyer and client. Prerequisite: WR 121, 122; LA 101, 102. Prerequisite or may be taken concurrently: LA 203.

LA 203 Legal Research and Library Use 3 Cr. - Covers function of the law library and develops research skills through the use of digests, encyclopedias, reporter systems and practice manuals. Prerequisite: LA 101.

LA 204 Applied Legal Research and Drafting 3 Cr. - Practices legal research skills and draft legal memoranda common to the practice of law. Prerequisite: LA 203.

LA 208 Family Law 3 Cr. - Covers theory, procedure, and practical aspects of a domestic relations practice. Includes dissolution of marriage, issues of custody, visitation, property and debts, adoption, paternity, domestic violence, and prenuptial and co-habitation agreements.

LA 210 Advanced Estate Planning 3 Cr. - Covers estate planning as it applies to estate building. Includes pensions and business interests, retirement concerns including the living trust, taxation, entitlement, insurance, residence choices, use of charities. Also covers interrelationship of the complexities of acquiring, using, protecting and passing an estate. Prerequisite: LA 109.

LA 214 Fiduciary Tax and Accounting 3 Cr. - Covers basic federal and Oregon income taxation of estates and trusts and skills necessary to prepare required documents. The basic form of fiduciary accounting for filing of accounts with the court also covered. Prerequisite: LA 113.

LA 215 Employee Benefits Programs 3 Cr. - Introduces various types of employee benefits programs emphasizing tax qualified retirement plans. Non-qualified plans and other types of employee benefits are covered as time allows.

LA 216 Employment Law 3 Cr. - Overview of Employment Law and remedies under state and federal law, including employment at will doctrine; wrongful discharge claims; discrimination based upon disability, age, gender and other claims; retaliation claims; Equal Pay Act, Family Medical Leave Act; health and safety issues; BOLI process; and other relevant issues.

LA 217 Real Property Law II 3 Cr. - Covers key real estate transaction documents and concepts, including earnest money agreements, deeds, title insurance escrow instructions, financing documents and closing documents.

LA 219 Consumer Law 3 Cr. - Covers current consumer law, examines the legal assistant's role in consumer law.

LA 220 Worker's Compensation 3 Cr. - Covers principals and procedures that exist in Oregon's workers' compensation system. Familiarization with a general understanding of the rules and concepts that control the right to compensation in the system as well as the procedural skills.

LA 221 Bankruptcy Law 3 Cr. - Covers Bankruptcy Code, Rules of Procedure, types of bankruptcy relief, exempt and non-exempt property, dischargeability of debts, and bankruptcy forms.

LA 222 Corporate Law Practice 3 Cr. - Covers most significant state corporation law, how to assist in preparation and filing of documents necessary to form a corporation, how to draft resolutions for corporate shareholders and directors' meetings, and how to pay dividends to shareholders or to terminate business and distribute property.

LA 225 Advanced Law Office Management 3 Cr. - Examines practical solutions to law office management problems through application of theory and concepts discussed using a case study approach.

LA 226 Criminal Law for Legal Assistant 3 Cr. - Covers general criminal law and procedure to gain a basic understanding of the criminal justice system as well as the legal assistant's role in the criminal justice system.

LA 280A Cooperative Education: Legal Assistant 1-3 Cr. - Work at approved job sites to receive as varied and complete a job experience as possible under job conditions. Designed to meet the needs of the individual student and the conditions of the work site. Completion of core courses; or at least 18 credit hours in the Legal Assistant program; or departmental approval required.

LAT - Landscape Technology

LAT 104 Pesticides 3 Cr. - Federal and Oregon pesticide laws, safety, application equipment, types of pesticides and alternatives to pesticides. Recommended basic information for use in preparation for state pesticide certification. Credit is accepted towards recertification of valid Oregon pesticide license.

LAT 106 Basic Horticulture 4 Cr. - Botany and biology of plant physiology. Plant growth and reaction to nutrients, light, air, water, pests, and diseases.

LAT 108 Landscape Irrigation I 3 Cr. - Materials used, installation, and maintenance for residential and small commercial spray and drip irrigation systems. Applied math calculations used in basic hydraulics and system layout.

LAT 110 Grounds Maintenance 4 Cr. - Operational procedures, materials, safety, and equipment. Emphasis on industry standards for scheduling seasonal, yearly approach to maintenance operations and hands-on, practical experience.

LAT 111 Landscape Construction Practices 3 Cr. - Basic materials, safety, equipment and techniques used in the construction of landscapes. Basic tool and hardware identification and use in fences, decks, hardscapes, planters and retaining walls. Hands-on projects in wood, concrete, stone, and modular pavers.

LAT 210 Plant Propagation I 3 Cr. - Seed collection, storage, treatment of seeds prior to planting, woody plant propagation by semi-hardwood cuttings and budding outdoors, rooting media, and greenhouse management for the Fall season. Recommended prerequisite: Plant Materials courses; or instructor permission.

LAT 211 Plant Propagation II 3 Cr. - Hardwood cuttings, planting of seeds, planting media, care of seedlings, transplanting, growing media, grafting methods, care of grafted plants and greenhouse management for the Winter season. Recommended prerequisite: Plant Materials courses, or instructor permission.

LAT 212 Plant Propagation III 3 Cr. - Softwood cuttings, planting of seeds, media, care and transplanting of seedlings, growing media, and greenhouse management as applied to Spring and Summer season. Recommended prerequisite: Plant Materials courses; or instructor permission.

LAT 214 Plant Composition I 3 Cr. - Aspects of plant arrangement in landscape projects with emphasis on plant use, styles of planting, color, texture, form and scale. Recommended prerequisite: completion of first year and LAT 217; or department permission.

LAT 217 Landscape Drafting 3 Cr. - Basic drafting skills and layout techniques to produce quality design drawings. Drafting equipment, linework, lettering and drafting shortcuts.

LAT 219 Landscape Illustration 3 Cr. - Basic principles of graphic presentation for landscape design. Produce perspectives, isometric drawing, botanical drawings and plan renderings.

LAT 220 Landscape Construction Details 3 Cr. - Drawing of landscape construction details. Materials, structural requirements and drawing techniques needed to develop detail blueprints for construction of decks, walls, hardscapes, lighting and water features. Prerequisites: LAT 111, 217; or department permission.

LAT 221 Landscape Design Problems 3 Cr. - Work with real design clients. Portfolios, resumes and design business promotion. Oral presentation techniques. Specific design problems encountered in practice. Prerequisites: HOR 226, 227, 228, 290, 291; LAT 106, 108, 110, 111, 217, 236; CSS 200.

LAT 222 Landscape Site Grading 3 Cr. - Layout and drawing of contour and grading plans. Emphasis on site drainage and drainage systems. Cut and fill computations, grading, and grade staking for earthworks. Prerequisites: MTH 60 or LAT 236; LAT 223; or department permission.

LAT 223 Site Surveying and Analysis 3 Cr. - Application of basic surveying techniques to landscape sites. Topographic maps and land divisions. Techniques for measuring, recording, and interpreting site information needed in the design and construction of landscapes. Prerequisites: MTH 60 or LAT 236; or department permission.

LAT 225 Water Gardens 2 Cr. - Layout and construction of water features. Hands-on techniques for site development, use of liners, placement of rock and plants, pumps and plumbing. Selection of water and fish.

LAT 227 Color Sketching in Landscaping 3 Cr. - Familiarize student with the various color media used in the landscape design profession as a tool for both conceptual design development and the final presentation. Color pencil, markers, and watercolor will be explored.

LAT 232 Landscape Irrigation II 4 Cr. - Information and calculations needed to layout and draw irrigation plans for conventional spray and drip systems. Irrigation controller programming and auditing. Prerequisites: MTH 60 or LAT 236; LAT 108; or department permission.

LAT 233 Turfgrass Identification 3 Cr. - Identification of turf grasses. Botanical characteristics, environmental adaptation, propagation, specific uses and management requirements.

LAT 235 Tree Care-Fall 3 Cr. - Principles and practices of modern arboriculture (tree work). Tree biology, basic rope work, climbing with rope and saddle, diseases and pests, and urban forestry issues.

LAT 236 Landscape Math 3 Cr. - Upgrade of computational skills required in the landscape industry. Range of topics include business, construction, materials, measurement, water hydraulics, chemicals and fertilizers. Prerequisites: MTH 60; or department permission.

LAT 240 Tree Care-Spring 3 Cr. - Principles and practices of modern arboriculture (tree care). Plant growth regulators, fertilization, tree appraisals, construction protection, hazard tree management and pruning.

LAT 241 Turfgrass Cultural Practices 3 Cr. - Planting and maintenance techniques for specific types of turf, soil preparation, selection and application of fertilizers, equipment use for mowing, thatching, aeration and edging, pest control, and budgeting for costs.

LAT 243 Landscape Business Operations 3 Cr. - Requirements for beginning and operating a landscape/horticultural business. Licensing requirements, basic bookkeeping systems, insurance, liability and legal requirements, state regulations, marketing, and promotional ideas.

LAT 250 Plant Diseases, Insects and Weed Identification 3 Cr. - Specific identification and controls for diseases, insects, affecting the normal development of horticultural plants. Class accepted for 15 hours of recertification for State of Oregon Pesticide Certification.

LAT 262 Native Plants of Oregon 3 Cr. - Identification of common Native plants of Oregon. Plant communities and their environmental requirements. Adaptation and use of native plants in landscapes. Requirements include Saturday field trips around state for hands-on field identification. Check schedule for dates.

LAT 263 Bonsai-Saikei 3 Cr. - Beginning knowledge and skills needed in the creation, maintenance and aesthetic use of bonsai-saikei plants.

LAT 264 Landscape Estimating and Bidding 3 Cr. - Methods and mechanics of estimation. Interpretation of specifications and drawings, material take-offs, labor, equipment, contingency, and overhead calculations, pricing strategies, production rates, bid procedures, recordkeeping, and computer use. Prerequisites: MTH 60 or LAT 236; LAT 108, 110, 111; or department permission.

LAT 268 Wetlands 3 Cr. - Types of Wetlands and wetland habitats including environment and types of plants. Wetland development, restoration, and enhancement. Federal and State regulations applying to wetland use.

LAT 271 Computer Aided Landscape Design 3 Cr. - Site designer software and its use in landscape design. Computer aided design (CAD) techniques needed to produce finished landscape designs, plant lists, and reports. Recommended: Landscape Drafting and familiarity with DOS/Windows environment.

LAT 280A Cooperative Education: Landscape 1-10 Cr. - Actual work experience at approved job sites or on Rock Creek grounds. Department permission required.

MA - Medical Assisting

MA 111 Medical Terminology 3 Cr. - Covers prefixes, suffixes, root words, abbreviations, conditions, symptoms and procedure terms are studied by body systems.

MA 112 Medical Office Assistant Seminar I 1 Cr. - Covers psychology and office management, including interpersonal communications; review for national credential examination, and the study of the health care delivery system and coordination of directed practice.

MA 113 Introduction to Medical Reimbursement 2 Cr. - Covers medical reimbursement systems and techniques including third-party billing, Medicare, Medicaid, Worker's Compensation, accounts receivable, accounts payable, and collections. Prerequisites: ASSET test scores of reading 45, writing 42, mathematics 33.

MA 114 Introduction to Medical Reimbursement Lab 1 Cr. - Develops proficiencies in the skills in MA 113 including the use of a computerized billing system. Concurrent enrollment in MA 113. Prerequisite: (CAS 102 or CIS 120); (CIS 121 or CAS 133).

MA 121 Medical Legal Aspects 2 Cr. - Introduces the legal system, emphasizing the doctrine of confidential communication, the relationship to the medical record and the disclosure of information. Introduces the concepts of professional credentialing and responsibility, liability, and consents and moral issues.

MA 122 Medical Office Assistant Seminar II 1 Cr. - Continuation of MA 112.

MA 123 Medical Office Clinical Procedures 3 Cr. - Examination room techniques, assisting the physician with examinations, treatment and minor surgery. Covers methods of asepsis and sterilization and the proper care of equipment and supplies. Concurrent enrollment MA 124. Prerequisite: MP 111; BI 55 or 122 or 233; MTH 22A. and ASSET test scores of reading 45, writing 42.

MA 124 Medical Office Clinical Procedures (Lab) 2 Cr. - Practice and demonstrate proficiency in the procedures in MA 123. Concurrent enrollment in MA 123.

MA 125 Administrative Directed Practice 2 Cr. - Develop proficiency in administrative duties and other office management tasks in a medical clinic/physician office setting. Department permission required. Prerequisites: MP 101, 104, 110, 111, 120; MA 113, 114.

MA 131 Introduction to Medical Science 3 Cr. - Concepts of disease processes as they relate to the normal physiology of the major body systems.

MA 132 Medical Office Assistant Seminar III 1 Cr. - Continuation of MA 122.

MA 133 Clinical Directed Practice 2 Cr. - Develops proficiency in identification and care of equipment, sterile technique and asepsis, diagnostic and examination procedures, therapy, surgery, medication (pharmacology and administration) and handling of medical emergencies in a medical clinic/physician office setting. Concurrent enrollment in MP 131, 136. Prerequisite: MA 123, 124, 125; MLT 100; HE 112.

MA 134 Health Record Transcription (Lab) 1 Cr. - Transcribe medical reports. A proficiency certificate is awarded to students who demonstrate satisfactory transcription speed, accuracy and quality of work. To successfully complete this course students must be able to keyboard 45 words per minute by touch. Prerequisites: MP 111; (BI 55 or 122 or 233).

MA 135 Transcription Office Procedures 1 Cr. - Studies various word processing systems and techniques, use of reference materials, use and care of equipment, and a review of English usage and medical terminology.

MA 147 Specialty Directed Practice 2 Cr. - Practice administrative skills, clinical skills or a combination of both in a medical clinic/physician office setting. Work two four-day, eight hour rotations and attend one six hour seminar at Portland Community College. Prerequisite: MA 125, 133, 134.

MCH - Machine Manufacturing Technology

MCH 100 Machine Tool Basics 1.5 Cr. - Covers using Machinery's Handbook and Machine Tool Safety. Overview in utilizing the Machinery's Handbook, safe work practices, safe clothing for personal safety, fire prevention in the shop, and hand tool safety.

MCH 105 Blueprint Reading I 1.5 Cr. - Covers blueprints using multi-view projection, sectional and auxiliary views and title blocks and drawing format which are the basis for all graphical communication in industry today. Introduces blueprints and drawing techniques which will be built upon with further modules in the program.

MCH 110 Blueprint Reading II 1.6 Cr. - Covers dimensions, notes, gears, threads & fasteners which provide the technician with a complete description of size, shape, feature location special tolerances,

finish treatments, and assembly instructions are included so that the product can be manufactured, inspected, assembled and tested to exact the various types of dimensions, tolerances, notes, thread forms, representation, and specifications, finish specifications used in industry today to carry out these functions. Prerequisite: MCH 105.

MCH 115 Geometric Dimensioning and Tolerancing 2.5 Cr. - Covers the use of geometric dimensioning and tolerancing as specified by the American National Standards Institute's 1982 publication. Introduces symbols, concepts and basic use of these new techniques for dimensioning and tolerancing used in industry today. Prerequisites: MCH 105, 110.

MCH 116 Advanced Topics in GD&T 2.5 Cr. - Introduces advanced topics such as: TOP Calculations, Stacks and Profile Tolerancing. Prerequisite: MCH 115.

MCH 117 Stacks in GD&T 2.5 Cr. - Introduces how to do tolerance accumulation studies. Prerequisite: MCH 116.

MCH 120 Machine Shop Math 2.8 Cr. - Covers instruction and practice in working with whole numbers, fractions, decimals, formulas, inch and metric systems, formulas, calculating simple and direct indexing. Introduces how to apply the use of the inch/metric systems, dividing/index head and formulas as they pertain to thread calculations, gear calculations, speed and feed calculations, and taper calculations. Prerequisite: MCH 100.

MCH 125 Machine Shop Math Speeds and Feeds 1.5 Cr. - Covers how to calculate proper cutting speeds, revolutions per minute (RPM) and feeds for various machine tools and cutting conditions. Introduces how accurately calculating speeds and feeds prior to cutting on the work piece will save time, money, and avoid the waste of materials and tools. Prerequisite: MCH 100.

MCH 130 Machine Shop Math Trigonometry 2.5 Cr. - Introduces rules, methods and procedures for using trigonometry formulas that deal with both the sides and the angles of the right triangle and oblique triangle to solve for the unknown parts. Prerequisite: MCH 100.

MCH 134 Introduction to the Machine Shop 4 Cr. - Introduces basic machines and practices used in most machine shops. Includes shop safety practices, tool crib and shop procedures, care and use of precision tools and the use of the sensitive drill press, engine lathe, milling machine, band saw and metallurgy.

MCH 135 Measuring Tools 1.5 Cr. - Covers use and applications associated with basic measuring tools including: machinist's scale, dividers, telescoping gage, combination square, hermaphrodite caliper, surface gage, surface finish gage. Introduces proper techniques and applications of the basic transfer measurement and comparison tools in measuring holes accurately, scribing parallel lines, finding the center of round stock, determining the factors which contribute to the quality of surface finish, and practice in identifying surface finishes. Prerequisite: MCH 100.

MCH 145 Layout Procedures 1.5 Cr. - Covers instruction and practice in cutting, filing, layout, scribing, use of gage blocks, and utilizing the height gage to accurately layout lines, angles and the location of part features. Introduces the proper use and applications of the hacksaw, scribe, dividers, prick punch, ballpeen hammer, combination square set, and height gage to produce the accurate layout of part features. Prerequisite: MCH 100.

MCH 150 Precision Measuring Tools 1.8 Cr. - Covers instruction and practice of precision measurement with tools commonly used by machinist to produce and measure part features. Introduces proper use, applications and parts of the outside, inside, and depth micrometers; vernier caliper, the dial bore gage commonly used by the machinist to verify and manufacture part features to print specifications. Prerequisite: MCH 100.

MCH 157 Project Machine Technology I 1.5 Cr. - Designed to allow students the opportunity to customize or select various individual modules from within the Machine Manufacturing Technology program offerings.

MCH 158 Project Machine Technology II 3 Cr. - Designed to allow students the opportunity to customize or select various individual modules from within the Machine Manufacturing Technology program offerings.

MCH 159 Project Machine Technology III 4.5 Cr. - Designed to allow students the opportunity to customize or select various individual modules from within the Machine Manufacturing Technology program offerings.

MCH 160 Introduction to the Drill Press 2.5 Cr. - Covers setup, applications, parts and operation of the sensitive, upright and radial arm drill presses. Introduces commonly performed operations of drilling, reaming, counterboring, countersinking, spotfacing and tapping on the various types of drilling machines used to produce part features to print specifications. Prerequisites: MCH 100, 125, 135.

MCH 175 Band Saws 1.5 Cr. - Covers setup, applications, parts and operation of the vertical, and horizontal band saws and selection/preparation of band saw blades. Introduces the skill of welding band saw blades and the common cutting operations performed on the vertical/horizontal to manufacture parts to print specifications. Prerequisite: MCH 100.

MCH 180 Introduction to the Lathe 3.5 Cr. - Covers setup, applications, parts and operation of the various types of lathes. Introduces commonly performed operations of drilling, reaming, counterboring, countersinking, spotfacing, tapping, maintaining/aligning, parallel turning, facing, filing, knurling, grooving, cutting radii, cutting tapers, and parting on the various types of turning machines used to produce part features to print specifications. Prerequisites: MCH 100, 125.

MCH 190 Boring on the Lathe 1.5 Cr. - Covers setup, applications and operation of boring on the lathe. Introduces commonly performed operation of boring on the various types of turning machines used to produce part features to print specifications. Prerequisites: MCH 100, 125, 180.

MCH 195 Threading on the Lathe 3.5 Cr. - Covers setup, applications and operation of single point threading and geometric forming heads for production of single and multiple lead threads. Introduces cutting, chasing, rolling and forming production of single and multiple lead threads.

Also covers cutting, chasing, rolling and forming of internal/external threads on the lathe and drill press by using a single point cutting tool, tap or geometric thread cutting/rolling head on nuts, bolts, fasteners, castings and machined parts to print specifications. Prerequisites: MCH 100, 180, 190.

MCH 205 Introduction to Milling 2.5 Cr. - Covers setup, applications and operation of the vertical milling machine. Introduces the commonly performed operations and uses of a variety of cutters, accessories, indicators, center/edge finder, clamping methods, squaring a block of material on all 6 sides, find the edge of a workpiece, drilling/threading a hole, performing circular cutting operations, using the boring head to bore holes on manufactured parts to print specifications. Prerequisites: MCH 100, 125.

MCH 210 Project Machine Technology IV 6 Cr. - Designed to allow students the opportunity to customize or select various individual modules from within the Machine Manufacturing Technology program offerings.

MCH 211 Project Machine Technology V 7.5 Cr. - Designed to allow students the opportunity to customize or select various individual modules from within the Machine Manufacturing Technology program offerings.

MCH 212 Project Machine Technology VI 9 Cr. - Designed to allow students the opportunity to customize or select various individual modules from within the Machine Manufacturing Technology program offerings.

MCH 213 Project Machine Technology VII 10.5 Cr. - Designed to allow students the opportunity to customize or select various individual modules from within the Machine Manufacturing Technology program offerings.

MCH 214 Project Machine Technology VIII 12 Cr. - Designed to allow students the opportunity to customize or select various individual modules from within the Machine Manufacturing Technology program offerings.

MCH 215 Introduction to the Horizontal Mill 2.5 Cr. - Covers setup, applications and operation of the horizontal milling machine. Introduces how to set-up horizontal milling machine and saw a slot in a piece of steel, use the indexing head to cut keyways and keyseats, use the Dividing Head to cut a gear, the basic function and uses of a jig or fixture to produce machined parts to print specifications. Prerequisites: MCH 100, 125, 205.

MCH 216 Mechanical Inspector 4 Cr. - Introduces measurement by mechanical, electronic, and optical methods related to industrial dimensional conformance requirements. Drawing and part compliance methods, including geometric dimensioning verification techniques.

MCH 217 Quality Technician 4 Cr. - Introduces quality management philosophies, strategies for continuous improvement, graphical and numerical methods for data analysis and methods of manufacturing process control. Prerequisite: MCH 216.

MCH 225 Introduction to Surface Grinding 2.5 Cr. - Covers setup, applications and operation of the horizontal spindle/reciprocating table surface grinder to produce parts to extremely close tolerances with improved surface finishes and accuracy. Introduces automatic grinder operation by grinding a block square/parallel and perpendicular by applying the required setups and operational sequencing, and grinding of angular surfaces on a workpiece to print specifications. Also introduces grinding wheels and abrasives, selecting, balancing and mounting the grinding wheel and the methods/machines of surface grinding. Prerequisite: MCH 100.

MCH 235 Tool Sharpening 2 Cr. - Covers setup, applications and specifications of tool sharpening/reconditioning utilizing the universal tool and cutter grinder, the drill pointer and bench grinder. Introduces sharpening of drill bits, lathe tools, end mill sides/ends, milling cutters, and various formed relieved cutters, reamers and taps to manufacturers specifications. Prerequisite: MCH 100.

MCH 240 Cutting Tool Technology 2 Cr. - Covers types, setup, applications and specifications of cutting fluids and cutting tools. Introduces why the selection of appropriate cutting tools and cutting fluids are essential in metal cutting operations to reduce the heat and friction produced during material removal operations and how the selection, setup and application effect the quality, accuracy, efficiency and productivity of the workpiece produced. Prerequisite: MCH 100.

MCH 245 Metallurgy 2.5 Cr. - Covers the manufacture, types, heat treatment, testing, machinability, properties and the physics of materials and material removal of ferrous and non-ferrous materials. Introduces processing of materials to obtain the desired changes in its physical properties, the non-destructive and destructive testing of materials, the machinability of materials and the efficiently/required knowledge of the metal to be cut, but also how the cutting tool material and its shape will perform under various machining conditions. Prerequisite: MCH 100.

MCH 259 CNC Programming-Lathe 4 Cr. - Introduces the basic programming skills used with Fanuc (G&M compatible) controlled CNC turning centers. Prerequisites: MCH 100, 110, 125, 130, 160, 205.

MCH 262 CNC Conversational Controls 1.5 Cr. - Covers basics of CNC Conversational Controls. Introduces CNC conversational controls and the flow of CNC conversational programming. Prerequisite: MCH 260, 261.

MCH 263 CNC Cycle Time Reduction 1.5 Cr. - Covers concepts associated with CNC cycle time reduction. Includes proven methods for CNC setup time reduction, and CNC cycle time reduction. Prerequisite: MCH 260, 261.

MCH 264 Related CNC Issues 1.5 Cr. - Covers related CNC issues. Introduces CNC documentation issues, CNC program preparation transfer/verification/storage, and CNC service and maintenance. Prerequisite: MCH 260, 261.

MCH 265 Other CNC Machines 4 Cr. - Covers other types of CNC controlled machinery. Introduces CNC lasers, punches, shears, brakes, EDM and CNC profilers. Prerequisite: MCH 260, 261.

MCH 266 Advanced CNC Programming 3.5 Cr. - Presented by means of audio visual presentations, demonstrations, lab experiences, and research activities. Emphasizes the development of skills and knowledge competencies prescribed by business and industry performance standards. Prerequisite: MCH 260, 261.

MCH 267 Parametric Programming 1.5 Cr. - Covers advanced CNC programming technique of parametric programming. Introduces parametric programming techniques. Prerequisites: MCH 260, 261, 266.

MCH 268 CNC Programming-Mill 4 Cr. - Introduces basic programming skills used with Fanuc (G&M compatible) controlled CNC machining centers. Prerequisites: MCH 100, 110, 125, 130, 160, 205.

MCH 269 CNC Operator Program Award - Level 1 6 Cr. - Provides working knowledge base for student who expects to work at an entry-level CNC operator position in a machine shop. Covers general shop safety, basic blue print reading, basic shop math, basic inspection, parts deburring, basic tools in magazine, identifying correct tool operation, and basic principles of CNC operation.

MCH 270 CNC Operator Program Award - Level 2 8 Cr. - Introduces basic programming skills used with Fanuc (G&M compatible) controlled CNC turning and machining centers. Prerequisite: MCH 269.

MCH 271 CNC Operator Program Award - Level 3 6 Cr. - Introduces basic operation and setup skill used with Fanuc (G&M compatible) controlled CNC turning and machining centers. Prerequisite: MCH 270.

MCH 272 Mastercam Level I 4 Cr. - Introduces personal computing and Mastercam operational basics. Includes terminology relevant to PC-based CAD/CAM work. Covers hardware familiarity, system opera-

tion, folders, file types and structure, Mastercam menu structure and system management, and 2 1/2 axis toolpaths for milling. Emphasis on proper geometry creation, manipulation and management, relevant utilities and C-hooks, terminology, toolbar and menu functions.

MCH 273 Mastercam Level II 4 Cr. - Construct advanced geometric models using geometric, free form, and derived surface types. Emphasis on surface creation and mathematical category, applicability, association, Open-GL, shading and curves, C-hooks, terminology and analyzing. All aspects of roughing and finishing are covered with focus on correct application and use of parameters. Includes mill/turn machining conventions, C-axis programming, tool libraries and solid toolpath verification.

MCH 274 Mastercam Program Award - Level 1 4 Cr. - Preparatory course in CAD/CAM designed to introduce personal computing and the operational basics of Mastercam required to produce a CNC manufactured part. Prerequisite: MCH 271.

MCH 275 Mastercam Program Award - Level 2 4 Cr. - Construct advanced geometric models using geometric, free form, and derived surface types. Emphasizes surface creation and mathematical category, applicability, association, Open-GL, shading and curves, C-hooks, terminology and analyzing. Use Mastercam to program advanced three-dimensional models using Multi-surf and Flow-line programming techniques. Toolplanes, C-hooks, NC Utilities and all aspects of roughing and finishing are covered with focus on correct application and use of parameters. Projects are verified with solid toolpath verification; lathe programming using Mastercam to generate toolpaths such as rough, finish, thread, and drill. Also covers mill/turn machining conventions, C-axis programming, tool libraries and solid toolpath verification. Prerequisite: MCH 274.

MCH 276 Mastercam Solids 3 Cr. - A continuation of the CAD/CAM curriculum and explores the solids application of Mastercam as it pertains to model design and toolpath generation.

MCH 277 Mastercam CNC/CAM Project 3 Cr. - A continuation of the CAD/CAM curriculum. Purpose of course is to solidify the connection between Mastercam and the CNC Machine through the physical manufacturing of projects.

MCH 278 CNC Operation - Mill 3 Cr. - Introduces basic operation and setup skill used with Fanuc (G&M compatible) controlled CNC machining centers. Prerequisite: MCH 268.

MCH 279 CNC Operation - Lathe 3 Cr. - Introduces basic operation and setup skill used with Fanuc (G&M compatible) controlled CNC turning centers. Prerequisite: MCH 259.

MCH 280 Cooperative Education: Machine Technology 1-8 Cr. - This work occurs outside the classroom at a work site performing machine tool setup and operation under the supervision of a professional machinist technician or supervisor. Department permission is required. Offered for one to eight credits based upon the number of clock hours completed at the work site.

MCH 290 Shop Project I - Ball Peen Hammer 2 Cr. - Use several turning operations to complete a work piece to print specifications.

MCH 291 Shop Project II (Mill Stop) 2.5 Cr. - Use several milling and turning operations to complete a workpiece to print specifications. Prerequisite: MCH 100, 105, 110, 120, 125, 135, 145, 150, 180, 190, 195, 205, 215, 230, 240.

MCH 292 Shop Project III (Parallel Clamps) 3 Cr. - Use several milling and turning operations to complete a workpiece to print specifications. Prerequisites: MCH 100, 105, 110, 120, 125, 135, 145, 150, 180, 190, 195, 205, 215.

MCH 293 Shop Project IV (Threaded Die Wrench) 2 Cr. - Use several turning operations to complete a workpiece to print specifications. Prerequisites: MCH 100, 105, 110, 120, 125, 135, 145, 150, 180, 190, 195, 205.

MCH 294 Shop Project V (Screw Jack) 5 Cr. - Use several turning operations to complete a workpiece to print specifications. Prerequisites: MCH 100, 105, 110, 120, 125, 135, 145, 150, 180, 190, 195.

MCH 295 Shop Project VI-V-Block 2.5 Cr. - Use several milling and grinding operations to complete a work piece to print specifications.

MCH 296 Shop Project VII (Tool Makers V-Block) 2.5 Cr. - Use several turning, milling and grinding operations to complete a workpiece to print specifications. Prerequisites: MCH 100, 105, 110, 120, 125, 135, 145, 150, 180, 190, 195, 205, 215, 240.

MCH 297 Shop Project VIII (Arbor Press) 4.5 Cr. - Use several turning, milling and grinding operations to complete a workpiece to print specifications. Prerequisites: MCH 100, 105, 110, 120, 125, 135, 145, 150, 180, 190, 195, 205, 215, 240.

MFG - Manufacturing

MFG 103 Computers in Manufacturing 4 Cr. - Introduces computer hardware and software that is used in manufacturing engineering and manufacturing enterprises.

MFG 105 Team Building and Problem Solving 3 Cr. - Introduces basic concepts of how to work within a team environment, analyze problems, communicate the results and implement changes.

MFG 107 Industrial Health and Safety 3 Cr. - Introduces concepts of industrial health and safety regulations, compensation laws, and profitability of safety management.

MFG 211 Operational Performance Assessment 2 Cr. - Introduces identification of performance measures, data collection methods and action plans relevant to the enterprise.

MFG 212 Welding 3 Cr. - Introduces joint design, fabrication of steels, and advanced applications of electric arc welding processes.

MFG 217 Manufacturing Standards 3 Cr. - Introduces industry manufacturing standards. Explores the impact on local, domestic and global markets.

MFG 220 Machine Tool Processes 4 Cr. - Introduces the operation of standard machine tools, cutter tool maintenance, automatic lathe setup and operation.

MFG 221 Project Management 3 Cr. - Introduces various project management tools such as PERT, CPM, and other decision-making project management methods.

MFG 222 Casting and Molding Processes 4 Cr. - Introduces pattern making, casting and molding methods, mold and core making, pouring, cleanup, sand conditioning, and testing.

MFG 229 Design Assembly and Manufacturing 3 Cr. - Introduces design for manufacturability and assembly concepts and methodologies.

MFG 230 Introduction to Numerical Control 4 Cr. - Introduces the techniques and methodology of numerical control programming.

MFG 231 CAD Tools 4 Cr. - Introduces Computer Aided Design (CAD) and Computer Aided Engineering (CAE) software tools.

MFG 233 Design Document Control 3 Cr. - Introduces administration of design documentation, product structure, engineering changes and design compatibility.

MFG 235 Computer Aided Manufacturing 5 Cr. - Introduces Computer Aided Manufacturing (CAM) tools, numeric controlled machines, coordinate measurement machines (CMM), vision technology, robotics, and automated process control.

MFG 237 Manufacturing Process Analysis and Planning 3 Cr. - Introduces components of a Computer Aided Process Planning (CAPP) system, and data collection.

MFG 239 NC/CNC Programming 3 Cr. - Introduces NC/CNC programming and computer aided machining software tools.

MFG 241 Monitoring Manufacturing Process 3 Cr. - Introduces statistical process control (SPC), manufacturing process monitoring systems, data capture analysis and presentation.

MFG 243 Manufacturing Control and Planning 3 Cr. - Introduces resource planning of material, machines and personnel (CRP), factory simulations, scheduling and capacity planning.

MFG 245 Manufacturing Equipment Technology and Maintenance 3 Cr. - Introduces manufacturing equipment for metals, electronics and plastics industries.

MFG 247 Flexible Manufacturing System/Automation 3 Cr. - Introduces flexible manufacturing/automation systems for the metals, electronics and plastics industries.

MFG 249 Introduction to Materials Resource Planning II 4 Cr. - Introduces concepts of Materials Resource Planning (MRP II) as they apply to a world class manufacturing enterprise.

MFG 251 Purchasing I 3 Cr. - Introduces fundamentals of purchasing, including the role of the purchasing function, purchasing objectives and policies, operating procedures, purchase descriptions and specifications, sources of supply, types of contracts and ordering agreements specific to manufacturing.

MFG 253 Purchasing II 3 Cr. - Introduces more advanced purchasing concepts and techniques such as win-win negotiations, total cost management, supplier management, continuous quality improvement, value analysis, value engineering and inventory management.

MFG 255 Communication Networks 3 Cr. - Introduces communication networks and their components, network configurations and protocols, emphasizing local area networks.

MFG 257 Manufacturing Database Design 4 Cr. - Introduces implementing a database and data definition dictionaries. Focuses on the design of a neutral data engineering database.

MFG 259 Manufacturing Information Center 3 Cr. - Introduces aspects of data display (real time and off-line), screen displays, reports, and design of a manufacturing information center.

MFG 261 Computer System Integration 4 Cr. - Introduces all aspects of the system integration process. Emphasizes machine interfaces, programmable logic controllers and on-line data collection.

MFG 274 Introduction to CAD 2 Cr. - Introduces the techniques and methodology associated with an integrated 2D/3D drafting and design system.

MFG 280A Cooperative Education: Manufacturing Technology 1-3 Cr. - Students have the opportunity to develop knowledge and skills in a department-approved work setting. Work experiences are closely aligned with the student's on-campus educational program goals.

MLT - Medical Laboratory Technology

MLT 100 Medical Office Laboratory Orientation 0-3 Cr. - Introduces clinical laboratory principles and procedures commonly performed in the small office setting, including specimen collection and handling, urinalysis, basic hematology, serology, microbiology and quality control. Prerequisites: MP 111; BI 55 or BI 122; or BI 233.

MLT 111 Medical Technology I 4 Cr. - Introduces the field of clinical laboratory science, including an introduction to the use and care of the microscope and other laboratory supplies and equipment, basic blood cell morphology, basic urinalysis, bloodborne pathogens, and ABO/Rh blood grouping. Prerequisite: Acceptance into first year of Medical Laboratory Technology Program.

MLT 112 Medical Technology II 4 Cr. - Second course in a sequence introducing the field of clinical laboratory science. Includes an introduction to clinical chemistry, quality control and laboratory statistics. The study of hematology, blood collection and coagulation are also included. Prerequisite: MLT 111.

MLT 150 Lab Assistant Clinical Practice 3 Cr. - Introduces basic clinical laboratory skills and practices including phlebotomy, specimen processing, and the laboratory information systems. Stresses professionalism and safety in the medical setting.

MLT 170 Phlebotomy Practicum 3 Cr. - Second course of a two course series which introduces phlebotomy techniques and practices. Covers basic laboratory concepts, specimen processing and laboratory information systems. Stresses professionalism and safety in the health care setting.

MLT 201 Introduction to Histologic Techniques I 3 Cr. - First of a two-term course introducing basic histologic knowledge, skills and practices including instrumentation, tissue fixation, embedding, cutting, staining and trouble shooting. Stresses professionalism and safety in the medical setting. After completion of the two-term course sequence and one year experience, student will be eligible to take the national registry examinations. Students must be certified as a Medical Laboratory Technician and have department approval to register.

MLT 202 Introduction to Histologic Techniques II 1 Cr. - Second term of a two-term course that introduces the basic histologic knowledge, skills and practices including instrumentation, special staining techniques, frozen sections and processing various types of tissues, fungus etc. Stresses professionalism and safety in the medical setting. After completion of the two-term course sequence and one year experience, students will be eligible to take the national registry examinations. Completion of MLT 201 and department approval required for registration.

MLT 213 Introduction to Medical Microbiology 4 Cr. - Introduces clinical bacteriology, including an overview of the organization and function of the clinical microbiology laboratory. Processing, handling, and work-up of clinical specimens for microbiological study are thoroughly addressed. Stresses a "systems" approach to the identification and control of the etiological agents of disease. Prerequisite: MLT 212.

MLT 221 Clinical Chemistry I 3 Cr. - Review and expansion of introductory clinical chemistry topics: carbohydrates, creatinine, and uric acid; quality control; laboratory mathematics; and professional issues. Prerequisite: Completion of first year MLT requirements and acceptance into the second year of the program.

MLT 222 Clinical Chemistry II 4 Cr. - Focuses on enzymology, acid-base balance, electrolytes, toxicology, cholesterol and triglycerides, blood urea nitrogen, hepatitis, proteins, and quality control. Prerequisite: Completion of first year MLT requirements and acceptance into the second year of the program.

MLT 223 Clinical Chemistry III 3 Cr. - Presents coagulation theory, tests and disease correlation, principles and applications of RIA and EIA testing, electrolytes, bilirubin and protein electrophoresis testing principles and correlation of abnormal results with various disease states. Acceptance into second year of MLT Program required.

MLT 230 Body Fluids 3 Cr. - Presents normal and abnormal composition of urine, testing procedures, sources of error and clinical correlation. Develops a knowledge of the composition and testing of Cerebrospinal, Synovial, Pleural, Pericardial and Peritoneal fluids. Acceptance into second year of MLT Program required.

MLT 241 Immunohematology I 3 Cr. - Presents general understanding of basic immunology and various immunoglobulins. Develops a knowledge of complement system and principals involved in various antigen-antibody reactions, with emphasis on agglutination reactions. Reviews ABO and Rh Blood group systems. Acceptance into second year of MLT Program required.

MLT 242 Immunohematology II 4 Cr. - Presents blood group systems (other than ABO and Rh), testing methods, Hemolytic Disease of the Newborn, donor selection, anticoagulants, blood components and transfusion reactions. Also, the principles involved in various Serologic tests will be discussed. Acceptance into second year of MLT Program required.

MLT 250 Hematology 4 Cr. - Review and further develop knowledge and skills in the areas of hemoglobin, hematocrits, blood cell counts and blood cell morphology. Presents abnormalities, anomalies, and conditions affecting red blood cells and white blood cells. Acceptance into second year of MLT Program required.

MLT 261 Bacteriology I 4 Cr. - Incorporates basic practices and principles of bacteriology with clinical bacteriological practices, focusing on staphylococci, streptococci and Neisseria as they relate to clinical materials. Acceptance into second year of MLT Program required.

MLT 262 Bacteriology II 3 Cr. - Incorporates basic practices and principles of bacteriology with clinical bacteriological practices, focusing on the Enterobacteriaceae, non-fermentative gram negative rods, Bacteroidaceae, Brucellaceae, aerobic and anaerobic spore-formers, Mycobacteria and some miscellaneous groups such as viruses. Acceptance into second year of MLT Program required.

MLT 263 Medical Parasitology 3 Cr. - Introduction to the field of medical parasitology. Identifying characteristics, life cycles, pathogenicity and testing methods for various relevant organisms are covered. Acceptance into second year of MLT Program required.

MLT 264 Medical Mycology 3 Cr. - Studies medically important fungi and procedures for the collection, handling, preparation and use of media. Includes methods of inoculation of media, and diagnostic procedures for the cultivation and identification of organisms. Acceptance into second year of MLT Program required.

MLT 271 Clinical Laboratory Practice I 3 Cr. - Students assigned to various clinical laboratories to become familiar with their organization and operation, gain insight into how clinical laboratory practitioners relate to the medical team and community, gain experience in dealing with patients and performing laboratory procedures. Acceptance into second year of MLT Program required.

MLT 272 Clinical Laboratory Practice II 3 Cr. - Students are assigned to various clinical laboratories to become familiar with laboratory operation and organization, gain insight into how clinical laboratory practitioners relate to the medical team and community, gain experience in dealing with patients and performing laboratory procedures. Acceptance into second year of MLT Program required. Prerequisite: MLT 271.

MLT 273 Clinical Laboratory Practice III 3 Cr. - Students are assigned to various clinical laboratories to become familiar with laboratory organization and operation, gain insight into how clinical laboratory practitioners relate to the medical team and community, gain experience in dealing with patients and performing laboratory procedures. Acceptance into second year of MLT Program required. Prerequisite: MLT 272.

MLT 274 Clinical Laboratory Practice IV 8 Cr. - Students are assigned to various clinical laboratories to become familiar with laboratory organization and operation, gain insight into how clinical laboratory practitioners relate to the medical team and community, gain experience in dealing with patients and performing procedures. Acceptance into second year of MLT Program required. Prerequisite: MLT 273.

MLT 281 Clinical Seminar 4 Cr. - Correlates clinical laboratory findings and prepares for certification examinations, studies new concepts in clinical laboratory, explores techniques for writing resumes and interviews, and directs research and writing of term paper on selected topics. Acceptance into second year of MLT Program required.

MM - Multimedia

MM 110 Introduction to Multimedia 1 Cr. - Explores the different job areas within multimedia field. Roles of the multimedia team are examined and explained. Creates a basic multimedia project using entry level multimedia industry standard authoring software; and the first portion of a multimedia portfolio targeted to job acquisition. Completion of CAS 111 highly recommended.

MM 120 Multimedia Design 2 Cr. - Introduces multimedia development and design process. Includes developing multimedia team and identifying the job titles, functions and skills; designing a multimedia project, identifying target audience, project budget and development time lines; applying instructional design guidelines to a multimedia project, developing multimedia portfolios. Prerequisites: previous or concurrent - MM 110; or instructor permission.

MM 130 Multimedia Graphic Video and Audio Production 3 Cr. - Introduction to graphics, text, audio, and video development for multimedia. Students produce multimedia elements using a variety of tools, such as digital still and video cameras, analog video cameras, scanners, and the internet. Graphic, video and audio editing software, such as Adobe Photoshop®, and Apple Final Cut Pro®, are introduced. Prerequisites: previous or concurrent - MM 120; or instructor permission.

MM 140 Multimedia Authoring I 3 Cr. - Introduction to producing a usable multimedia project that incorporates the principles and practices from MM 110, MM 120 and MM 130. Students develop an interactive multimedia project incorporating graphics, text, video, and audio, using multimedia industry standard authoring software (Macromedia Director®). The cross platform project may be used on PCs (Windows) and Macintosh computers and the World Wide Web. Additional lab time required. Prerequisites: previous or concurrent - MM 130; or instructor permission.

MM 141 Incorporating Multimedia Elements in Presentation Software 2 Cr. - Plan and produce a multimedia presentation using industry level presentation software (Microsoft PowerPoint®). Incorporate design theory, clip-art, video clips and sound into a Microsoft PowerPoint® presentation. Emphasis on quality, presentation flow and program design.

MM 150 Multimedia Project Review, Testing and Delivery 1 Cr. - Introduction to finalizing the multimedia project through quality assurance, beta testing and group evaluation. Technical support, product documentation, final production and packaging will be addressed. The strengths and weaknesses of various delivery options will be reviewed. The authoring project developed in Multimedia 140 will be the project used for this class. Prerequisite: previous or concurrent - MM 140; or instructor permission.

MM 160 Marketing Yourself as a Multimedia Professional 2 Cr. - Develop a marketing plan that will lead to employment in the multimedia field. Describe the primary features of guerrilla marketing. Create professional quality promotional materials. Managing the production of a multimedia project including project planning, production scheduling and management, cost estimating, resource management, repositing, marketing/advertising, copyright issues and contract development strategies. Prerequisites: previous or concurrent - MM 130, 140; or instructor permission.

MM 230 Graphics for Multimedia 4 Cr. - Using multimedia industry standard Flash® and Adobe Illustrator® to create and adapt graphic images for use in multimedia and interactive computer applications. Create customized color palettes for improved display. Color correct, select appropriate file formats (JPEG, GIF, TIFF, PICT & EPS), resize and combine multiple graphics for use in multimedia presentations and multimedia web page graphics. Prerequisites: MM 130; or instructor permission.

MM 231 Vector Graphics & Animation for the WWW 3 Cr. - Create navigation controls, animated logos, long-form animations with synchronized sounds using multimedia industry standard vector graphics and animations software (Macromedia Flash®). Create translucent and transparent vector objects for use with multimedia applications. Optimize Flash® movies for various playback bandwidths. Prerequisites: MM 130, 140; CAS 111D, 175; or instructor permission.

MM 232 Multimedia 3D Modeling and Animation 3 Cr. - Create, edit, and take apart 3D models and animations using basic to intermediate 3D modeling and animation software such as Maxon Cinema 4DXC and Alias Wavefront Maya®. Basic features of the 3D modeling environment will be highlighted. Prerequisite: MM 130, 140; CAS 111D, 175; or instructor permission.

MM 234 3D for the World Wide Web 3 Cr. - Design, create, and display high-quality, interactive 3D graphics and animations delivered via the World Wide Web. Focuses on current interactive 3D delivery products and creating 3D models with low polygon count, thus addressing low-bandwidth limitations. Projects will be created using standard 3D modeling tools, with interactivity added. Prerequisite: MM 232; or instructor permission.

MM 235 Digital Video Editing and Production 3 Cr. - Primarily focuses on the post-production process for non-linear editing of digital video for use in multimedia applications. Use multimedia industry standard

digital video editing software such as Adobe After Effects® or Apple Final Cut Pro® to capture (digitize) or transfer digital video; edit and compress audio and video for making segments for use in multimedia titles. Review the various compression formats for both audio and video. Prerequisite: MM 130; or instructor permission.

MM 236 Internet Delivery of Digital Video and Audio Files 3 Cr. - Introduces preparing video and audio for playback on the World Wide Web incorporating the principles of quality video and audio capture and editing techniques. Develop video and audio segments using industry standard digital editing software such as Adobe After Effects® and Apple Final Cut Pro®. The cross platform projects will be used on PCs (Windows) and Macintosh computers and the World Wide Web. Prerequisite: MM 235; CAS 111D or instructor permission.

MM 240 Multimedia Authoring II 4 Cr. - Use multimedia industry standard authoring programs such as Macromedia Director® to develop interactive titles. Focuses on both the design of the application and the underlying Lingo scripting. Export the finished application to the Macintosh and PC platforms as well as to the Internet-compatible Shockwave format. For Internet applications, a brief overview of HTML will also be covered. Assembly and testing of a variety of production elements will be highlighted. No programming skills are required. Prerequisite: MM 140, 231; or instructor permission.

MM 241 Multimedia Authoring III - Scripting 4 Cr. - Use hypertext (Lingo-from Macromedia Director® Hypertalk, HTML, to customize multimedia and interactive computer applications. Extends the capabilities of multimedia projects by allowing for the incorporation of dialog boxes, timed events and multi-level-event specific linking. Prerequisite: MM 240; or instructor permission.

MM 244 Creating Interactive Web Pages 3 Cr. - Develop web pages using multimedia industry standard web page development software, such as Macromedia Dreamweaver® and web animation tools, such as Macromedia Flash®. Incorporate multimedia elements for optimal internet delivery. Commercially available multimedia elements (clip media) will be used for constructing the web page. Knowledge of HTML is not required. Prerequisite: MM 231; or instructor permission.

MM 245 Internet Delivery of Interactive Multimedia 3 Cr. - Primary focus on the optimization of graphics for internet delivery. Develop multimedia elements for the internet. Learn possibilities and limitations of delivering multimedia elements on the World Wide Web. Primary considerations are 1) unique design aspects of the internet, 2) reviewing the importation of optimized multimedia elements into web pages, 3) using optimized formats of graphics, audio, video and animation elements for delivery on the internet. Prerequisites: MM 230 and CAS 111D; or instructor permission.

MM 250 Advanced Multimedia Project Development I 3 Cr. - Designed to allow the student to combine their creative and technical skills developed in the preceding 100 and 200 level Multimedia classes through the production of a consummate project. Prepare an interactive multimedia project using industry standard software tools. Project development will include planning, production, project review and, implementing the evaluation suggestions. Final projects will be submitted for faculty and peer critiques and then placed on the World Wide Web. Prerequisites: MM 230, 231, 235, 236, 240, 241, 245; or instructor permission.

MM 251 Advanced Multimedia Project Development II 3 Cr. - Further develop the project created in MM 250. Prepare an interactive multimedia project using industry standard software tools. Project development will include planning, production, project review and, implementing the evaluation suggestions. Final projects will be submitted for faculty and peer critiques and then placed on the World Wide Web. Prerequisite: MM 250; or instructor permission.

MM 252 Advanced Multimedia Project Development III 3 Cr. - Further develop the project created in MM 251. Prepare an interactive multimedia project using industry standard software tools. Project development will include planning, production, project review and, implementing the evaluation suggestions. Final projects will be submitted for faculty and peer critiques and then placed on the World Wide Web. Prerequisite: MM 251; or instructor permission.

MM 270 Writing for Multimedia 3 Cr. - Introduces creating and adapting technical information and linear narratives for non-linear, interactive multimedia applications. Includes developing ideas into multimedia scripts, incorporating text with other media, writing narration, and writing for voice-over, writing for interactivity, presenting text on-screen, and writing concisely. Prerequisites: MM 120 and WR 121, 122, 123; or WR 214; or instructor permission.

MM 280 Cooperative Work Experience in Multimedia 1-3 Cr. - Practice and enhance skills gained in the Multimedia 100 and 200 level classes. Spend 4 to 12 hours per week working in the multimedia industry (public/private sector organizations) working at an approved multimedia development company doing cooperative work. Develop career objectives by linking course work with out-of-classroom experiences by becoming part of the "multimedia team" learning cooperation, team building, communication skills and project development. Prerequisites: MM 230, 231, 235, 236, 240, 241, 245; or instructor permission.

MP - Medical Professions

MP 101 Seminar 1 1 Cr. - Allows students to volunteer in a community service project.

MP 102 Seminar 2 1 Cr. - Covers psychology and office management including interpersonal communications.

MP 103 Seminar 3 1 Cr. - Assists students in developing job search skills, resume preparation, and interviewing skills for health care facilities.

MP 104 Profession Practice Preparation 3 Cr. - Discusses cultural diversity, ethical behavior, and professionalism for health care workers.

MP 105 Ancillary Information Analysis 2 Cr. - Develops knowledge of health care services, laboratory tests, and imaging services. Prerequisites: MP 111; BI 55; or concurrently enrolled in BI 122 or 233.

MP 107 Ancillary Information Analysis Lab 1 Cr. - Develops proficiencies in the skills taught in MP 105. Corequisite: MP 105.

MP 110 Administrative Systems 2 Cr. - Covers appointment scheduling, telephone techniques, mail handling, financial records, insurance, medical records management, and other administrative skills for healthcare facilities. Prerequisite: ASSET scores of reading 36, writing 36 and math 33. Corequisite: MP 120.

MP 111 Medical Terminology 3 Cr. - Covers prefixes, suffixes, root words, abbreviations, conditions, symptoms and procedure terms are studied by body systems. English communication skills necessary.

MP 120 Administrative Systems Lab 1 Cr. - Develops proficiencies in the skills included in MP 110. Corequisite: MP 110.

MP 121 Legal and Ethical Aspects of Healthcare 2 Cr. - Overview of the legal system and the legal principles that govern the delivery of healthcare. Covers patient confidentiality and the disclosure of patient information. Discusses codes of ethics and bioethical issues facing today's healthcare professionals. English communication skills necessary.

MP 131 Medical Science 5 Cr. - Concepts of disease processes as they relate to the normal physiology of the major body systems. Prerequisites: MP 111; BI 55; or concurrently taking BI 122 or BI 233.

MP 136 Medications 2 Cr. - Covers appropriate drug uses, effects, dangers, and precautions; routes of administration. Review common prescription abbreviations, forms of medications and basic drug categories. Prerequisite: MP 111.

MP 140 Health Record Content 1 2 Cr. - Explains the content and structure for health care records. Emphasizes hospital records.

MP 141 Health Record Content 2 2 Cr. - Explains the content and structure for health care records. Emphasizes ambulatory care records.

MP 180 Coding and Reimbursement 1 Cr. - Introduces coding and reimbursement systems for physician offices and medical clinics.

MP 182 Health Care Delivery Systems 3 Cr. - Explains the past, present, and future influences on the delivery of health care. Covers provider organizations and settings in health care, financing of health care, causes and characteristics of health care utilization in the United States, regulation and monitoring of health care systems and ethical issues associated with health care technology.

MSD - Management and Supervisory Development

MSD 101 Principles of Management and Supervision 3 Cr. - Discusses concepts and practices of fundamental supervisory skills such as planning, staffing, communication, ethics, leadership, impact of technology, training, conflict management, problem solving, quality improvement, safety management and performance reviews.

MSD 102 Communication for Results 1 Cr. - Communicating without a desired outcome is like traveling without a desired destination. You may end up in the wrong place. This class teaches how to enhance your communication results by establishing communication outcomes, building rapport, recognizing visible responses, monitoring programs and evaluating results.

MSD 105 Interpersonal Communication 3 Cr. - Discusses how principles of interpersonal communication operate in everyday life such as: communication processes, barriers and misconceptions; impact of cultural values and norms; influences of perception and judgment; communication and self talk; creating and responding to messages; characteristics of non-verbal communication and their impact; listening effectively; identifying and controlling emotions; developing an effective communications climate; and effectively managing conflict.

MSD 107 Organizations & People 3 Cr. - This course is about how individual, group, and organizational characteristics influence each other. Includes personality development as it affects group and organizational interactions; interpersonal and work group processes; job design, organizational structure and culture.

MSD 110 Gender Conflict Resolution 1 Cr. - This 10-hour workshop examines gender and multi-cultural communication. The material includes identifying and evaluating sources of conflict and developing strategies and skills to positively manage and resolve conflicts.

MSD 110A Relationship Selling 1 Cr. - Discusses unlocking the mystery of developing relations that get and keep customers, analyzing prospects, communicating in their learning and perception style, living win-win, confirming a sale, and managing you.

MSD 111 Corresponding Effectively At Work 3 Cr. - Discusses the necessary communication tools and how to use them in a variety of ways such as: writing letters, memos, performance reviews, reports and brochures relating to job situations.

MSD 112 Facilitating for Results 1 Cr. - Gives meeting leaders skills to plan effectively and facilitate meetings that produce results. Learn how to generate productive results by drawing on the knowledge, ability, and creativity of individual group members. Information includes pre-planning activities and participation requirements.

MSD 113 Influence Without Authority 1 Cr. - Learn to clearly distinguish between the terms power, influence and authority. Topics include effective listening, lateral relationships in the workplace, influencing peers, influencing one's supervisor, mutual exchange, rules of reciprocity, knowing yourself and your allies, and building relationships.

MSD 114 Rapport/Relationships: Key to Sales 1 Cr. - Unlock the mystery to developing rapport and building relationships with customers which last. Learn tools that allow you to assess customer style quickly, communicate in their style, and confirm sale/service in their style.

MSD 115 Improving Work Relations 3 Cr. - Discusses management techniques, methods and strategies for helping managers, aspiring managers and staff professionals step out from the "crowd of look-a-likes." Topics include improving individual effectiveness, developing interpersonal relationships, functions of work groups, multi-cultural relations, productivity and quality at the organizational level.

MSD 116 Creative Thinking for Innovative Change 1 Cr. - In today's-and tomorrow's-unpredictable and increasingly challenging world, we must make a fundamental choice: to be changed, inevitably, by the forces churning around us, or to be the change-leader through innovative actions. Learn how to jump-start your own creative, innovative thinking.

MSD 117 Customer Relations 3 Cr. - Discusses the importance of customer relations. Emphasizes techniques for effective customer service. Explores setting the stage, analyzing and developing customer service policies, listening, handling problems and concerns, building a team and growing a business.

MSD 118 Helping Employees Improve Non-Productive Conduct 1 Cr. - Discusses how to cope with an employee who exhibits behaviors that limit the effectiveness of your work environment. Topics include exploring the sources of non-productive behavior, learning ways to understand what motivates employees, building "win-win" relationships, and creating more satisfying work environments.

MSD 119 Emotional Intelligence in the Workplace 1 Cr. - Discusses how those who rely on their emotional intelligence use their feelings and intuition to think more clearly and react appropriately to any given situation or relationship. Topics include collaboration, using initiative to stimulate improvements, risk taking, building open communication, developing trust, and balancing human and financial needs.

MSD 121 Leadership Skill Development 3 Cr. - Discusses new leadership theories and paradigm shifts and strategies for leading others and managing yourself. Topics include strategies for developing organizational

visions, communication with clear meaning, developing trust through positioning, creating the learning organization, and sharing leadership through empowerment.

MSD 122 Motivation Without Manipulation 1 Cr. - Focuses on setting a climate for intrinsic motivation. Topics include organizational theories and their impact, ranking needs in the workplace, delegation obstacles to motivation, recognition systems and emotional intelligence.

MSD 123 Job Search Strategies 1 Cr. - Explores strategies for finding the "right" job. Includes self-discovery, goal-setting, prospecting, networking, resume-writing, interviewing, career-planning, and self-marketing skills.

MSD 124 Mediation: How and Why it Works 1 Cr. - Discusses the importance of mediating conflict resolution. Topics include establishing a communication environment, techniques for encouraging all parties to present their views, how to restate differences, focusing on the future, and combining ideas to solve problems.

MSD 125 Unions in Today's Business Environment 1 Cr. - Discusses the role of unions from their inception to present day. Topics include the health and safety issues which spurred the formation of unions in the late 1800's; impact of work hours, wages and safety; the enactment of the National Labor Relations Act (Wagner Act), and the challenges supervisors and managers face as labor relations issues are addressed.

MSD 127 Increasing Human Effectiveness 1 Cr. - Discusses how to increase your personal effectiveness at work, at home and in your relationships by learning principle based skills. Topics include identifying the practices of successful leaders, finding methods of achieving personal and professional balance and learning how to apply techniques to implement these skills.

MSD 128 Crisis Intervention: Handling the Difficult Person 1 Cr. - Discusses the phases of situation crisis intervention. Topics include techniques for approaching and handling the difficult person, the potentially dangerous person, and the potentially volatile situation.

MSD 129 Exploring Myers-Briggs Type Indicator (MBTI) 1 Cr. - explores how the MBTI can be applied as a tool for understanding personality preferences and their effects in work settings. Through discussion and comparison, discover ways to enhance communication, resolve conflict, and adapt to differences in leadership styles. Discover ways to develop the neglected sides of yourself, and recognize the potentially rich contributions of your own style.

MSD 129A Putting Myers-Briggs (MBTI) to Work 1 Cr. - Fine-tune your ability to use MBTI in this follow-up to the Exploring Myers-Briggs Type Indicator course. Apply MBTI to enhance conflict resolution skills, improve team building, determine interviewing strategies, and to give meaningful recognition. Recognize ways of working with opposites, and managing personal stress. Develop action plans for developing your hidden assets.

MSD 130 Creative Problem Solving 3 Cr. - Covers creative problem solving and thinking, steps in the creative problem-solving process, right and left brain thinking, ambiguity and imagination, overcoming barriers to creative thinking, synthesis, and applying creative problem-solving to the organization.

MSD 131 Preparing for Supervision 1 Cr. - Designed for those new to supervision or considering taking supervisory responsibilities. Skills and responsibilities for successful supervision examined. Ideas shared on how to deal with common problems and challenges facing new supervisors.

MSD 132 Managing Disagreements Constructively 1 Cr. - Provides tips and tools for managing disagreements constructively before they simmer into conflicts and disputes.

MSD 133 Brave New Workplace: Strategies to Excel in a World of Change 1 Cr. - Discover tools and strategies to cultivate your creative thinking-your competitive edge in these turbulent, exciting times. We are surrounded by simple, obvious solutions that can dramatically increase our income, our power, our influence and ultimately, our long-term success. Our challenge is to see them!

MSD 134 Who Moved My Cheese 1 Cr. - Change is constant, it's all around us and it's inevitable. This class on transition and change is based on the #1 best seller business book by Spencer Johnson, M.D. called *Who Moved My Cheese*. This course is fun learning and it positively equips people to better understand and grow from change.

MSD 135 Reinvent Yourself, Your Work, Your Organization 1 Cr. - This workshop will help you and your team create an "action plan for survival" in a business world where the rules and challenges are constantly changing. Learn to accelerate your ability to improve team work, increase productivity and innovate for ongoing success.

MSD 136 Preparing and Delivering Effective Training 1 Cr. - Covers basics of planning and presenting training for part-time or occasional trainers in any size organization. Practical methods for planning, enhancing learner motivation, creating a positive atmosphere, using a variety of instructional approaches, and actively involving trainees will be discussed.

MSD 137 Team Dynamics and Problem Solving 1 Cr. - Explores ways of enhancing team relationships. Includes how to leverage diverse perspectives and put effective ways of increasing brain power to use.

MSD 138 Championship Sales Strategies 1 Cr. - Beginners and "old pros" alike will benefit from this workshop. From finding the best clients to post-sales referrals, from initial contact to the close, this proven program for success is filled with useful methods to achieve profitable sales. Several ideas to improve sales presentations will be explored. Participants will develop a personal action plan designed around workshop strategies.

MSD 139 Facilitating Skills That Work 1 Cr. - Learn skills to facilitate meetings that produce results. Participants will learn to pre-plan a meeting, gain desired outcomes, plan the agenda, and evaluation techniques.

MSD 139A How to Fight Fair 1 Cr. - What pushes your "Hot Buttons"? Do you get into a "fight or flight" mode? This program will help manage your professional/personal disagreements effectively and will equip you with the proper tools to fight fair.

MSD 140 Management Workshops 1 Cr. - Focuses on a wide range of management issues: maintaining quality, building teams, setting ethical standards, managing diversity, implementing technology, maintaining an effect organization, balancing authority and leadership, problem solving and decision making.

MSD 140C Core Competencies 1 Cr. - Core competencies are the knowledge, skills, or ability that contributes to successful completion of a task or job. Provides a clear understanding of core competencies and ways to integrate core competencies into your Human Resource system and into your organization.

MSD 141A Time-Stress-Communication Triangle 1 Cr. - Focuses on the stress control, time management and interpersonal communication triangle. While learning to function effectively under pressure, participants will learn how to maintain good relationships, conquer interruptions, manage meetings, and build self-esteem.

MSD 141B Develop Management and Evaluation of Volunteer Programs 1 Cr. - Students now working in volunteer management and students exploring the field for career purposes will learn the essential elements of successful volunteer programs and identify the necessary management skills. Practical application of volunteer management strategies will be explored through case study and small group work.

MSD 142A Personnel and the Law 1 Cr. - Historical and governmental perspective of employment law, the Civil Rights Act and other equal employment opportunity laws. Includes comparing EEO laws with regulations of the Federal Contract Compliance Program, identifying and complying with legal issues of employment, and discussion of other laws affecting personnel.

MSD 142B Thriving in Transition 1 Cr. - Discusses how to thrive in the midst of the constant change. Topics include understanding the sources of change, proposing change, addressing resistance to change, and successfully implementing change.

MSD 143 Working Smarter, Not Harder 1 Cr. - Explores techniques for turning inefficient time into productive time. Emphasizes analyzing your working style to: eliminate any self defeating work behaviors, enhance productive behaviors, learn methods for conserving and maintaining energy to keep performance at the "peak" level.

MSD 143A Managing Cultural Diversity 1 Cr. - Discuss how work styles differ among the diverse cultural groups, employed in companies within this country. Topics include understanding how misunderstandings and conflicts may be the result of cross-cultural differences, identifying how cultural values influence behavior, learning how to avoid offending and alienating others while encouraging positive behavior.

MSD 145A Supervision and Retention of Volunteer Staff 1 Cr. - Provides models for training and supervision as a means of providing an environment conducive to longer retention of volunteer staff. Information includes management strategies that provide support and recognition to staff members, cultural awareness and public relations.

MSD 148 Asserting Yourself in the Workplace 1 Cr. - Looks at three typical types of human behavior and focus on assertiveness. Particular attention will be given to creating appropriate situations for assertive behavior to occur and opportunities for skill practice will also be provided.

MSD 150 Listening Skills 1 Cr. - Acquire an understanding of the techniques of active listening and communication skills. Communication techniques such as the perception check, interpretive listening, paraphrasing and questioning will be presented, and students will have an opportunity to practice these skills.

MSD 151 Dealing with Difficult People 1 Cr. - Explores ideas for coping successfully with difficult people and situations. Basic psychology and personal styles of difficult interactions is examined. Specific techniques for dealing with difficult encounters and enhancing relationships are discussed along with hands-on application.

MSD 151A Strategic Planning 1 Cr. - Consists of three parts: how to analyze the current condition of the organization; how to develop a strategic plan for the organization; and how to develop the strategies to achieve the strategic plan.

MSD 153B Self-Directed Teams 1 Cr. - Focuses on developing self-directed teams. Topics include understanding the structure of self-directed teams, what they do, their stages of development, addressing potential problems, and developing the individual members.

MSD 154B ADA; Workplace Interpretation 1 Cr. - Focuses on encouraging employers to rethink the interviewing and hiring processes in light of the American with Disabilities Act (ADA). Topics include identifying and developing job-related questions, exploring the reasons why "pet" questions may not be appropriate, listing the various "do's and don'ts" of interviewing, and other processes for ensuring an objective interview.

MSD 155A Creative Thinking 1 Cr. - Focuses on encouraging participants to "think outside the box." Exercises and discussions will include different approaches to the creative process, identifying self-style, understanding and overcoming barriers to innovative thinking, and applying a creative model for problem solving.

MSD 156A Sexual Harassment in the Workplace 1 Cr. - Focuses on current legal and personnel problems in the workplace. Topics include sexual harassment, worker's compensation, discrimination, disability laws, and other federal regulations.

MDS 157 Conflict Management 1 Cr. - Examines common causes of conflict and developing approaches for managing conflict for positive results. Content includes learning practical on-the-job techniques for working through conflict such as "cooperative conflict," dealing with anger, and prevention ideas.

MSD 159 Stress Control 1 Cr. - Focuses on understanding your own signs of stress. Includes techniques for preventing stress, identification of personality factors and interpersonal factors related to stress, and job burnout.

MSD 159A Recruiting, Interviewing, and Placing Volunteers 1 Cr. - This 10-hour workshop provides overview of recruiting and hiring volunteers. Topics include writing job descriptions, developing plans that target recruiting efforts, interviewing, and placement.

MSD 160A Communication Styles 1 Cr. - Concentrates on understanding various communication styles including differences in perspectives, styles, beliefs, and feelings. Discussion includes building relationships at home, work and in communities with a wide range of people.

MSD 161 Customer Relations 1 Cr. - Discusses the principles of effective customer relations. Topics include identifying and responding to customer needs, dealing with difficult customers, developing a positive customer climate, building effective verbal and nonverbal communication skills.

MSD 162 Coping with Angry Feelings and Angry People 1 Cr. - Focuses on how to cope more effectively and constructively with angry feelings. Includes understanding the impact anger has on ourselves and others; learning how to gain control over our reaction to anger-provoking situations; and converting angry feelings into positive action.

MSD 162B Professional Image 1 Cr. - Focuses on being taken seriously in the workplace. Develop a first impression that people remember. A practical approach to building professionalism through behavior and appearance, and handling office politics, personalities, and criticism more effectively.

MSD 163A Empowering Others in the Workplace 1 Cr. - This 10-hour workshop discusses how empowerment helps employees discover their own power and capabilities. Topics include understanding delegation, goal setting, scheduling shifts, deciding what and how to accomplish projects, decision making, and other managerial responsibilities.

MSD 163B Problem Solving and Decision Making 1 Cr. - Effective problem solvers get more done with less stress. Learn how to analyze problems to save time and frustration, get beyond symptoms to root causes, generate creative alternatives, decide on the best solution and get support for your action.

MSD 164 Better Memos and Letters 1 Cr. - This 10-hour workshop teaches effective writing skills for the workplace. Topics include learning how to begin writing and when to stop, becoming more efficient and confident, learning what to include and what to avoid in memos and letters.

MSD 164A Facilitating the Continuous Improvement Process 1 Cr. - Focuses on concepts and process of continuous improvements. Topics include performance measurement methods, facilitation methods for developing and achieving objectives, and long range planning.

MSD 165B Lessons in Leadership 1 Cr. - Topics covered include workplace teams, getting things done, managing people, change and diversity. This workshop is for all levels of the organization including executives, managers, supervisors and team members.

MSD 166B Supervisory Skills: Delegation and Empowerment 1 Cr. - This 10-hour workshop explores methods supervisors and team leaders may use to accomplish "doing more with less." Topics include effective delegation techniques, understanding the importance of sharing influence and control on projects or jobs that encourage team development and methods for empowering employees.

MSD 167B Avoiding Stress and Burnout 1 Cr. - Elaborates on the symptoms and five distinct stages of burnout and the counter measures to combat it. The participant will learn: the three major contributors to negative stress, the relationship between stress and burnout, how to recognize the symptoms of burnout in oneself and others, and how to avoid or correct it.

MSD 170 The Challenge of Ethics & Values in the Workplace 1 Cr. - This 10-hour workshop explores ethical problems and challenges employees face in the workplace. Topics include understanding the meaning of business ethics, the need for maintaining high ethical standards, the concept of social responsibility, and strategies for promoting ethics in the organization.

MSD 173B Performance Appraisal 1 Cr. - This 10-hour workshop focuses on skills for evaluating performance. Topics include defining performance appraisals, evaluating various appraisal methods, using flowcharts for assessing performance, and incorporating feedback.

MSD 174 Time Management 1 Cr. - This 10-hour workshop focuses on learning how to evaluate time usage to make it more efficient and more effective. Topics include developing awareness of how we use our time, understanding productivity, developing a time management system, protecting our time, and additional time management tips.

MSD 175A How to Implement TQM at Your Organization 1 Cr. - This 10-hour workshop focuses TQM practices and philosophies employed by successful businesses of all types, large and small, throughout the world. Topics include direct links between management's leadership, employee activities and customer satisfaction, while understanding what it takes to eliminate impediments to service quality through continuous improvement.

MSD 175B Direct Communication in the Workplace 1 Cr. - This 10-hour workshop focuses on various communication situations (both verbal and written) in the workplace. Topics include putting oneself in the receiver's shoes, understanding what the listener's hear, adapting messages to enhance the receiver's understanding, and focusing on the results the sender wants to achieve.

MSD 176 Nonverbal Communication 1 Cr. - This 10-hour workshop discusses the impact non-verbal communication on understanding the message. Topics include body language, eye contact, attire, and manner of presentation and cultural differences.

MSD 176A Interpersonal Communication 1 Cr. - This 10-hour workshop explores a practical approach to understanding interpersonal communication. Topics include techniques for active listening, methods for conflict resolution, and learning techniques for becoming "other-person" focused.

MSD 177 Team Building 1 Cr. - This 10-hour workshop discusses what team building is, why it is important, how to start it, how to manage the team building process, 12 components of generating team building development, and some selected tools for team building.

MSD 177B Coaching Great Performance 1 Cr. - Centers on how to effectively work with people in a helping relationship. Introduction to coaching and gaining hands-on experience being and working with a client. Coaching helps clients examine the way they do things as well as what they do. Build your coaching skills by focusing on five key principles of coaching; coaching listening, powerful inquiry, creating choice, balance and fulfillment.

MSD 179A Improving Work Relations 1 Cr. - This 10-hour workshop discusses strategies for encouraging job satisfaction in the workplace. Topics include identifying and correcting problem behaviors, counseling techniques, administering discipline, addressing conflict issues, and redirecting negative behavior into positive action.

MSD 179B Avoid Burnout: Build Resilience 1 Cr. - Explores symptoms of the five distinct and sequential stages of burnout; the three major areas of negative stress; the relationship between stress and burnout; the five distinct and interrelated characteristics of personal resilience; and the application of coping skills, antidotes and resilience to avoid burnout.

MSD 180A Goal Setting and Productivity 1 Cr. - This 10-hour workshop focuses on steps for setting goals and successfully completing them. The session includes the SMART goal approach, the benefits of setting goals, identifying and overcoming obstacles, and creating achievable, small steps.

MSD 181A Futuring 1 Cr. - What to look for in our rapidly changing future. Includes Barker's 3 keys to the future, Popcorn's 10 trends, the 10 new directions identified by Naisbitt and Aburdene, Toffler's power shift and current issues of the World Future Society.

MSD 181B How to Write for the Internet 1 Cr. - Covers e-mail, hypertext, advertising, Web pages and other tools. Includes the basics of effective online communication, methods of expression, and research sources. Requires a computer and Internet access.

MSD 182A Telephone Skills for the Professional 1 Cr. - Step-by-step approach for successful and efficient management for anyone who works on the telephone. Includes answering the telephone professionally and courteously, creating a positive first impression, getting information quickly and correctly, asking the right questions, listening, reading the caller, and creating an environment for on-going business.

MSD 185B Writing that Works 1 Cr. - Presents a review of grammar basics for effective communication for both personal and professional use. Short-cuts and hints which will simplify the difficulty of grammar will be presented.

MSD 186A Cultural Diversity in Communication 1 Cr. - Learn how language and symbolic process, non-verbal communication, and active written, oral, and artistic communication amongst cultures and sub-cultures works to either inhibit or enrich our ability to successfully communicate with others.

MSD 186B Professional Writing II 1 Cr. - Designed to assist in further developing writing skills for influencing, persuading, and motivating target persons to desired responses. A practical approach to both profit-oriented and non-profit areas. Class participants urged to bring on-the-job writing samples to class.

MSD 187 Humor in the Workplace 1 Cr. - Concentrates on the rediscovery of laughter and humor through situational humor to re-build human connection, improve individual health, kindle creativity, and establish perspective in a work world confused by strategies such as downsizing, reengineering, outsourcing, etc. Participants should be forewarned that sporadic laughter is entirely possible.

MSD 188B Self Management for Success 1 Cr. - We can't manage others effectively until we learn to manage ourselves. This course helps you identify your roadblocks to success-including the "too much to do, too little time" syndrome, excessive stress, unclear goals, and unproductive work patterns-and provides strategies to change these habits. You will gain a new sense of enthusiasm as you redirect your energy and take a new approach to your work.

MSD 189 Coaching and Assisting Other Employees 1 Cr. - Work effectively with people in a helping relationship. Focuses on taking a person aside to give concentrated instruction to develop their skills (training), watching a person perform and intervening at appropriate times to give performance feedback and correcting (coaching), and helping them work through challenges and problems (counseling).

MSD 192A Project Management 1 Cr. - Provides both the tools and behavioral skills necessary to manage any project successfully. All steps of the project cycle are modeled with opportunities for participants to practice each step. Learn to increase productivity, present a project activity plan using professional tools and develop project team building skills.

MSD 192B Public Relations I 1 Cr. - Introduces how public relations functions, for profit-oriented and non-profit areas, who does it and what will it realistically accomplish, the relationship of PR with advertising and marketing, and other topics designed to provide an overall look at effective and practical PR.

MSD 193 Self Esteem the Key to Success 1 Cr. - This 10-hour workshop focuses on the cornerstone behavior: self-esteem. Topics include learning how self-esteem affects our relationships, our ability to solve problems and set goals, our work performance, and our health. Emphasis will be given to understanding the importance of a healthy self-esteem when handling conflict and many major dilemmas common to modern life.

MSD 193A Leadership Skill Development 1 Cr. - Leadership is an essential part of running a quality organization. Learn about the various facets that define leadership today.

MSD 193B Successful Employment Interviewing 1 Cr. - Whether you're researching for a new job, competing for a promotion, or changing career, you must sell your skills and experience. Learn how to prepare for different types of interviews, develop a plan for approaching interviews and develop confidence in your interviewing skills.

MSD 194 Effective Presentation Skills 1 Cr. - This 10-hour workshop focuses on preparing participants for giving an effective presentation. Topics include selecting topics, analyzing the audience, developing ideas, selecting and using visual aids, handling questions and overcoming objections. Each participant will give a presentation during the session.

MSD 195A The Basics of ISO 9000 1 Cr. - ISO 9000 standards are quickly becoming the national and international quality requirements for companies that sell directly or indirectly internationally. It is imperative to understand three things concerning ISO 9000: the basic ingredients, the benefits for using the new international standards, and how to evaluate your company's readiness for being ISO certified.

MSD 195B Creative Training Miracles 1 Cr. - Discover exciting and effective training techniques that will get the attention of your audience and hold their interest. Develop outcome oriented sessions that include learning experiences for everyone while motivating participants through design goals.

MSD 196A Professional Writing Skills 1 Cr. - Introduces the elements of style that makes writing effective. Writing in business-professional writing-can be an enormously effective tool for you; this course is designed to help you become a better writer.

MSD 196B Public Relations II 1 Cr. - Public relations tools, methods and procedures will be discussed. This workshop will deal with the ways public relations is implemented, to include media relations, publications and audiovisual presentations, community relations and public affairs.

MSD 197B Public Relations III 1 Cr. - Covers planning and implementing campaigns. Involves class participants actually planning a PR campaign to further the mission of any organization, business, or special project cause they represent or advocate. Brings together the content of Public Relations I and Public Relations II workshops and applies it to a real-life project.

MSD 198 Manners That Mean Business 1 Cr. - Corporate culture, networking, mentors, business meals, professional dressing and knowing your successes.

MSD 198A Male/Female Communication Style Differences 1 Cr. - Understanding the other's ways of talking is a giant leap across the communication gap between women and men and a giant step toward opening lines of communication.

MSD 198B Exploring 7 Habits of Highly Effective People 1 Cr. - Each of Dr. Covey's 7 Habits is rich in life-helpful ideas. Class explains how to apply them to your day. Practical tips on stress control, conflict resolution, time management and communication are discussed.

MSD 200 Organizations and Social Responsibility 3 Cr. - Clarifies managerial/supervisory attitudes about the relationships between business and government, the anti-discriminatory and open work environment, current environmental issues such as pollution and energy, the consumer movement, and workplace ethics.

MSD 201 Productivity Management 3 Cr. - This three credit course discusses techniques for managing productivity. Topics include basic productivity definitions, control measures and productivity, impact of the internet on productivity, impact of change on productivity and tools for measuring productivity.

MSD 202 Training the Employee 3 Cr. - Develops practical perspective of training as an organizational resource. Includes ways people learn, identifying employee training development requirements, developing objectives, designing lesson plans, evaluation criteria, developing strategy, alternatives to training, and practicum.

MSD 204 Labor - Management Relations 3 Cr. - Provides a perspective on labor management interactions and insight into current labor relations events. Includes history and development of the labor movement, management/supervisory responsibilities for labor relations, labor unions' current status and organizational make-up, labor legislation, grievance and disciplinary action, arbitration, mediation, and contracts.

MSD 206 The Troubled Employee 3 Cr. - Reviews the factors contributing to the development of the troubled employee. Includes identifying potential troubled employee work habits and attitudes (e.g. absenteeism, tardiness, sudden personality change), Employee Assistance Programs and possible community assistance agencies.

MSD 210 Public Relations 3 Cr. - Discusses the importance of public relations in the business world. Emphasizes understanding key concepts, how to effectively use public relations in a business, techniques for promoting image, and working with the media in any public relations campaign.

MSD 212 Work Analysis and Improvement 3 Cr. - This three credit course discusses steps for analyzing work and improving its impact. Topics include objectives of work analysis, using charts and graphs, developing an environment that encourages questions and discussion of differences, principles of motion economy, time management, procedure writing and employee training.

MSD 214 Safety and Security Management 3 Cr. - Covers safety and security management, roles of OSHA/NIOSH, supervisor's role in safety and security management, compensation laws and practices, and profitability of quality safety and security management.

MSD 216 Budgeting for Managers 3 Cr. - Covers budgeting vocabulary, finance principles, record keeping techniques, cash management, cash budgeting and capital budgeting. Recommended: Work-related budgeting experience.

MSD 218 Introduction to Manufacturing Control 3 Cr. - Covers aspects of manufacturing control, including perspective, forecasting, priority planning, capacity planning, order release planning, lead time and implementation.

MSD 222 Human Resource Management: Personnel 3 Cr. - Covers personnel operations, human resource planning, job design and job analysis, recruitment and equal employment opportunity, and job selection and placement.

MSD 223 Human Resource Management: Performance and Compensation 3 Cr. - Covers performance appraisal, indirect compensation programs, improving productivity and quality of work life, employee rights and collective bargaining.

MSD 240 Strategic Planning 3 Cr. - Covers determining company strategy, defining major policy, tactical planning and action, policy implementation and follow-up procedures.

MSD 265 Fundamentals of Production and Inventory Management 4 Cr. - Introduces the multiple facets of production and inventory management. Provides a general foundation for future American Production and Inventory Control Society (APICS) courses and national examinations. Includes planning, forecasting, master production scheduling, materials planning, inventory management, production activity control, purchasing, production and inventory management, project management, mathematical programming and stochastic simulation.

MSD 267 Material Requirements Planning 3 Cr. - Assists the individual in acquiring a basic overview of important terms, concepts and techniques involved in material requirements planning (MRP). Key topics include MRP interfaces, uses of MRP, MRP mechanics, and implementation and operational considerations.

MSD 269 Inventory Management 3 Cr. - Assists participants to gain a better understanding of principles and techniques pertaining to inventory management. Key topics include general inventory management, inventory management systems, inventory techniques, and finished goods distribution planning and control.

MSD 271 Master Planning 3 Cr. - Provides an understanding of various elements comprising the subject. Key topics include forecasting, order servicing, production planning, and master scheduling.

MSD 273 Capacity Management 3 Cr. - In-depth investigation of various factors comprising capacity management and production activity control. Major topics covered include definition of capacity, capacity determination, capacity factors, long, medium and short range capacity planning and control techniques.

MSD 277 Just in Time 3 Cr. - Provides practical, job related introduction to various aspects of Just In Time (JIT) production. Topics include the Just In Time concept, operation of JIT in manufacturing, advantages and disadvantages of JIT, and implementing JIT.

MSD 279 Project Management 3 Cr. - Designed so participants can learn the essential strategy and methods for project management. Each student will develop a "model" project using a step-by-step methodology.

MSD 280A Coop.Ed.: Management and Supervisory Development 3 Cr. - Designed to permit a student in concert with an organization to combine new on-the-job supervisory work experience with concepts and skills learned in supervisory classes and in the process become a greater asset to the organization. Department permission required.

MSD 280B Coop. Ed.: Management and Supervisory Development-Seminar 1 Cr. - Designed as a one credit hour seminar in which the student will learn how to prepare and deliver a work-related plan. Skills learned will be directly related to these activities. Includes a visit by the instructor to the work site and a discussion of the project with the student's supervisor as well as the student.

MSD 281 New Product Introduction 3 Cr. - Understand the New Product Introduction Phase and the four main functions within a New Product Introduction. The background is necessary to work with NPI groups.

MSD 283 Bills of Material 3 Cr. - Learn about the use, need and creation of Bills of Material within a manufacturing environment. By developing bills during class exercises, the student will understand the importance of a properly structured bill in the efficiency of the manufacturing system.

MSD 285 Fundamentals of Total Quality Management 4 Cr. - Designed to learn the basic methods, procedures and practices of Total Quality Management. Emphasis on the fundamentals of comprehending and using quality-based management in organizations.

MSD 285A Fundamentals of Total Quality Management 3 Cr. - Designed to learn the basic methods, procedures and practices of Total Quality Management. Emphasis is on fundamentals of understanding and using quality-based management in organizations.

MSD 287 Data Analysis for Quality Improvement 3 Cr. - Introduces basics of quality control and problem solving. Exposes key concepts via a job-related approach. Topics include how to collect data, sampling methods, check sheets, run charts, histograms, cause and effect diagrams, scatter diagrams and control charts.

MSD 295A Management Effectiveness 3 Cr. - Focuses on providing a more in-depth understanding of various management concepts. Topics include the changing role of managers today, organizational techniques for production management situation, methods for assessing various organizational problems and motivational climates. A maximum of six credit hours may be applied toward the degree requirements.

MSD 295B Management Effectiveness 2 Cr. - Focuses on providing a more in-depth understanding of various management concepts. Topics include identifying the role the manager plays in identifying priorities, methods for improving creative approaches to problem solving, handling a crisis, and increasing productivity. A maximum of four credit hours may be applied toward the degree requirements.

MSD 298 Trends in Management and Supervision 1-6 Cr. - Examines specific topics of current interest not necessarily covered in other Management/Supervisory Development classes but related to the changing management field. Investigates different topics earning from 1 to 6 credits depending on the length of the class. Other workshop descriptions are available by calling the IMPD at 503-731-6600.

MT - Microelectronics Technology

MT 110 Introduction to Microelectronics 3 Cr. - Traces semiconductor processing from raw material to a finished integrated circuit. Includes the following manufacturing processes: crystal growing and wafer preparation, oxidation, photolithography, etch, deposition, doping, metallization, and test/sort. Prerequisite: MTH 65.

MT 111 Electronic Circuits & Devices I 4 Cr. - Includes Ohm's Law, Kirchhoff's Voltage and Current Law, Superposition, Thevenin's Theorem, and R-C circuits. Labs include basic measurement techniques, use of electronic test equipment and proper documentation procedures. Prerequisites: WR 115; and placement into or completion of MTH 95.

MT 112 Electronic Circuits & Devices II 4 Cr. - Covers AC circuits. Includes both single frequency and frequency response analysis of circuits containing resistance, capacitance, and inductance. Both trigonometry and phasors will be covered. Labs include circuit construction, computer simulation and testing. Prerequisites: MT 111; MTH 95.

MT 113 Electronic Circuits & Devices III 4 Cr. - Overviews discrete semiconductor devices - diodes, BJTs, and FETs - and operational amplifiers. DC models as well as frequency response, bandwidth/rise time relationships, and performance criteria are emphasized. Labs emphasize circuit construction and include simulation of amplifier circuits. Prerequisite: MT 112.

MT 121 Digital Systems I 3 Cr. - Covers combinational logic devices and circuits. Includes basic operation of logic gates, Boolean algebra, and MSI logic devices. Labs emphasize prototyping and testing of combinational logic circuits. Prerequisites: WR 115; MTH 65.

MT 122 Digital Systems II 3 Cr. - Covers sequential logic devices and circuits. Includes operation of latches and flip-flops, ripple and synchronous counters, shift registers, memories, and a simple microprocessor system. Labs emphasize prototyping and testing of sequential logic circuits. Prerequisite: MT 121.

MT 200 Semiconductor Processing I 4 Cr. - First course in a two-course capstone sequence in semiconductor processing. Covers semiconductor device physics and the following manufacturing processes: oxidation, mask design, photolithography, and etch. Prerequisites: MT 110, 113; and (CH 203 or 223).

MT 222 Process Control in Semiconductor Manufacturing 2 Cr. - Covers contamination control and the use of statistical process control techniques to monitor semiconductor for manufacturing processes, e.g. use of control charts.

MT 223 Vacuum Technology 3 Cr. - Covers theory and practice of vacuum technology as used in semiconductor manufacturing. Includes vacuum principles, gas loads, pumping techniques, pressure measurement, RGA's, and leak defection. Prerequisites: MT 110, 111; CH 221.

MT 224 Process Equipment I 3 Cr. - First course in a two-course sequence in semiconductor process equipment. Covers microcontrollers, DC and stepper motors, pneumatics, and mechanical linkages. Prerequisites: MT 110, 113, 122.

MT 225 Semiconductor Processing II 4 Cr. - Second course in a two-course capstone sequence in semiconductor processing. Covers the following manufacturing processes: doping, chemical vapor deposition, metallization and test/sort. Prerequisite: MT 200.

MT 227 Process Equipment II 4 Cr. - Covers a semiconductor processing system. Includes power, vacuum, gas delivery, robotic, and control subsystems. Focuses on analysis, maintenance, and troubleshooting of process equipment. Prerequisite: MT 223, 224, 240. Chemical and particulate contamination issues. Prerequisite: MT 224.

MT 240 RF Plasma Systems 3 Cr. - Covers theory and practice of RF plasma systems as used in semiconductor manufacturing. Includes plasma physics, RF system components, and applications in semiconductor manufacturing. Prerequisites: MT 200, 223; CH 203.

MTH - Mathematics

MTH 10B Fundamentals of Arithmetic I 2 Cr. - Use of whole numbers to write, manipulate, interpret, and solve applications and formulas. Concepts introduced numerically, graphically, symbolically and in oral and written form. Prerequisite: Math placement test score above 22.

MTH 10C Fundamentals of Arithmetic II 2 Cr. - Use of fractions and decimals to write, manipulate, Interpret and solve applications and formulas. Concepts Will be introduced numerically, graphically, symbolically, And written form. Prerequisites: Math placement test score Above 22 or successful completion of MTH 10B.

MTH 15 Conquering Math Anxiety 1 Cr. - How to manage anxiety and stress about mathematics. Personal development gives instruction in methods for dealing with excessive math anxiety. Relaxation techniques are demonstrated. Includes study skills information concerning the best ways to study and to change the perception of math anxiety.

MTH 20 Basic Math (Arithmetic) 4 Cr. - Use of fractions, decimals, percents, integer arithmetic, measurements, and geometric properties to write, manipulate, interpret and solve applications and formulas. Introduces concepts of basic statistics, charts and graphs. Concepts introduced numerically, graphically, and symbolically. Communicate results in oral capabilities required. Prerequisite: Math placement test score above 33 or successful completion of MTH 10; reading placement test score above 31 (or successful completion of RD 70 and ENNL 250).

MTH 20B Basic Math 4 Cr. - Use of fractions, decimals, percents, integer arithmetic, measurements, and geometric properties to write, manipulate, interpret and solve applications and formulas. Introduces concepts of applications and formulas. Introduces concepts of basic statistics, charts and graphs. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisites: Math placement test score above 32 or successful completion of MTH 10C. Reading placement test score above 31 or successful completion of RD 80 or ENNL 250.

MTH 21C Percentage and Statistics 1 Cr. - Ratio, proportion, percent, conversions, and word problems (calculator permitted).

MTH 22 Measurements 1 Cr. - Use of measurements both English and metric, conversions, temperature, and time to write, manipulate, interpret, and solve applications and formulas. Concepts introduced numerically, graphically, and symbolically. Results communicated in oral and written form. Scientific calculator with fraction capabilities required. Prerequisites: Appropriate placement score or MTH 20; placement into (RD 80 or ENNL 250).

MTH 22A Metric Scientific Notations 1 Cr. - Use of measurements both English and metric, conversions, temperature, and time to write, manipulate, interpret, and solve applications and formulas. Concepts introduced numerically, graphically, and symbolically. Results communicated in oral and written form. Scientific calculator with fraction capabilities required. Prerequisites: Appropriate placement score or MTH 20; placement into (RD 80 or ENNL 250).

MTH 23C Introduction to Geometry 1 Cr. - Lines, angles, geometric shapes and formulas for perimeter, area, volumes (calculator permitted). Prerequisite: MTH 20

MTH 24C Pre-Algebra 1 Cr. - Integers and arithmetic operations, absolute value, combining like terms, evaluating expressions, one-step equations and a few two-step equations. Prerequisite: MTH 20.

MTH 25C Fractions 1 Cr. - Manipulate fractions, reducing, building, adding, subtracting, multiplying, dividing, rearranging, and finding the lowest common denominator. Includes preliminary topics of number theory such as primes, divisors, and divisibility rules.

MTH 26C Decimals 1 Cr. - Manipulate decimals including computation, place values, and equivalents. Recommended: knowledge and skills in whole numbers.

MTH 27C Applications in Mathematics 1 Cr. - Solve word problems involving arithmetic skills, including addition, subtraction, multiplication, and division of whole numbers, fractions, decimals, percents, ratios, and proportions.

MTH 30 Business Mathematics 4 Cr. - Application of arithmetic to a variety of problems found in the business field, including simple and compound interest, payroll preparation, pricing, invoice preparation, trade discounts, taxes, and depreciation. Scientific calculator required. Prerequisites: MTH 20; (RD 80 or ENNL 250).

MTH 60 Introductory Algebra - First Term 4 Cr. - Use applications, formulas, and reasoning skills to write, manipulate, interpret, solve and graph linear equations. Concepts introduced numerically, graphically, and symbolically. Results communicated in oral and written form. TI graphing calculator required, see instructor at first class meeting. Recommended: Concurrent registration in MTH 60E. Prerequisites: MTH 20; (RD 80 or ENNL 250).

MTH 60E Explorations in Introductory Algebra - First Term 1 Cr. - Assists MTH 60 (62) students with similar course material and provides additional practice in applications. Concurrent registration in MTH 60, or MTH 62 required.

MTH 61 Introductory Algebra - Part I 3 Cr. - Use applications, formulas and reasoning skills to write, manipulate and interpret expressions and equations. Concepts introduced numerically, graphically, and symbolically. Results communicated in oral and written form. TI graphing calculator required, see instructor at first class meeting. Prerequisites: MTH 20; (RD 80 or ENNL 250).

MTH 62 Introductory Algebra - Part II 3 Cr. - Use applications, formulas, and reasoning skills to write, manipulate, interpret, solve, and graph linear equations. Concepts introduced numerically, graphically and symbolically. Results communicated in oral and written form. TI graphing calculator required, see instructor at first class meeting. Recommended: Concurrent registration in MTH 60E. Prerequisites: MTH 61; (RD 80 or ENNL 250).

MTH 63 Introductory Algebra - Part III 3 Cr. - Use applications to write, simplify, solve and graph quadratic equations. Concepts will be introduced numerically, graphically and symbolically. Results communicated in oral and written form. TI graphing calculator required, see instructor at first class meeting. Recommended: Concurrent registration in MTH 65E. Prerequisites: MTH 62; (RD 80 or ENNL 250).

MTH 65 Introductory Algebra - Second Term 4 Cr. - Use applications to write, simplify, solve, and graph quadratic equations. Concepts introduced numerically, graphically, and symbolically. Results communicated in oral and written form. TI graphing calculator required, see instructor at first class meeting. Recommended: Concurrent registration in MTH 65E. Prerequisites: MTH 60, or MTH 62; (RD 80 or ENNL 250).

MTH 65E Explorations in Introductory Algebra - Second Term 1 Cr. - Assists MTH 65 or MTH 63 students with similar course material and provides additional practice in applications. Concurrent registration in MTH 65 or MTH 63 is required. Prerequisites: MTH 60; (RD 80 or ENNL 250).

MTH 70 Introduction to Intermediate Algebra 4 Cr. - Linear functions, quadratic functions and the properties of exponents are reviewed. Rational equations, radical equations and complex fractions are introduced. Technology is integrated as appropriate. Results communicated in oral and written form. Recommended: Concurrent registration in MTH 93. Prerequisites: MTH 63, or MTH 65; (RD 80 or ENNL 250).

MTH 93 Introduction to the TI Graphics Calculator 1 Cr. - Explores the power of your programmable graphing calculator for use at school and home. The TI-89 graphing calculator is required.

MTH 95 Intermediate Algebra 4 Cr. - Functions are investigated graphically, numerically, symbolically, and verbally in real world settings. Linear, quadratic and exponential functions are explored. Technology is integrated into all aspects of the course, as appropriate. Results communicated in oral and written form. TI graphing calculator required, see instructor at first class meeting.

MTH 111A - College Algebra for Liberal Arts 4 Cr. Functions are investigated graphically, numerically, symbolically, and verbally. Logarithmic, exponential, polynomial and rational functions are explored. Statistics, probability, geometry systems, citizenship math and fractals. Applications are investigated from Liberal Arts perspectives. Technology is integrated throughout. TI graphing calculator required, see instructor at first class meeting. Prerequisites: MTH 95; placement into WR 115.

MTH 111B College Algebra-Business, Management, Life & Social Science 5 Cr. - Relations and functions are investigated graphically, numerically, symbolically, and verbally. Logarithmic functions, exponential functions, and systems of equations are explored. Special topics include polynomial and rational functions. Applications are investigated from business, management, life and social science perspectives. Technology is integrated throughout the course. TI graphing calculator required, see instructor at first class meeting. Prerequisites: MTH 95; placement into WR 115.

MTH 111C College Algebra for Math, Science, & Engineering 5 Cr. - Relations and functions are investigated graphically, numerically, symbolically, and verbally. Exponential, logarithmic, polynomial, power, and rational functions are explored. Special topics include systems of linear and non-linear equations. Applications are investigated from science and engineering perspectives. Technology is integrated throughout the course. Communicate results in oral and written form. Graphics calculator required. TI 89/92 plus recommended. Prerequisites: Successful completion of MTH 95; placement into WR 115.

MTH 112 Elementary Functions 5 Cr. - Topics investigated graphically, numerically, symbolically, and verbally and include: trigonometric functions and their graphs, trigonometric equations and identities, solution of right and oblique triangles, vectors, polar coordinates, parametric equations and complex numbers. Communicate results in oral and written form. Graphing technology required. TI graphing calculator required, see instructor at first class meeting. Prerequisites: MTH 111B, or 111C; placement into WR 115.

MTH 116 Calculus Preparation 5 Cr. - Logarithmic functions, exponential functions, polynomial functions, rational functions, and trigonometric functions are reviewed graphically, numerically, symbolically, and verbally. Applications are investigated from Science and Engineering perspectives. Communicate results in oral and written form. Technology is integrated throughout the course. Graphing technology required. TI-89 calculator recommended. Prerequisites: MTH 112; placement into WR 115.

MTH 191 Mathematics Tutoring: Pre 100-level Credit Courses 3 Cr. - Training in one-to-one and small group tutoring in arithmetic and other non-transfer courses. Required field work consists of providing tutoring service in the community or college. Concurrent enrollment in a math transfer course of MTH 111, or above.

MTH 192 Mathematics Tutoring: 100-level Credit Courses 3 Cr. - Training in one-to-one and small group tutoring in 100-level courses. Required field work consists of providing tutoring service in the community or college. Prerequisite: MTH 251, or equivalent.

MTH 193 Mathematics Tutoring: 200-level Credit Courses 3 Cr. - Training in one-to-one and small group tutoring in 200-level math courses. Required field work consists of providing tutoring service in the community or college. Consent of instructor required.

MTH 211 Foundations of Elementary Math I 3 Cr. - Surveys mathematical topics for those interested in the presentation of mathematics at the K-9 levels. Emphasizes problem solving, patterns, sequences, set theory, logic, numeration systems, number bases, arithmetic operations and number theory. Various manipulatives problem solving strategies are used. Prerequisite: MTH 95 or higher; placement into WR 121.

MTH 212 Foundations of Elementary Math II 3 Cr. - Surveys mathematical topics for those interested in the presentation of mathematics at the K-9 levels. Various manipulatives and heuristic problem solving approaches used to explore rational numbers (fractions, decimals, percents), integers, the set of irrational numbers, the set of real numbers, and simple probability and statistics. Prerequisite: MTH 211.

MTH 213 Foundations of Elementary Math III 3 Cr. - Surveys mathematical topics for those interested in the presentation of mathematics at the K-9 levels. Various manipulatives and heuristic problem solving approaches used to explore algebra and functions, informal geometry, transformational geometry, and measurement systems. Prerequisite: MTH 211, or 212.

MTH 231 Elements of Discrete Mathematics I 4 Cr. - Survey course introducing the language, concepts, techniques, and applications of discrete math. Topics include logic, set theory, graph theory, Boolean algebra, math induction, and recursion. Prerequisites: MTH 111B, or 111C.

MTH 241 Calculus for Management, Life and Social Science 4 Cr. - Topics include limits, continuity, derivatives, and integrals. Applications are investigated from science, business, and social science perspectives. TI graphing calculator required, see instructor at first class meeting. Prerequisite: MTH 111B, or 111C; placement into WR 121.

MTH 243 Statistics I 4 Cr. - Topics include displaying data with graphs, numerical descriptions of data, producing data, elementary probability, probability distributions, and introduction to confidence intervals. Applications are investigated from science, business, and social science perspectives. Statistical software is integrated throughout the course. TI graphing calculator required, see instructor at first class meeting. Prerequisites: MTH 111B or 111C; placement into WR 121.

MTH 244 Statistics II 4 Cr. - Topics include confidence interval estimation; tests of significance including z-tests, t-tests, ANOVA, and chi-square; and inference for linear regression. Applications are investigated from science, business, and social science perspectives. Statistical software is integrated throughout the course. TI graphing calculator required, see instructor at first class meeting. Prerequisite: MTH 243; placement into WR 121.

MTH 251 Calculus I 4 Cr. - Develops an understanding of limits, continuity, derivatives and applications of derivatives. Results communicated in oral and written form. Graphing calculator required. Prerequisites: MTH 112, or MTH 116 or CMET 131; placement into WR 121. Corequisite: MTH 251 lab section.

MTH 252 Calculus II 5 Cr. - Develops an understanding of antiderivatives, the definite integral, topics of integration, and improper integrals. Results communicated in oral and written form. Graphic calculator required. Prerequisites: MTH 251; placement into WR 121.

MTH 253 Calculus III 5 Cr. - Topics include infinite sequences and series (emphasis on Taylor series), an introduction to differential equations, and vectors in three space. Results communicated in oral and written form. TI graphing calculator required, see instructor at first class meeting. Prerequisites: MTH 252; placement into WR 121.

MTH 254 Vector Calculus I 5 Cr. - Topics include multivariate and vector-valued functions from a graphical, numerical, and symbolic perspective. Applies integration and differentiation of both types of functions to solve real world problems. Results communicated in oral and written form. TI graphing calculator required, see instructor at first class meeting. Prerequisites: MTH 253; placement into WR 121.

MTH 256 Differential Equations 5 Cr. - Study a variety of differential equations and their solutions, with emphasis on applied problems in engineering and physics. Differential equations software will be used. Results communicated in oral and written form. TI graphing calculator required, see instructor at first class meeting. Prerequisites: MTH 253; placement into WR 121.

MTH 261 Applied Linear Algebra I 5 Cr. - Overview of linear algebra with some application. Includes linear systems, vector spaces, eigen spaces and applications. TI graphing calculator required, see instructor at first class meeting. Prerequisites: MTH 253; placement into WR 121.

MUP - Applied Music

MUP 100 Individual Lessons for Non-majors 1 Cr. - Includes individual instruction in piano, organ, voice and instruments of the band and orchestra. Can be taken for a maximum of six credits. Credit fee is paid to the college. Lesson fees are variable and paid directly to instructor.

MUP 192 Applied Music Miscellaneous 1 Cr. - Individual first-year instruction in piano, voice and instruments of the band and orchestra.

MUP 292 Applied Music Miscellaneous 1 Cr. - Individual second-year instruction in piano, voice and instruments of the band and orchestra. Prerequisites: MUP 171-192.

MUS - Music

MUS 101 Commercial Music Theory I 3 Cr. - Covers chord types and scales, and their proper spellings. Practice dictation practice. Includes music copying.

MUS 102 Commercial Music Theory II 3 Cr. - Covers functional harmony and altered chords, especially dominants. Focuses on chord progressions presented aurally and analyzed in reference to popular tunes, and secular techniques to include melody writing with emphasis on jazz, rock and other commercial rhythms. Basic tune forms are analyzed. Must have prerequisite or instructor permission. Prerequisite: MUS 101.

MUS 103 Commercial Music Theory III 3 Cr. - Covers preliminary score layout. Introduces harmonizing and blocking melodies and transposition, stressing craft and execution. Continues dictation adding elements of melodic and harmonic transcription. Must have prerequisite or instructor permission. Prerequisite: MUS 102.

MUS 105 Music Appreciation 3 Cr. - Provides an introduction to understanding symphonic music in the vocal and instrumental genres from the ancient period through the contemporary music of our time. Class will be presented using a multi-media format.

MUS 106 Opera Appreciation 3 Cr. - Covers musical and dramatic analysis of opera. Read about and listen to operas dating from 1600 to the present.

MUS 108 Music Cultures of the World 3 Cr. - Examines the world's music with attention to musical styles and cultural contexts. Includes the study of Oceania, Indonesia, Africa, India, China, Japan, Middle East, Latin America, and ethnic North America.

MUS 110 Fundamentals of Music 3 Cr. - Covers Concepts of sound, music notation, rhythm, meter, intervals, modes, scales, triads, sight singing and ear training. Introduces the basic terminology of music theory and begins development of musical skills.

MUS 111 Music Theory I 3 Cr. - Covers basic structure of music (tonality, modality, melody, harmony, rhythm, modulation and phrase structure) as it is exhibited through diatonic harmony. Meets arts and humanities sequence requirement for Associate of Arts Oregon Transfer degree. Prerequisite: MUS 110.

MUS 111C Music Theory I: Sight Singing and Ear Training 1 Cr. - Develops musical skills emphasizing sight and sound of melodic and rhythmic patterns and musical intervals. Demonstrates musical recognition by singing and/or tapping the musical symbols presented for performance. Introduces melodic, rhythmic and harmonic dictation. Corequisite: MUS 111.

MUS 112A Music Theory I 3 Cr. - Basic structure of music (tonality, modality, melody, harmony, rhythm, modulation and phrase structure) as it is exhibited through diatonic harmony. Meets arts and humanities sequence requirement for the Associate of Arts Oregon Transfer degree. Prerequisite: MUS 111.

MUS 112C Music Theory I: Sight Singing and Ear Training 1 Cr. - Continues development of skills learned in MUS 111C. Develops musical skills emphasizing sight and sound of melodic, rhythmic and harmonic intervals. Demonstrates musical recognition by singing and/or tapping the musical symbols presented for performance. Continues development of melodic, rhythmic and harmonic dictation. Prerequisite: MUS 111C. Corequisite: MUS 112.

MUS 113 Music Theory I 3 Cr. - Covers basic structure of music (tonality, modality, melody, harmony, rhythm, modulation and phrase structure) as it is exhibited through diatonic harmony. Introduction to chromatic harmony. Prerequisite: MUS 112A.

MUS 113C Music Theory I: Sight Singing and Ear Training 1 Cr. - Continues development of skills learned in MUS 112C. Develops musical skills emphasizing sight and sound of melodic, rhythmic and harmonic intervals. Demonstrates musical recognition by singing and/or tapping the musical symbols presented for performance. Continues development of melodic, rhythmic and harmonic dictation. Prerequisite: MUS 112C. Corequisite: MUS 113.

MUS 120A Sight Singing and Ear Training I 1 Cr. - Develops ability to use the ear accurately to discern the quality of intervals, rhythms, harmonies and melodies, and to intone rhythms. Musical samples are transcribed by ear to include melody, rhythm, and harmony.

MUS 120B Sight Singing and Ear Training II 1 Cr. - Develops ability to use the ear accurately to discern the quality of intervals, rhythms, harmonies and melodies, and to intone rhythms. Musical samples are transcribed by ear to include melody, rhythm, and harmony. Must have prerequisite, or instructor approval. Prerequisite: MUS 120A.

MUS 120C Sight Singing and Ear Training III 1 Cr. - Develops ability to use the ear accurately to discern the quality of intervals, rhythms, harmonies and melodies, and to intone rhythms. Musical samples are transcribed by ear to include melody, rhythm, and harmony. Must have prerequisite or instructor permission. Prerequisite: MUS 120B.

MUS 123 Electronic Media I 2 Cr. - Covers computer based recording, synthesis and notation for the composer/arranger. Includes fundamentals in Midi, sequencing, sampling, basic signal processing, and practical production skills using current digital technology. Write original material during lab sessions.

MUS 124 Electronic Media II 2 Cr. - Covers computer based recording, synthesis and notation for the composer/arranger. Includes fundamentals in Midi, sequencing, sampling, basic signal processing, and practical production skills using current digital technology. Write original material during lab sessions. Must have prerequisite or instructor permission. Prerequisite: MUS 123.

MUS 125 Electronic Media III 2 Cr. - Covers computer based recording, synthesis and notation for the composer/arranger. Includes fundamentals in Midi, sequencing, sampling, basic signal processing, and practical production skills using current digital technology. Write original material during lab sessions. Must have prerequisite or instructor permission. Prerequisite: MUS 124.

MUS 130A Rhythm Training I 1 Cr. - Develops basic skills of rhythmic sight reading.

MUS 130B Rhythm Training II 1 Cr. - Develops basic skills of rhythmic sight reading.

MUS 130C Rhythm Training III 1 Cr. - Develops basic skills of rhythmic sight reading.

MUS 131 Group Vocal 1 Cr. - Basic technique and theory of vocal proficiency necessary to develop individual ability in solo or ensemble settings. Learn to apply topics covered (including breath support, projection, phrasing, musical styles) to their own voices in solo repertoire.

MUS 140A Group Piano I 2 Cr. - Introduces the basics of piano technique with correct observance of pitch, clef, meter, phrasing and interpretation in a contemporary style.

MUS 140B Group Piano II 2 Cr. - Advanced beginner to intermediate instruction for piano. Develops practice skills, sight reading and technical form. Covers music fundamentals, harmony, notation, improvisation, and stylistic nuances.

MUS 143 Group Percussion 2 Cr. - Uses rhythms from rock, jazz, R & B, funk and Latin music, to cover basic techniques of performance on percussion instruments.

MUS 144 Group Voice 2 Cr. - Covers basic technical skills necessary to develop individual ability in solo or ensemble performance.

MUS 145A Group Guitar/Bass I 2 Cr. - Beginning instruction for guitar and bass. Includes basic chords, strums, patterns and song forms.

MUS 145B Group Guitar/Bass II 2 Cr. - Advanced beginner to intermediate instruction for guitar and bass. Includes moveable chords, scales, patterns, and song forms. Also, open tuning and slide guitar, basic soloing and accompaniment techniques.

MUS 145C Group Guitar/Bass III 2 Cr. - Intermediate to advanced intermediate instruction for guitar and bass. Includes chord studies, chord progressions, scales, basic chord substitution. Also, open tuning and slide guitar, soloing and accompaniment techniques.

MUS 150A Keyboard Harmony I 1 Cr. - Piano keyboard performance of simple keyboard skills introducing scales, cadences, melody harmonization, simple accompaniment patterns and transposition as they apply to principles studied in Commercial Music Theory I.

MUS 150B Keyboard Harmony II 1 Cr. - Piano keyboard performance of simple keyboard skills introducing scales, cadences, melody harmonization, simple accompaniment patterns and transposition as they apply to principles studied in Commercial Music Theory II. Must have prerequisite or instructor permission. Prerequisite: MUS 150A.

MUS 150C Keyboard Harmony III 1 Cr. - Piano keyboard performance of simple keyboard skills introducing scales, cadences, melody harmonization, simple accompaniment patterns and transposition as they apply to principles studied in Commercial Music Theory III. Must have prerequisite or instructor permission. Prerequisite: MUS 150B.

MUS 152A Elements of Arranging Music I 3 Cr. - Develops skills in the tonal placement of sound required for orchestration and arrangement for various styles of music and sizes of musical groups. Focuses on individual instruments and the scoring of each section in the jazz idiom. Includes instrumental and vocal transposition, ranges, harmony, voicing, form, counterpoint, styles, introductions, modulations, interludes, endings, harmonic progression and experimental materials.

MUS 152B Elements of Arranging Music II 3 Cr. - Develops skills in the tonal placement of sound required for orchestration and arrangement for various styles of music and sizes of musical groups. Focuses on individual instruments and the scoring of each section in the jazz idiom. Includes instrumental and vocal transposition, ranges, harmony, voicing, form, counterpoint, styles, introductions, modulations, interludes, endings, harmonic progression and experimental materials. Must have prerequisite or instructor permission. Prerequisite: MUS 152A.

MUS 152C Elements of Arranging Music III 3 Cr. - Develops skills in the tonal placement of sound required for orchestration and arrangement for various styles of music and sizes of musical groups. Focuses on individual instruments and the scoring of each section in the jazz idiom. Includes instrumental and vocal transposition, ranges, harmony, voicing, form, counterpoint, styles, introductions, modulations, interludes, endings, harmonic progression and experimental materials. Must have prerequisite or instructor permission. Prerequisite: MUS 152B.

MUS 153 Show Band (Large) 2 Cr. - Stage band. Rehearse and perform variety of music.

MUS 153A Show Band (Large) 2 Cr. - Stage Band. Select, rehearse and perform variety of music.

MUS 153B Show Band (Large) 2 Cr. - Stage Band. Select, rehearse and perform variety of music.

MUS 153C Show Band (Large) 2 Cr. - Stage Band. Select, rehearse and perform variety of music.

MUS 154 Show Band (Small) 2 Cr. - Class chooses, rehearses and performs a variety of musical styles, vocal and instrumental. Includes popular, jazz, R&B. Rehearsal and presentation skills developed.

MUS 154A Show Band (Small) 2 Cr. - Class chooses, rehearses, and performs a variety of musical styles, vocal and instrumental. Includes popular, jazz, and R&B. Rehearsal and presentation skills developed.

MUS 154B Show Band (Small) 2 Cr. - Class chooses, rehearses, and performs a variety of musical styles, vocal and instrumental. Includes popular, jazz, and R&B. Rehearsal and presentation skills developed.

MUS 154C Show Band (Small) 2 Cr. - Class chooses, rehearses, and performs a variety of musical styles, vocal and instrumental. Includes popular, jazz, and R&B. Rehearsal and presentation skills developed.

MUS 155 Introduction to Improvisation 2 Cr. - Introduces the beginning improviser to the art of soloing. On the most basic level common staples of the jazz solo are presented and practiced. Simple tunes featuring these staples are used as "vehicles" for soloing. Enrollment is open for this class.

MUS 155A Improvisation I 2 Cr. - Covers how scales and chords are constructed and used, including melodic construction, phrasing, motifs, riffs, substitution chords, voice leading, paraphrase and melodic ramps. Includes harmonic construction of all styles of jazz and ear training. By the end of the sequence, students match solo against song form.

MUS 155B Improvisation II 2 Cr. - Covers how scales and chords are constructed and used, including melodic construction, phrasing, motifs, riffs, substitution chords, voice leading, paraphrase and melodic ramps. Includes harmonic construction of all styles of jazz and ear training. By the end of the sequence, students match solo against song form. Must have prerequisite or instructor permission. Prerequisite: MUS 155A.

MUS 155C Improvisation III 2 Cr. - Vocal and instrumental improvisation. Covers how scales and chords are constructed and used, including melodic construction, phrasing, motifs, riffs, substitution chords, voice leading, paraphrase and melodic ramps. Focuses on harmonic construction of all styles of jazz and ear training. By the end of the sequence, students match solo against song form. Must have prerequisite or instructor permission. Prerequisite: MUS 155B.

MUS 158 Chamber Ensemble 1 Cr. - Provides opportunity for instrumentalists and vocalists to form small ensembles (i.e. solo, duet, trio, quartet, etc.). Ensembles rehearse individually and participate in performance. Requires the ability to read music.

MUS 164 Survey of the Music Industry 1 Cr. - Provides overview of career options in the music industry. Focuses on making a reasonable and informed choice as to a career in music.

MUS 165 Business for the Musician 1 Cr. - Instructs prospective music-related business owners, such as bands or private teachers, how to initiate, organize and operate a successful small business. Includes promotion, marketing, and record-keeping.

MUS 191 Class Guitar I 2 Cr. - Group instruction in guitar. Covers traditional classical guitar technique. Focuses on note reading and basic music theory as applies to guitar. Topics include single line first position melodies, common arpeggio patterns and music in two or more parts. Includes both solo and ensemble performance. Attention given to history and repertoire of the guitar. No previous experience required.

MUS 191p Class Piano I 2 Cr. - Group instruction in piano performance. Intent of course is the development of piano proficiency skills. Focus given to basic keyboard technique, score reading and performance, sight-reading, harmonization, accompanying, and transposition. Designed for music majors but is available to all students. No previous experience required.

MUS 192 Class Guitar II 2 Cr. - Group instruction in guitar. Continues material presented in MUS 191. Topics include reading notes up to the fifth position, advanced left hand technique, chord structure, flamenco technique and music theory as it applies to the guitar. Includes both solo and ensemble performance. More in depth study of the historical origins of the guitar, the repertoire and its major players. Prerequisite: MUS 191 or knowledge of first position note reading.

MUS 192p Class Piano II 2 Cr. - Continues group instruction in piano performance covered in MUS 191p. Intent of course is the development of piano proficiency skills. Focus given to basic keyboard technique, score reading and performance, sight-reading, harmonization, accompanying, and transposition. Course designed for music majors but is available to all students. Prerequisite: MUS 191p.

MUS 193 Class Guitar III 2 Cr. - Group instruction in guitar. Continues material presented in MUS 192. Topics include reading notes up to the twelfth position, alternate tunings, altered chords, creating original arrangements and music theory as it applies to the guitar. Includes both

performing as a soloist and as a member of an ensemble. Detailed study of twentieth century guitar practice and the influence of popular styles. Prerequisite: MUS 192.

MUS 193p Class Piano III 2 Cr. - Continues group instruction in piano performance covered in MUS 192p. Intent of course is the development of piano proficiency skills. Focus given to basic keyboard technique, score reading and performance, sight-reading, harmonization, accompanying, and transposition. Course designed for music majors but is available to all students. Prerequisite: MUS 192p.

MUS 201A Introduction to Music and Its Literature 3 Cr. - Covers music of the Medieval, Renaissance and Baroque eras of music history.

MUS 202 Introduction to Music and Its Literature 3 Cr. - Covers music of the Classic and Romantic eras of music history.

MUS 203 Introduction to Music and Its Literature 3 Cr. - Covers music of the post-Romantic era and the 20th century.

MUS 205 Introduction to Jazz History 3 Cr. - Covers the 90-year history of jazz, a truly American art form. Eras, styles, and significant artists are examined and analyzed.

MUS 206 Introduction to the History of Rock Music 3 Cr. - Examines rock music's roots and development, its innovators and significant events through a cultural as well as musical perspective.

MUS 207 Introduction to the History of Folk Music 3 Cr. - Examines ballads, worksongs, bluegrass, country blues and gospel music are examined as well as influential non-American styles. Also covers protest songs and the "folk revival" of the sixties.

MUS 208 African-American Music 3 Cr. - Traces the spiritual and all of its counter-parts to gospel music back to its African beginnings. Includes certain musical aspects of various African, Caribbean and South American cultures. See how African-American music is related to these cultures and how the inception of music in the African-American tradition occurred.

MUS 209 African-American Music 3 Cr. - Examines the progression of African-American music to the blues. Includes the elements of the blues and the various historical avenues in which it has developed. Study how the blues has inspired and constructed the format of today's music.

MUS 210 African-American Music 3 Cr. - Examines present-day jazz art-form through its progression from the blues. Study the construction of jazz and its various formats, appreciate of the art-form through direct exposure to the music, receive historical background and examine its contribution to the international field of music.

MUS 211A Music Theory II 3 Cr. - Continues work on skills from in Music Theory I adding compositional techniques associated with the 20th century, as well as introducing tonal counterpoint and formal musical analysis. Prerequisite: MUS 113.

MUS 211B Music Theory II: Keyboard Harmony 1 Cr. - Piano keyboard performance of simple keyboard skills (scales, cadences, melody harmonization, simple accompaniment patterns and transposition) as they apply to principles studied in Music Theory II. Corequisite: MUS 211.

MUS 212A Music Theory II 3 Cr. - Continues work on skills from Music Theory I, adding compositional techniques associated with the 20th century, as well as introducing tonal counterpoint and formal musical analysis. Prerequisite: MUS 211.

MUS 212B Music Theory II: Keyboard Harmony 1 Cr. - Continues development of piano keyboard skills (scales, cadences, melody harmonization, simple accompaniment patterns and transposition) as they apply to principles studied in Music Theory II. Prerequisite: MUS 211B. Corequisite: MUS 212.

MUS 213A Music Theory II 3 Cr. - Continues to work on skills from Music Theory I adding compositional techniques associated with the 20th century. Includes tonal counterpoint and formal musical analysis. Prerequisite: MUS 212A.

MUS 213B Music Theory II: Keyboard Harmony 1 Cr. - Continues development of piano keyboard skills (scales, cadences, melody harmonization, simple accompaniment patterns and transposition) as they apply to principles studied in Music Theory II. Prerequisite: MUS 212B. Corequisite: MUS 213.

MUS 220 Chorus 1 Cr. - Directed rehearsal and performance of music for the larger general chorus of mixed voices—soprano, alto, tenor, bass. Chorus is open to all students who desire to sing. No audition is required. Music selected will be keyed to the ability of the group. Purpose is to develop as high a level of artistic choral singing as is possible within the capability of the group.

MUS 221 Chorus: Chamber Choir 2 Cr. - Develops high level of artistic choral singing through directed rehearsal and performance of music for the smaller choir of mixed voices—soprano, alto, tenor, bass. Audition required.

MUS 222 Introduction to Recording Technologies 2 Cr. - Familiarizes students with the terminology, equipment and basics used in the recording industry. Prepares students for the technical requirements of the Recording Technologies courses.

MUS 223 Studio Recording Technology I 3 Cr. - Fundamental skills in audio engineering including a mixture of theory and practical application of current recording technology. Includes fundamental acoustics, microphone placement, editing, multi-track recording, mix-down, signal processing, Midi, and time code synchronization. Focuses on commercials, music recording and sound tracks for visual media.

MUS 224 Studio Recording Technology II 3 Cr. - Fundamental skills in audio engineering including a mixture of theory and practical application of current recording technology. Includes fundamental acoustics, microphone placement, editing, multi-track recording, mix-down, signal processing, Midi, and time code synchronization. Focuses on commercials, music recording and sound tracks for visual media. Prerequisite: MUS 223.

MUS 225 Studio Recording Technology III 3 Cr. - Fundamental skills in audio engineering including a mixture of theory and practical application of current recording technology. Includes fundamental acoustics, microphone placement, editing, multi-track recording, mix-down, signal processing, Midi, and time code synchronization. Focuses on commercials, music recording and sound tracks for visual media. Prerequisite: MUS 224.

MUS 226 Digital Recording 1 3 Cr. - Covers digital technology used in the recording industry. Principle studies are: A/D-D/A conversions, graphic editing, plug in effects programming and data handling. Prerequisite: MUS 225.

MUS 227 Digital Recording 2 3 Cr. - Second course in a three part series. Focuses on mixing, automation and synchronization. Both graphic and console methods will be practiced. Lectures focus on theory, musical qualities and functions of both. Prerequisite: MUS 226.

MUS 228 Digital Recording 3 3 Cr. - Third part of a three part series. Focuses on competencies in varied applications such as audio for video and picture. Lectures focus on musical requirements, theory and practical approaches to field related tasks. Labs will consist of practical applications of all previously learned artistic and command skills. Prerequisite: MUS 227.

MUS 234 Income Tax Preparation for Musicians 1 Cr. - Prepare federal and state individual returns, and introduces partnership and corporate taxation. Includes basics of record-keeping and financial planning.

MUS 280A Cooperative Education: Vocational Music 1-3 Cr. - Develops individual music performance, writing or recording skills in a department approved work setting. Department permission required. Corequisite: MUS 280B.

MUS 280B Cooperative Education: Vocational Music - Seminar 1 Cr. - Discusses and compares training experience under the guidance of a program instructor in a weekly seminar. Department permission required. Corequisite: MUS 280A.

NUR - Nursing

NUR 106 Foundations for Nursing and Client Self-Care 9 Cr. - Provides foundation for nursing practice using the self-care model and the nursing process. Explores influences of legal, ethical, and cultural issues on the role of the nurse. Applies nursing process in professional nursing care in long-term care setting. Prerequisite: Admission into Nursing program.

NUR 107 Nursing Care for the Perioperative Clinic/Psychosocial Adapt 9 Cr. - Applies nursing process to perioperative clients and clients with mental health needs. Integrates principles of therapeutic communication in promoting adaptive behaviors for clients and families in stress, loss, and grief. Health promotion, client education, and culturally sensitive nursing care are emphasized. Prerequisite: NUR 106.

NUR 108 Nursing Care for Clients with Chronic Health Care Needs 9 Cr. - Presents biological, psychosocial, and cultural concepts for clients with chronic health needs. A focus is to promote optimal health or peaceful death for clients. The practice of the professional nursing role is emphasized in subacute, acute, and community settings. Prerequisites: NUR 106, 107.

NUR 110 Nursing I 9 Cr. - Beginning concepts and skills develop the foundation for socialization into the nursing profession and for providing safe basic nursing care. Introduces nursing process with emphasis on assessing basic human needs of patients. Prerequisite: Admission to the Nursing program. Clinical: Registration must be completed and TB test results and proof of current immunizations submitted before permitted in the clinical area. Current CPR certification required. Class fee \$40. (F)

NUR 111 Nursing II 9 Cr. - Concepts and skills integrate growth and development, psycho-social coping responses to illness and alterations in health status in children and adults. Nursing process is applied to meet basic human needs of individual patients. Prerequisite: NUR 110. Clinical: Registration must be completed and TB test results and proof of current immunizations submitted before a student is permitted in the clinical area. Current CPR certification required. Class fee \$30. (W)

NUR 112 Nursing III 9 Cr. - Concepts and skills are related to nursing care of medical/surgical and childbearing patients and families. Nursing process is applied to meet basic human needs of patients and families at the practical nurse level. Prerequisite: NUR 111. Clinical: Registration must be completed and TB test results and proof of current immunizations submitted before a student permitted in clinical area. Current CPR certification required. Class fee \$30. (Sp).

NUR 206 Nursing Care Clients w/Acute Hlth Care Need & Care of Family 9 Cr. - Focuses on the nursing management of adults, child-bearing and child-rearing families with acute and complex health care needs. Learning experiences engage students with opportunities to further develop nursing competencies while collaborating with other health care disciplines in multiple settings. Prerequisites: NUR 106, 107, 108.

NUR 207 Nursing Care Clients w/Complex & Unstable Health Care Needs 9 Cr. - Focuses on the nursing management of clients with complex and unstable health care needs. Leadership and management principles are related to caring for clients with changing needs. A focus will be on disease prevention for vulnerable groups in the community. Prerequisites: NUR 106, 107, 108, 206.

NUR 208 Nursing Care of Clients with Emergent Health Care Needs 8 Cr. - Focuses on the nursing management of clients experiencing physical and emotional crises. Role transition is facilitated from student to the professional graduate nurse with a focus on leadership, management and legal/ethical concepts. Prerequisites: NUR 106, 107, 108, 206, 207.

NUR 210 Nursing IV 9 Cr. - Concepts and skills related to nursing care of medical/surgical patients and families, and mentally ill clients. Standards of nursing care are adopted to meet the basic human needs of individual patients. Patient/client teaching is emphasized. Prerequisite: NUR 112. Clinical: Registration must be completed and TB test results and proof of current immunizations submitted before a student permitted in clinic area. Current CPR certification required. Class fee \$30. (F)

NUR 211 Nursing V 9 Cr. - Concepts and skills related to nursing care of medical/surgical patients and families with ambulatory, acute and critical needs. Discharge planning emphasized. Multiple standards of nursing care are synthesized to meet basic human needs of individual patients. Prerequisites: NUR 110, 111, 112, 210. Clinical: Registration must be completed and TB test results and proof of current immunizations submitted before student permitted in clinical area. Current CPR certification required. Class fee \$20. (W)

NUR 212 Nursing VI 8 Cr. - Emphasizes leadership and management concepts and skills in providing nursing care at the associate degree nurse level for groups of patients. Prerequisites: NUR 211. Clinical: Registration must be completed and TB test results and proof of current immunizations submitted before student permitted in clinical area. Current CPR certification required. Class fee \$5. (Sp).

NUR 289 Clinical Pharmacology 3 Cr. - Focuses on the safe administration of drugs in various clinical settings for all age groups, including the study of major drug classifications and their properties. Students apply the nursing process with a focus on client education. Prerequisites: BI 231, 232, 233; NUR 107.

NUR 298 Independent Study 1-9 Cr. - This is a 1-9 credit elective course using a pass/no pass grading system. It can include lecture and clinical laboratory experiences in order to increase competence in nursing. It also can be a forum to perform and discuss off-campus clinical experiences with peers and instructor. Attendance at the initial advisory group meeting is required to enroll. The course is used as a route to assist re-entry students to prepare for the coming term, to improve academic skills, nursing knowledge and clinical skills. Previous enrollment in the nursing program and department permission required.

OMT - Ophthalmic Medical Technology

OMT 101 Pathophysiology 3 Cr. - Introduces basic concepts of disease processes relative to the normal physiology of major body systems. Studies major diseases of the eye and related structures integrated with symptomatology and treatment of these conditions.

OMT 102 Pharmacology/Eye Disease I 2 Cr. - Studies major ocular diseases and related structures integrated with symptomatology and treatment. Introduces ophthalmic drugs.

OMT 103 Pharmacology/Eye Disease 2 2 Cr. - Continuation of OMT 102. Details major classifications of ophthalmic drugs, mechanism of action, side effects, first aid techniques for acute ophthalmic drug reactions. Explores relationship of ocular pathology and medications used to treat. Prerequisite: OMT 102.

OMT 104 Ophthalmic Office Procedures 3 Cr. - Utilizes techniques to obtain medical and ophthalmic history, transcription of information into the medical chart, and common terms/abbreviations used in history taking. Covers front office techniques, including basic functions of a computer in the medical office. Develops skills needed to obtain accurate patient visual acuity.

OMT 106 Introduction to Clinical Skills 3 Cr. - Covers basic test principles and techniques including tangent screen visual fields, non-contact tonometry, tear function, color plates, slit lamp function, extra-ocular muscle function and anterior chamber depth. Assisting the physically or visually disabled patient and dealing with children during the eye examination is addressed.

OMT 111 General Medical Terminology 3 Cr. - Analyzes the structure of medical terminology and application to basic anatomy, physiology and disease processes of the human body. Emphasizes definition, spelling and pronunciation.

OMT 121 Practicum I 1-4 Cr. - Introduces clinical work designed to apply technical skills acquired in previous course work. Recording of clinical data, front office procedures, obtaining patient's health and ocular history, measuring visual acuity, medical record management, commonly used abbreviations/terms stressed.

OMT 145 Clinical Optics 1 2 Cr. - Presents basic optical principles and the human eye from both theoretical and practical standpoints. Explores prisms, basic dispensing, techniques for measuring types of lenses, use of the lens clock, use and maintenance of ophthalmic instruments and equipment.

OMT 146 Clinical Optics 2 2 Cr. - Continuation of OMT 145 Clinical Optics 1. Introduces principles of retinoscopy, refractometry, basic lensometry, basic keratometry, and prisms as they relate to ocular motility. Prerequisite: OMT 145.

OMT 163 Ocular Anatomy and Physiology 2 Cr. - Relates structure and function of the human visual system. Anatomy and physiology of the eye-ball, orbit, and ocular adnexa are covered. Special emphasis placed on ocular terminology.

OMT 206 Diagnostic Procedures I 4 Cr. - Introduces fundamentals of diagnostic testing and techniques including: applanation and Schiotz tonometry and biomicroscopy. Presents principles and techniques of refractometry and retinoscopy with emphasis on skill development utilizing the schematic eye.

OMT 207 Diagnostic Procedures II 4 Cr. - Presents principles and techniques of various methods of visual field examination. The visual pathway, common causes of visual field loss, and related anatomy will be covered with emphasis on Goldmann perimetry. Also covers principles and techniques of exophthalmometry, color vision and tear function tests. Emphasis placed on skill development.

OMT 208 Ocular Motility/Binocular Vision 2 Cr. - Introduces ocular motility and binocular vision. Emphasis is placed on understanding the presentation, characteristics, natural history of the strabismus patient. Amblyopia and binocular vision are also addressed.

OMT 209 Surgical Assisting Procedures 3 Cr. - Addresses the technician's role in minor office surgery and assisting in the operating room. Topics include proper aseptic technique, scrubbing, gowning and gloving, sterilization of instruments, the importance of surgical conscience/legal responsibilities, proper disposition of supplies/medications and security procedures of medications as regulated by law.

OMT 210 Therapeutic Assisting Procedures 4 Cr. - Focuses on technician's role in assisting in the management of preoperative and post operative patients. More advanced ophthalmic procedures included such as ultrasound, potential acuity meter, direct ophthalmoscopy and contrast sensitivity. Specimen collection for the laboratory addressed.

OMT 212 Contact Lens 1 3 Cr. - Covers fundamentals of contact lens. Principles of lens structures, materials used in manufacture, categorization, comparison of characteristics of soft and rigid lenses. Includes theory and utilization of instruments commonly used in fitting and assessing contact lenses. Includes use of keratometer, biomicroscope, rubeoscope, lensometer, gauges, loupes, magnifiers and fluorescent tubes.

OMT 213 Contact Lens 2 3 Cr. - Continuation of OMT 212. Covers fitting theories and principles for soft and rigid contact lenses, solutions for care and maintenance, dispensing, patient education, post fitting observations and theories on fitting keratoconus and bifocal contact lenses. Lab activities allow for observation of physical properties and fitting challenges of contact lenses.

OMT 222 Practicum II 4 Cr. - Work in local ophthalmic practices and health care facilities under the supervision of facility personnel. Includes exposure to actual working conditions and skills in ophthalmic diagnostic and therapeutic procedures.

OMT 223 Practicum III 4 Cr. - Work in local ophthalmic practices and health care facilities under the supervision of facility personnel. Includes exposure to actual working conditions and skills in ophthalmic diagnostic and therapeutic procedures.

OMT 224 Practicum IV 4 Cr. - Work in local ophthalmic practices and health care facilities under the supervision of facility personnel. Includes exposure to actual working conditions and skills in ophthalmic diagnostic and therapeutic procedures.

OMT 231 Seminar I 1 Cr. - Discusses practicum experiences, review of major professional subject areas, and hear guest speakers on topics of interest to the class. Complete clinical research papers.

OMT 232 Seminar II 2 Cr. - Discusses practicum experiences, review of major professional subject areas, and hear guest speakers on topics of interest to the class.

OMT 233 Seminar III 2 Cr. - Discusses practicum experiences, review of major professional subject areas, and hear guest speakers on topics of interest to the class.

OMT 234 Seminar IV 2 Cr. - Discusses challenges confronting practitioners and the presentation of new material in the field. May include field trips and guest speakers on topics of interest. Discussion of clinical practicum experiences and a general review for national certification examinations included.

OMT 283 Perception/Low Vision 2 Cr. - Covers theories of visual perception and how lenses affect perception. Introduces basic and advanced visual aids and their application to patients with various forms of low vision. Concepts of depth perception and color vision explored.

OS - Office Systems

OS 120 Business Editing Skills 4 Cr. - Develops skills necessary for editing, transcribing, and writing memos, letters and e-mail. Emphasis: punctuation, capitalization, spelling, grammar, and word use. Recommended: Qualify for WR 121; keyboard by touch and completion of a beginning word processing class; or consent of instructor. English communication skills necessary.

OS 131 10-key on Calculators 1 Cr. - Develops 10-key skills by touch. English communication skills necessary.

OS 240 Filing 3 Cr. - Develops skills for indexing, coding, and cross-referencing documents to be filed. Includes requisitions and charge-outs, records transfer, and various filing systems. English communication skills necessary.

OS 245 Office Systems and Procedures 4 Cr. - Use computer technology for tasks such as scheduling, e-mail, and faxing. Develops communication skills and telephone techniques. Organize and prioritize office work. Develops workplace readiness and job search skills. English communication skills necessary. Recommended: CAS 123; or instructor permission.

OS 249 Legal Terminology 3 Cr. - Focuses in-depth on the making and usage of commonly used relevant legal terminology in a number of areas of law utilizing multimedia. Provides essential skills for those seeking to enter the legal community. English communication skills necessary.

OS 250 Introduction to Legal Office Careers 3 Cr. - Covers basics of legal office careers and legal terminology through job shadowing, visiting law firms of all sizes, contact with law professionals, exposure to Internet and other legal resources. English communication skills necessary. Recommended: CAS 123; or instructor permission.

OS 251 Legal Transcription and Terminology 4 Cr. - Covers legal terminology, transcription of legal documents, and procedures for specific areas of law: corporations, probate, domestic relations, and litigation. Emphasizes accuracy and proofreading. English communication skills necessary. Recommended: OS 120; or instructor permission.

OS 252 Legal Procedures I 4 Cr. - Through legal office simulations, composition of legal letters, and field trips to law offices, course explores general procedures and professional skills required for entry into the legal secretarial field. English communication skills necessary. Recommended: OS 120; or instructor permission.

OS 253 Legal Procedures II 4 Cr. - Explores legal terminology, transcription of legal documents and procedures in criminal litigation, bankruptcy, worker's compensation, and international patent law. Students familiarize themselves with the law library, do basic research, as well as observe trials at the courthouse. English communication skills necessary. Recommended: OS 251; 252.

OS 280A Cooperative Education: Legal Secretarial 3 Cr. - Provides field experience for the legal secretarial student. Before enrolling, the student must have a permission slip from the legal secretary instructor. Recommended: Four terms in a specific program area; or instructor permission. English communication skills necessary. Concurrent registration in OS 280B.

OS 280B Cooperative Education: Legal Secretarial - Seminar 1 Cr. - Supplements the field experience portion of cooperative education through feedback sessions, instruction in job-related areas, and linkages to the student's on-campus program. English communication skills necessary. Recommended: Concurrent registration in OS 280A.

OS 280F Cooperative Education: Administrative Assistant 1-5 Cr. - Provides field experience for the administrative assistant student. Recommended: Satisfactory progress through four terms in the administrative assistant program area; or instructor approval; English communication skills necessary. Concurrent registration in OS 280G required.

OS 280G Cooperative Education: Administrative Assistant - Seminar 1 Cr. - Supplements the field experience portion of cooperative education through feedback sessions, instruction in job-related areas, and linkages to the student's on-campus program. English communication skills necessary. Recommended: Concurrent registration in OS 280F.

PE - Physical Education

PE 10 Physical Education Activity Program 1 Cr. - Independent study format allowing students to participate in a variety of activities using designated PCC facilities when classes are not scheduled. This class

does not count towards PCC degrees or PCC financial aid. Check with appropriate institution or high school for transferability of this class. Consultation with instructor may be required. Recommended: signed physical examination form.

PE 180A Beginning Swimming 1 Cr. - Introduces swimming and aquatic skills to students who have very limited or no swimming skills and may be uncomfortable in the water.

PE 180F Lap Swimming 1 Cr. - Continued improvement of skilled swimmer's cardiovascular endurance. Explores and develops various training methods to enhance swimming techniques and knowledge of training strategy.

PE 180G Swim Conditioning 1 Cr. - Uses aspects of swim skills to improve cardiovascular endurance, muscular strength/endurance, and flexibility. Includes water/land exercises, lap swimming and water games. Recommended: Intermediate level swim skills; or equivalent.

PE 180H Aquatic Exercise 1 Cr. - Includes aerobic exercise, strength conditioning, and stretching movements set to music. Performed in shallow water to reduce the effects of gravity. Swimming skills are not required.

PE 181A Beginning Weight Training - Coed 1 Cr. - Stresses the proper techniques of weight lifting and the development of muscular strength and endurance. Individual programs developed which allow for body and strength differences and safety in lifting.

PE 181B Intermediate Weight Training - Coed 1 Cr. - Continues the development of the student's strength/fitness. Individual evaluation and weight lifting programs developed to meet the student's needs. Recommended: Beginning weight training; or equivalent.

PE 181C Advanced Weight Training - Coed 1 Cr. - High level development of student muscular strength, endurance and cardiovascular fitness. Individual programs developed to meet the student's needs. Recommended: Intermediate weight training; or equivalent.

PE 181D Circuit Weight Training 1 - Coed 1 Cr. - Cardiopulmonary and strength fitness are maintained/improved through the use of multiple weight and aerobic stations, based on a structured time and rotation system.

PE 181E Circuit Weight Training 2 - Coed 1 Cr. - Cardiopulmonary and strength fitness are maintained/improved through the use of multiple weight and aerobic stations, based on a structured time and rotation system.

PE 182A Beginning Aerobic Fitness - Coed 1 Cr. - Offers students knowledge and skills to keep fit for life. Teaches safe performance of movement and exercise in a progressive approach. Includes cardiovascular and muscular endurance, flexibility and body composition. Aerobic training principles stressed using target heart rate and Borg methods.

PE 182B Intermediate Aerobic Fitness - Coed 1 Cr. - Offers students an opportunity to improve and/or maintain a high level of fitness. Includes cardio-vascular endurance, muscular endurance, flexibility, and body composition. Recommended: Beginning Aerobic Fitness; or a recent aerobic dance/exercise class.

PE 182C Beginning Fitness and Walking 1 Cr. - Beginning level, self-paced walking programs and a variety of conditioning exercises for specific body areas. Provides instruction for integrating walking into a lifetime fitness program.

PE 182D Intermediate Fitness & Walking 1 Cr. - Improves fitness through self-paced walking programs designed to increase the frequency and duration of regular workouts. Incorporates walking program into a total fitness program for future use. Recommended: Beginning Fitness and Walking; or average fitness level.

PE 182E Jogging for Health 1 Cr. - Introduces proper running technique and provides opportunity to improve general fitness. Running will be done on the track until student and instructor feel the student is ready to run on the road.

PE 182H Adult Fitness 1 Cr. - Exercises and activities which strengthen and condition specific large muscle groups, improve cardiovascular fitness and flexibility.

PE 182K Yoga I 1 Cr. - Introduces the values and skills of Hatha Yoga (Yoga of exercise). Includes basic Yoga philosophy and exercises for increased flexibility, improved health, relaxation, and reduced stress in daily living.

PE 182L Yoga II 1 Cr. - Expand knowledge, application and skill in Hatha Yoga. Offers exposure to other areas of health care and an opportunity to study a selected topic in depth. Recommended: prior class in Hatha Yoga.

PE 182N Corrective Physical Education 1 Cr. - Individualized, self-paced exercise and swim programs for students with acute or chronic injuries or disabilities. Instructed and supervised by a physical therapist. Conference with instructor prior to participation required.

PE 182P Body in Balance 1 Cr. - Offers knowledge and skills in Pilates-based conditioning exercise designed to increase core strength and stabilization, muscle balance, tone, coordination, and flexibility. Uses non-impact exercises to develop whole body awareness, improve posture. Can be modified to various fitness levels.

PE 182Q Self-Paced Fitness 1 Cr. - Provides opportunity to develop regular physical fitness habits for everyday schedule. Faculty prescribes/assesses student through pre/post fitness testing and required consultations. Due to independent format it is intended for those with average or above fitness levels. Requires active email account.

PE 182R Back Care 1 Cr. - Explores appropriate exercises, body mechanics, posture, and other techniques for prevention and relief of back pain.

PE 182S Tai Chi 1 Cr. - Explores this ancient form of gentle movement which emphasizes balance, concentration and coordination. Learn the short form of the Yang Family, Beijing style of Tai Chi, in an easy to follow format. Gain strength while you relieve tension and reduce stress.

PE 182T Triathlon Training 1 Cr. - Prepares student for olympic and/or Sprint distance swim, bike, run triathlon. Focuses on endurance training and transition work for the three events. Covers basic metabolic and nutritional concepts, triathlon rules, and equipment. Requirements: Student must have their own bike and helmet (CPSC or ANSI). Student must arrange their transportation to off campus events.

PE 183A Beginning Bowling 1 Cr. - Covers four step approach, pendulum swing, strike and spare ball delivery. Also covers score keeping, bowling terminology, and etiquette in match play.

PE 183C Advanced Bowling 1 Cr. - Focuses on approach, ball swing, delivery and equipment requirements for changing lane conditions. Emphasizes physical and emotional preparation to compete in league and match play. Recommended: Intermediate bowling or equivalent.

PE 183E Beginning Tennis 1 Cr. - Includes basic history/terminology/etiquette/strategy and skills of game.

PE 183F Intermediate Tennis 1 Cr. - Builds further on the beginning techniques of the game. Emphasizes singles, doubles and competition play.

PE 183G Beginning Golf 1 Cr. - Emphasizes fundamental techniques in the use of all clubs along with an understanding and appreciation of rules, course management and etiquette. Playing a few rounds outside

of class is required. In-class time is spent on the range, putting green, pitching area and in video assessment sessions.

PE 183H Intermediate Golf 1 Cr. - Emphasizes proper use of all clubs under variable conditions. Focuses on rules, etiquette and course management. Requires several out-of-class rounds.

PE 183I Beginning Volkswalking 1 Cr. - Provides independent opportunity to achieve/maintain age-related walking/fitness levels through individual walking program and active participation in Volkswalking events. Due to independent nature of course, requires weekly walking log reports via current email account.

PE 183J Intermediate Volkswalking 1 Cr. - Allows student to independently continue progress from beginning age-related walking/fitness levels through individual walking program and active participation in intermediate Volkswalking activities. Due to nature of course, requires weekly walking log reports via current email account. Recommend: Beginning Volkswalking or average fitness level.

PE 183K Pickleball/Badminton 1 Cr. - Introduces fundamentals of pickleball and badminton. Racquet grip, hitting strokes, court position, strategy and rules of the games will be taught.

PE 183M Advanced Volkswalking 1 Cr. - Allows student to independently continue progress from intermediate age-related walking/fitness levels through individual walking program and active participation in advanced Volkswalking activities. Due to nature of course, requires weekly walking log reports via current email account. Recommend: Intermediate Volkswalking or above average fitness level.

PE 183N Racquet Sports 1 Cr. - Introduces two court games: pickleball and badminton. Several weeks spent with each game emphasizing rules, equipment, technique and strategy for both singles and doubles play. Most class time spent in game play.

PE 183O Beginning Table Tennis 1 Cr. - Introduces fundamentals of table tennis skills in singles/doubles, serving, smashing, forehand/backhand rules and strategy. Knowledge and recreational play emphasized.

PE 183P Intermediate Table Tennis 1 Cr. - Reviews strokes, strategies, and skills in singles and doubles play. Emphasizes recreational and competitive play. Recommended: Beginning table tennis skills.

PE 183Q Advanced Table Tennis 1 Cr. - Reviews skills, strokes and strategies used in singles and doubles play. Prepare for competition necessary to play. Recommended: Beginning, intermediate table tennis; or equivalent experience.

PE 183R Beginning Karate I 1 Cr. - Introduces a working knowledge of the fundamental techniques employed in the art of Karate-Do.

PE 183S Beginning Karate II 1 Cr. - Progressive continuation of fundamental techniques employed in the art of Karate-Do. Recommended: Beginning Karate I; or equivalent.

PE 183T Aikido I 1 Cr. - Introduces a working knowledge of the fundamental techniques employed in the art of Aikido.

PE 183U Aikido II 1 Cr. - Progressive continuation of the fundamental techniques employed in the art of Aikido.

PE 183V Judo I 1 Cr. - Introduces a working knowledge of the fundamental techniques employed in the art of Kodolan Judo.

PE 183W Judo II 1 Cr. - Build on knowledge and skill areas covered in Judo I.

PE 183X Tae Kwon Do I 1 Cr. - Introduces a working knowledge of the fundamental techniques employed in the art of Tae Kwon Do.

PE 183Y Tae Kwon Do II 1 Cr. - Progressive continuation of the fundamental techniques employed in the art of Tae Kwon Do I.

PE 184A Beginning Skiing - Nordic 1 Cr. - Designed to teach beginning nordic skiers proper skiing technique for groomed tracks and ungroomed snow conditions. Emphasizes speed control, efficient body movement and safety. Basics of winter survival, proper clothing, and trail etiquette also emphasized.

PE 184B Intermediate Skiing - Nordic 1 Cr. - Emphasizes techniques to increase power and control in the diagonal stride, speed control in varied downhill conditions, varied turning maneuvers and beginning skating and telemark skiing. Recommended: experience in basic cross country skiing.

PE 184C Advanced Skiing - Nordic 1 Cr. - Designed to teach student who can perform dynamic diagonal stride and turning maneuvers to perform dynamic technique adjustments to timing, terrain changes, turning for speed control and efficiency in skating and telemark skiing. Addresses terrain changes, weather and snow conditions.

PE 184D Beginning Skiing - Alpine 1 Cr. - Designed to teach inexperienced skiers to link turns together with control on beginning and beginning/intermediate terrain. Introduces the fun of downhill skiing and emphasizes skills necessary to ski safely on appropriate terrain. Addresses the variables of weather and snow conditions.

PE 184E Intermediate Skiing - Alpine 1 Cr. - Opportunity for continued improvement in safe, enjoyable skiing for students capable of beginning wedge christies. Includes skidded parallel turns of varying radii with control on intermediate and beginning beginning/advanced terrain. Addresses variables of weather, snow conditions, and terrain. Recommended: Beginning Alpine class; or equivalent.

PE 184F Advanced Skiing - Alpine 1 Cr. - Ski on intermediate/advanced terrain with dynamic parallel turns. Apply edging, pressure control, rotary and balancing movements to allow confidence and versatility on steeper terrain and in varying snow conditions. Addresses variables of weather, snow conditions, and terrain. Recommended: Intermediate Alpine class; or equivalent.

PE 184I Beginning Snowboard Skiing 1 Cr. - Basic skills necessary for safe and fun snowboarding on appropriate terrain will be taught. Also skidded turns with control on beginning and beginning/intermediate terrain. The variables of weather and snow conditions will be addressed.

PE 184J Intermediate Snowboard Skiing 1 Cr. - Continues refinement of basic skills. Students will be taught to link beginning carved turns with rhythm and control on intermediate and beginning advanced terrain. Stresses safe boarding with improvement in skill applications. The variables of weather and snow conditions will be addressed. Recommended: Beginning Snowboarding class; or equivalent.

PE 184K Alpine Ski Instructor Training 1 Cr. - Develops skills needed to teach alpine skiing. American Teaching System progression will be taught from first day through open parallel turns. Skills concept, demonstrations, class safety and handling, movement analysis and limited practice teaching will be covered. Recommended: Advanced Alpine Skiing; or equivalent.

PE 184L Advanced Snowboard Skiing 1 Cr. - Development of snowboarding skills at higher speeds, varied and difficult terrain. Includes instruction in park riding, freestyle, or powder. Emphasizes safe boarding in challenging conditions. Recommended: Intermediate snowboard skiing or equivalent.

PE 185A Beginning Basketball 1 Cr. - Provides instruction in basketball fundamentals, skills, and rules through drills and game play.

PE 185B Intermediate Basketball 1 Cr. - Provides instruction and opportunity to develop skills and knowledge above the basic level. Implements set plays and skills through drills and game play. Beginning basketball skills required.

PE 185C Advanced Basketball 1 Cr. - Emphasizes continued development of skills necessary to participate in basketball at an advanced level through game play and drills. Beginning/Intermediate basketball skills required.

PE 185D Beginning Volleyball 1 Cr. - Includes basic history, terminology, etiquette, strategies and skills of game.

PE 185E Intermediate Volleyball 1 Cr. - Builds further on the beginning techniques of the game. Emphasizes team play, special situations and officiating. Beginning volleyball class; or instructor permission required.

PE 185F Advanced Volleyball 1 Cr. - Builds further on the intermediate techniques of the game. Emphasizes team play, offensive/defensive situations and other advanced skills of spiking, team blocking and shoulder roll. Beginning volleyball and intermediate volleyball skills; or instructor permission required.

PE 185G Beginning Soccer 1 Cr. - Basic skills, rules, and strategies for soccer will be taught. Includes dribbling, kicking, trapping, heading, throw-in, tackling, shooting, goalie play, corner kicks, goalie kicks, penalty kicks, soccer formations (5-3-2, 4-3-3, 3-3-4, 2-4-4), defensive play, offensive play, rules of soccer.

PE 185H Advanced Soccer 1 Cr. - Presents more advanced soccer skills, strategies and rules not covered in the beginning course. Includes footwork (trapping, feinting, shielding, dribbling), tackling, volley kicking, shooting, heading, goalkeeper play, soccer formations, defense, offense, rules. Beginning and intermediate soccer skills required.

PE 185I Flag Football 1 Cr. - Covers skills, rules and strategies. Emphasizes individual and team offensive, defensive and kicking techniques as well as concepts of team organization and play. Considerable time is spent playing the game.

PE 185J Softball - Coed 1 Cr. - Emphasizes team play, strategy and individual skills. Included are: batting, running bases and sliding, throwing from outfield, throwing from infield, pitching, catching, fielding and communication. Time is divided between drills and game play.

PE 185K Slowpitch Softball - Coed 1 Cr. - Uses basic rules and skills of softball, altered for slowpitch. Generally utilizes equal numbers of men and women in playing positions.

PE 185L Intermediate Soccer 1 Cr. - Applies skills acquired in basic/beginning soccer play. Utilizes kicking, passing, dribbling, heading, play strategies, and goal-keeper skills. May be played on outdoor field or altered for indoor play.

PE 186A Ballet I 1 Cr. - Develops skills and examines principles in the fundamentals of classical ballet technique. Emphasizes correct alignment, basic barre and center work, traveling steps, and ballet vocabulary.

PE 186B Ballet II 1 Cr. - Continues development of skills and principles of classical ballet technique beyond the beginning level. Emphasizes correct alignment, increased speed, strength, flexibility, balance, coordination, and ballet vocabulary in more challenging combinations. Recommended courses: PE 186A, D 192A; or equivalent.

PE 186F Beginning Jazz Dance 1 Cr. - Introduces beginning jazz dance technique. Emphasizes and develops correct body alignment, coordination, strength, flexibility, rhythm, and movement awareness. Includes jazz dance vocabulary and simple dance combinations.

PE 186G Intermediate Jazz Dance 1 Cr. - Continues study of jazz dance technique beyond the beginning level. Emphasizes body alignment, balance, coordination, strength, stamina, musicality, and expanded dance vocabulary in dance phrases and combinations. Recommended courses are PE 186F; D 150; or equivalent.

PE 186I Beginning Modern Dance 1 Cr. - Introduces beginning modern dance technique. Emphasizes and develops correct body alignment, coordination, strength, flexibility, movement awareness and improvisation. Includes modern dance vocabulary and simple modern dance combinations.

PE 186J Intermediate Modern Dance 1 Cr. - Continues development of modern dance technique beyond the beginning level. Emphasizes correct body alignment, increased coordination, strength, control, flexibility, stamina, musicality, improvisation and modern dance vocabulary in more challenging combinations. Recommended : D 192C; or PE 186I; or equivalent.

PE 186K Tap Dance I 1 Cr. - Introduces beginning skills in tap dance. Covers basic steps, terminology, rhythms, and combinations.

PE 186L Basic Dance: Ballroom, Country, Folk 1 Cr. - Offers instruction in ballroom, folk and country western dance. Includes instruction, practice time, and development of personal confidence in a social setting. Coursework develops coordination, rhythm, and knowledge of basic dance skills.

PE 186N Intermediate Ballroom Dancing 1 Cr. - Continues development and refinement of skills in ballroom dance. Practice and improvement of rhythm, styling, dance variations, and dynamics.

PE 281 Professional Activities: Weight Training 2 Cr. - Work with a faculty mentor to develop knowledge and skill in weight training. Design programs for circuit training and strength and endurance training. Includes equipment selection, teaching methods and safety guidelines. Recommended: Enrollment in Fitness Technology program. Prerequisite: PE 181A, 181B, or 181C.

PE 282A Professional Activities: Aerobic Fitness 1 Cr. - Work with a faculty mentor to explore and develop knowledge about aerobic fitness. Covers components of aerobic fitness, styles of aerobic exercise, and teaching methods. Recommended: Enrollment in Fitness Technology Program. Corequisite: Concurrent enrollment in PE 182A, 182B; or instructor permission.

PE 282B Professional Activities: Special Populations 1 Cr. - Work with a faculty mentor to identify special populations within the fitness industry. Explore the needs and abilities of these populations with an emphasis on modifications in assessments and programming, adaptive equipment, and rehabilitation goals. Recommended: Enrollment in the Fitness Technology Program and active email account.

PE 283 Professional Activities: Mind/Body Disciplines 1 Cr. - Explores, with faculty mentor, traditional and contemporary mind/body disciplines. Applies mind/body principles to fitness programming. Prerequisites or may be taken concurrently: PE 182K, 182L, 182P, 182A (Mind/Body Aerobics only), or 182B (Mind/Body Aerobics only).

PE 287 Professional Activities - Aquatics 1 Cr. - Work with a faculty mentor to develop knowledge and skill in aquatics. Explores the use of swimming and water exercise to achieve total fitness. Recommended: Enrollment in Fitness Technology Program. Corequisite: Concurrent enrollment in PE 180H or 180G; or instructor permission.

PE 291A Lifeguard Training 2 Cr. - Designed to help students learn, practice, and develop the skills of water safety. Successful completion results in receiving an American Red Cross Lifeguard Training certificate. Red Cross swim screening test required.

PE 292A Water Safety Instructor 2 Cr. - Teach swimming and water safety and further develop personal skills in these areas. Successful completion leads to receiving the American Red Cross Water Safety instructor (WSI) certificate. Students must be at least 17 years of age, skilled at intermediate swim level, and have completed pertinent Red Cross requirements.

PHL - Philosophy

PHL 191 Critical Thinking: Language and the Layout of Argument 3 Cr. - Analyzes arguments, recognize arguments when they occur, discern simple logical patterns of argument, extract arguments from the contexts in which they occur, restate them in clear and concise terms and clear away needless language in formulating arguments.

PHL 193 Critical Thinking: The Evaluation of Practical Argument 3 Cr. - Introduces techniques useful in evaluating arguments. Construct counter-arguments, recognizing common kinds of fallacious arguments, and discuss various types of non-rational persuasion.

PHL 195 Critical Thinking: Science and the Occult 3 Cr. - Introduces scientific method, assessment criteria for scientific observations and explanations and the difference between genuine and bogus science.

PHL 197 Critical Thinking: Television & The Presentation of Reality 3 Cr. - Thoughtful and critical look at television programming. Includes news, entertainment programming and commercials. Emphasizes thinking, talking and writing about what they see on TV and reflecting on how television influences their images of themselves and their reality.

PHL 201 Introduction to Philosophy: Philosophical Problems 3 Cr. - Introduces metaphysics and the theory of knowledge via the works of important figures in the history of philosophy. Recommended: College level reading and writing ability.

PHL 202 Introduction to Philosophy: Elementary Ethics 3 Cr. - Studies attempts by philosophers to account for the difference between right and wrong, for the notion of moral obligation and to answer the question: How should we lead our lives. Recommended: College level reading and writing ability.

PHL 204 Philosophy of Religion 3 Cr. - Examines the existence and attributes of God, faith, reason and mysticism, religion and science, religion and morality, religious language and life after death from the perspective of the philosopher. Recommended: College level reading and writing ability.

PHL 205 Contemporary Moral Problems: Biomedical Ethics 3 Cr. - Designed primarily for nursing and other health care students. Focuses on applying ethical concepts to the situations and dilemmas nurses and other health care workers confront in their professional roles.

PHL 208 Political Philosophy 3 Cr. - Introduction to and analysis of political theories and concepts through study of the works of major figures in the history of political philosophy from Plato to the present.

PHL 209 Business Ethics 3 Cr. - Designed primarily for students of business and related fields. Reviews some historical and contemporary ethical theories and ethical issues that arise in several aspects of business, such as, management, use of computers, marketing, accounting, and doing business in an international setting. Includes the social responsibilities of corporations, the rights of workers, truth in advertising, the environmental impact of doing business, affirmative action in hiring, sexual harassment in the workplace, respect for cultural differences, and the responsibilities of the individual in the corporate setting.

PHL 210 Introduction to Asian Philosophy 3 Cr. - Introduces the non-dualistic philosophies of India, China, Japan, and South East Asia, which offer a complementary approach to Western traditions in logic, ethics, epistemology, and metaphysics.

PHL 221 Symbolic Logic 3 Cr. - Propositional notation and truth value analysis of simple and compound statements. Includes quantificational notation and deductive techniques for determining consistency and validity. Prerequisite: Instructor permission.

PHL 222 Elementary Aesthetics: Philosophy of Art 3 Cr. - Discovers what makes something a work of art, what are beauty, taste, and aesthetic qualities, what is the role of the critic, and what distinguishes aesthetic experience from other experiences through the writings of important philosophers. Recommended: College level reading and writing ability.

PHL 298 Independent Study: Philosophy 3 Cr. - Advanced, individualized study in areas of philosophy not considered in other courses to meet special interests or program requirements. Complete a term project and readings approved by the instructor. Recommended: prior study in philosophy and instructor permission.

PHY - Physics

PHY 101 Fundamentals of Physics I 4 Cr. - Introduction to Physics. Includes mechanics, vectors, energy, simple machines, satellite motion, and the theory of special relativity.

PHY 102 Fundamentals of Physics II 4 Cr. - A conceptual study of physics. Topics include properties of matter, heat and thermodynamics, and atomic and nuclear physics.

PHY 103 Fundamentals of Physics III 4 Cr. - A conceptual study of physics. Topics include waves and sound, electricity and magnetism, and light and optics.

PHY 121 Elementary Astronomy 4 Cr. - Introduces contents of our solar system, including the earth, its moon, the other planets and moons; asteroids, comets, and meteors. Algebra recommended.

PHY 122 Elementary Astronomy 4 Cr. - Introduces stellar astronomy, including our sun, properties of stars, and stellar evolution. Algebra recommended.

PHY 123 Elementary Astronomy 4 Cr. - Introduction to star clusters, the contents of our galaxy; other galaxies, including active galaxies, and cosmology. Algebra recommended. Prerequisite: PH 122.

PHY 196 Observational Astronomy 1 Cr. - Designed to teach use of telescopes and binoculars in conjunction with star atlases and catalogs in locating and identifying astronomical objects in night skies. An introduction to clock drives, astrophotography, and photoelectric photometry will be provided. Prerequisite: PHY 123.

PHY 201 General Physics 4 Cr. - Introductory physics (algebra based) for science majors, pre-medical, pre-dental, pre-chiropractic and pre-physical therapy students. Topics include mechanics including statics, forces and motion energy, collisions, circular motion and rotational dynamics. Corequisite: MTH 111.

PHY 202 General Physics 4 Cr. - Topics include mechanical properties of matter, heat, waves, sound and light. Algebra-based physics. Prerequisite: PHY 201.

PHY 203 General Physics 4 Cr. - Topics include electricity, magnetism and radioactivity. Algebra-based physics. Prerequisite: PHY 202.

PHY 211 General Physics (Calculus) 5 Cr. - Topics include concepts in mechanics and their relationship to practical applications for science and engineering majors. Prerequisites: MTH 251, 252. MTH 252 can be taken concurrently with PHY 211.

PHY 212 General Physics (Calculus) 5 Cr. - Topics include concepts in fluid mechanics, waves, thermodynamics and optics. Prerequisites: PHY 211; MTH 251, 252.

PHY 213 General Physics (Calculus) 5 Cr. - Topics include concepts in electromagnetism together with their relationship to practical applications. Prerequisites: PHY 211; MTH 251, 252.

PS - Political Science

PS 201 U.S. Government: Foundations & Principles 3 Cr. - Examines the development of constitutional traditions in America. Includes topics such as free speech, equal rights under law, movements, interest groups, political parties, and elections in a democratic struggle for power. PS 201, 202, and 203 need not be taken in sequence.

PS 202 U.S. Government: Institutions & Policies 3 Cr. - Examines the national institutions of American politics including the Legislative, Executive, Judiciary, and Bureaucracy. Topics include national policies, foreign policy, taxation, spending priorities, government regulations and entitlements. PS 201, 202, and 203 need not be taken in sequence.

PS 203 State and Local Government 3 Cr. - Examines state and local government policy formulation and outcomes on issues ranging from taxation to prisons, and education to environmental concerns. Focuses on Oregon state and local politics. PS 201, 202, and 203 need not be taken in sequence.

PS 204 Comparative Political Systems 3 Cr. - Covers the study of political systems in various countries. Includes such issues as policy-making, representation/participation, political culture, political economy and development and governance. Countries chosen will represent various political systems including, democracies, totalitarian regimes, dictatorships, post-communist systems in transition, newly industrializing and developing countries.

PS 205 Global Politics: Conflict & Cooperation 3 Cr. - Examines the nature of relations among states. Topics include motivating factors such as nationalism and imperialism, economic rivalries and the quest for security, questions of national sovereignty and international cooperation, war and peace, global issues, and the future.

PS 211 Peace and Conflict 3 Cr. - Explores the causes and manifestations of violence in actions involving oneself, society, one's nation, and the global community. Alternatives to oppressive behavior, undemocratic institutions, and the violent resolution of conflict are considered. Recommended: WR 115.

PS 220 U.S. Foreign Policy 3 Cr. - Historical analytical treatment of select foreign policy themes since World War I is presented. Examines the United States' attempt to create world order through use of economic, military and diplomatic power, the roles of democratic institutions and decision-making elites in creating foreign policy, and the interdependent basis of the contemporary international system.

PS 225 Political Ideology: Alternative Idea Systems 3 Cr. - Covers the sources, strengths and weaknesses of contemporary ideologies, and the conditions which lead to conflict or to cooperation among them. Includes liberalism, conservatism, socialism, fascism, and other idea systems.

PS 280A Cooperative Education: Political Science 1-4 Cr. - Extends knowledge of Political Science through work and/or volunteer time spent in settings that provide learning experiences. Department permission required.

PS 280B Cooperative Education: Community Service & Action Seminar 3 Cr. - Provides a forum for students engaged in cooperative education worksite placements in the social sciences to develop personal, group, and organizational skills for a successful community service and career development experience. Seminar becomes interdisciplinary and team-taught, integrating psychological, political science and sociological perspectives to enhance service ethic.

PS 280C Cooperative Education: Peace and Conflict 1-4 Cr. - Extends knowledge of Peace and Conflict Studies through work and/or volunteer time spent in settings that provide learning experiences. Department permission required.

PS 298 Independent Study: Political Science 3 Cr. - Advanced individualized study of areas of political science not considered in other courses to meet special interests or program requirements. Includes a term project and readings approved by the instructor. Recommended: prior study in political science and instructor permission.

PST - Professional Skills Training

PST 090 Professional Skills Individualized Employment Services 0 Cr. - Assists students with employment plans through an array of individualized services and supports as they make choices regarding employment goals. Students are assigned a rehabilitation consultant to work with them on a one-to-one basis. Students complete the course by working with the rehabilitation consultant in a mutually agreed upon self paced manner. This is an audit course available only through a third party referral.

PST 091 Individualized Work Adjustment 0 Cr. - Assists students with their adjustment to recently acquired employment and with issues in their continued adjustment to current employment. Students are assigned a rehabilitation consultant to work with them on a one-to-one basis. Each student completes the course by working with the rehabilitation consultant in a mutually agreed upon self paced manner. This is an audit course available to students only through a third party referral.

PST 092 Individualized Independent Living 0 Cr. - Self-paced course provided to assist students with their issues of independent living. Includes services needed to enable an individual to function more independently in the family and community without assistance of others, or with a reduced level of assistance, or to become reasonably feasible for rehabilitation assistance. Students are assigned a rehabilitation consultant to work with them on a one-to-one basis. This is an audit course available to students only through a third party referral.

PST 101 Professional Skills Training 1-16 Cr. - Unique off-campus training program which provides an opportunity to develop marketable job skills in areas not normally addressed by on-going programs. Custom designed training tailored to individual abilities, skills and interests. Program permission required.

PSY - Psychology

PSY 101 Psychology and Human Relations 3 Cr. - Focuses on practical and personal applications of psychological principles. Encourages applications of psychological principles to daily living and human interactions to areas such as work, leisure, school and relationships.

PSY 190 Stress Management 3 Cr. - Explores what stress is, various sources of stress, how it affects people physically and emotionally, and how to develop a lifestyle approach to comprehensive stress management through lectures and group activities. Become familiar with a wide range of cognitive and physical stress management techniques.

PSY 201 General Psychology 3 Cr. - Covers history, methodology, brain and nervous system, body rhythms and mental states, sensation and perception, and development over the life span. Recommended: Completion of WR 115.

PSY 201A General Psychology 3 Cr. - Covers history, methodology, brain and nervous system, body rhythms and mental states, sensation and perception, and development over the life span. Course taught from a sociocultural approach which assumes that gender, culture, and ethnicity are essential to understanding behavior, thought, and emotion. Meets cultural diversity requirements for Associate Degrees. Recommended: Completion of WR 115.

PSY 202 General Psychology 3 Cr. - Covers learning, memory, thinking and intelligence, evolution, genes and behavior, motivation, and emotion. Recommended: Completion of WR 115; PSY 201 or 201A.

PSY 202A General Psychology 3 Cr. - Covers learning, memory, thinking and intelligence, evolution, genes and behavior, motivation, and emotion. Course taught from a sociocultural approach which assumes that gender, culture, and ethnicity are essential to understanding behavior, thought, and emotion. Meets cultural diversity requirements for Associate Degrees. Recommended: Completion of WR 115; PSY 201 or 201A.

PSY 203 General Psychology 3 Cr. - Covers health and well-being, personality theories, psychological disorders, approaches to treatment and therapy, principles of social life, and cultural context. Recommended: Completion of WR 115; PSY 201 or 201A.

PSY 203A General Psychology 3 Cr. - Covers health and well-being, personality theories, psychological disorders, approaches to treatment and therapy, principles of social life, and the cultural context. Course taught from a sociocultural approach which assumes that gender, culture, and ethnicity are essential to understanding behavior, thought, and emotion. Meets cultural diversity requirements for Associate Degrees. Recommended: Completion of WR 115; PSY 201 or 201A.

PSY 213 Brain, Mind and Behavior 3 Cr. - Overview of the brain's role in behavior. Emphasizes the neurophysiological properties relevant to psychological functions: sensation, perception, motivation, learning, emotion, activation, and motor responses. Includes extensive coverage of the anatomical and physiological aspects of the human nervous system. Prerequisite: PSY 201; or one year of biology.

PSY 214 Introduction to Personality 3 Cr. - Covers personality theories. Includes overview of the major schools within personality psychology and focuses on their contributions and usefulness in understanding human behavior. Incorporates activities which help students apply what they have learned about personality theory to their personal and professional lives.

PSY 215 Human Development 3 Cr. - Surveys the major principles of behavior and patterns of change in people over the life span. Revolves around areas of development in physical, intellectual, social, personality and cross cultural diversity, for infants, children, adolescents, adults, and the elderly. College-level skills in reading and WR 115 are required.

PSY 216 Social Psychology 3 Cr. - Examines how society effects human behavior, including persuasion, conformity, aggression, conflict, and interpersonal attraction. Applications to business, politics, environment, health, the legal system and human relations. Recommended: Completion of WR 115.

PSY 220 Psychology: Applied 3 Cr. - Covers individualized applications of the principles, concepts and methods of psychology to everyday life. Recommended: Completion of WR 115.

PSY 222 Family & Intimate Relationships 3 Cr. - Explores processes involved in both traditional and non-traditional relationships and families; including love, dating and mating, parenting, communication and conflict resolution, work and family, family life stages, and divorce, remarriage and blended families. Recommended: Completion of WR 115.

PSY 231 Human Sexuality 3 Cr. - Explores sexual issues from both an academic and a humanistic perspective. Topics include sex research, female and male sexual anatomy and physiology, gender issues, sexual response, sexual communication, sexual behavior patterns, love and sexual orientations. Recommended: Completion of WR 115.

PSY 232 Human Sexuality 3 Cr. - Explores sexual issues from both an academic and a humanistic perspective. Includes sexuality through the life cycle (infancy through aging), sexual problems, increasing sexual satisfaction, contraception, conception, sexually transmitted diseases, sexual victimization, atypical sexual behavior, and sex for sale. Recommended: PSY 231, Completion of WR 115.

PSY 239 Introduction to Abnormal Psychology 3 Cr. - Surveys the history, theories, diagnosis, etiology, and treatment of the major mental disorders. Prerequisites: PSY 201, 202, or 203.

PSY 240 Personal Awareness and Growth 3 Cr. - Increases understanding and awareness of self, relationships with others, and the values and attitudes that underlie behavior in daily life. An intensive group experience for personal and interpersonal growth. Recommended: Completion of WR 115.

PSY 280A Cooperative Education: Psychology - Worksite Placement 1-4 Cr. - Extends knowledge of psychology through work in settings which provide learning experiences supplementing classroom learning. Department permission required.

PSY 280B Cooperative Education: Community Service & Action Seminar 3 Cr. - Provides a forum for students engaged in cooperative education worksite placements in the social sciences to develop personal, group, and organizational skills for a successful community service and career development experience. Seminar becomes interdisciplinary and team-taught, integrating psychological, political science and sociological perspectives to enhance service ethic. Recommended: Completion of WR 115.

PSY 298 Independent Study: Psychology 3 Cr. - Advanced individualized study of psychology not considered in other courses to meet special interests or program requirements. Complete a term project and readings approved by the instructor. Recommended: prior study of psychology and instructor permission. Recommended: Completion of WR 115.

PT - Publishing Technology/Electronic Imaging

PT 100 Survey of Graphic Communications 2 Cr. - Introduces graphic reproduction history and terminology. Surveys the various printing processes and explores specific production steps in the photo-offset lithographic process.

PT 108 Litho Press 2 Cr. - Topics include safety, operation of the printing press, Covers materials, procedures, and theories which make possible the production of printed materials using a lithographic press. Topics include safety, operation of the printing press, paper, ink, and bindery operations.

PT 110 Litho Press 2 6 Cr. - Covers offset production procedures, industry terminology, and offset press operation techniques necessary to reproduce halftones and other fine detail images on uncoated and coated papers. Prerequisite: PT 108.

PT 112 Litho Press 3 6 Cr. - Covers procedures and techniques necessary to reproduce multiple color halftones and other fine detail images on uncoated and coated papers. Requires nine lab hours TBA. Prerequisite: PT 110.

PT 114 Image/Prep 2 Cr. - Covers process/copy camera, handling and processing of line negatives, basic techniques of film assembly, and the mechanics of lithographic proofing and platemaking.

PT 116 Image/Prep 2 6 Cr. - Covers basic densitometry and half-tone procedures. Includes all basic film assembly impositions with pin-register technique. Prerequisite: PT 114. CDA: Requires 6 lab hours TBA.

PT 118 Image/Prep 3 6 Cr. - Covers multi-color techniques including posterizations, duo-tones and use of tint screens. Focus on complementary flat assembly, color proofing, and basic step-and-repeat procedures.

PT 131 Macintosh Computer Fundamentals 3 Cr. - Covers techniques for creating projects working with standard computer word processing, paint and drawing software programs on iMac computers.

PT 136 Electronic Layout-PageMaker 3 Cr. - Covers basic image assembly procedures using Adobe PageMaker on Macintosh computers.

PT 150 Electronic PrePress - Prep for Print 6 Cr. - Covers customer service production fundamentals and basic image assembly procedures with Adobe InDesign on Macintosh computers. Requires 6 additional lab hours TBA. Prerequisite: PT 136.

PT 152 Electronic Prepress-Photoshop 6 Cr. - Covers basic image selecting, editing/manipulation procedures using Adobe PhotoShop on Macintosh computers. Prerequisite: PT 136.

PT 154 Electronic Prepress-QuarkXPress 6 Cr. - Covers advanced basic image editing/assembly procedures using QuarkXPress on Macintosh computers. Prerequisite: PT 136. PT 165 Multimedia Applications with Hypercard.

PT 165 Multimedia Applications with Hypercard 3 Cr. - Builds multimedia applications for use on Macintosh computers. Incorporates the use of Kodak PhotoCD images, Quicktime movies, audio files, and scripting to provide customized and user friendly, training and entertainment applications. Prerequisite: PT 131.

PT 205 Papers and Inks 2 Cr. - Covers managerial principles necessary for the efficient production of printed material.

PT 244 Preparing Files for Print 3 Cr. - Presents the process graphic print work goes through after the design phase. From correctly preparing design in the digital environment for successful printing on commercial presses to the business roles of the designer, the printer and the service bureau.

PT 250 Electronic Prep-Preflighting 6 Cr. - Covers customer service production fundamentals and basic image assembly, proofing and platemaking procedures with advanced PageMaker on Macintosh computers. Requires 6 additional lab hours. TBA.

PT 252 Electronic Prep 2 - Photoshop 6 Cr. - Covers Adobe PhotoShop on Macintosh computers. Prerequisite: PT 250.

PT 254 Electronic Prep 3 - QuarkXpress 6 Cr. - Covers advanced basic image editing/assembly procedures using QuarkXPress on Macintosh computers. Prerequisite: PT 252.

PT 260 Litho Press 4 6 Cr. - Introduces advanced paper and ink terminology. Covers press operation skills on single and two-color lithographic offset presses. Prerequisite: PT 112.

PT 262 Litho Press 5 6 Cr. - Introduces bearer-type offset lithographic press operation with emphasis on registration, exact ink density matching, and press maintenance skills. Prerequisite: PT 262.

PT 264 Litho Press 6 6 Cr. - Demonstrates offset lithographic skills and knowledge on all classroom equipment. Emphasizes multiple color close registration work, especially four color process images. Prerequisite: PT 262.

PT 272 Advanced Image Assembly 6 Cr. - Covers multi-color film assembly techniques through four-color process. Focuses on close register flat assembly, contacting and color proofing procedures. Prerequisite: PT 118.

PT 280A Cooperative Ed: Printing Technology 1-6 Cr. - Cooperative on-the-job experience allowing for the application and development of knowledge and skills acquired in the on-campus program. Variable credit: receive one credit for every 40 hours of successful work experience. Department permission required.

PT 280B Cooperative Ed: Printing Technology - Seminar 1 Cr. - Obtain work experience while under the guidance and supervision of a graphics professional. Use the skills, techniques and knowledge acquired in graphics courses in an actual production situation. Department permission required.

RAD - Radiography

RAD 100 Introduction to Radiology 2 Cr. - Introduction to health care team and various aspects of radiological sciences. Includes medical ethics, professional organizations, medicolegal considerations, communication, cultural diversity, basic radiation protection, fundamental technical components, radiological history, health care organizations and medical specialties. Department permission required.

RAD 101 Radiographic Positioning I 3 Cr. - Introduces basic positioning techniques used in radiography of the respiratory system, abdomen, upper and lower extremities. Lab includes peer positioning, film critique, anatomical identification, pathologies and an energized section using phantoms. Department permission required.

RAD 102 Radiographic Positioning II 3 Cr. - Basic positioning techniques used in radiography of the digestive system, urinary system and continuation of the upper and lower extremities. Lab includes peer positioning, film critique, anatomical identification, pathologies and an energized section using phantoms. Department permission required. Prerequisite: RAD 101.

RAD 103 Radiographic Positioning III 3 Cr. - Basic positioning techniques used in radiography of the bony thorax, spinal column and pelvic girdle. Lab includes peer positioning, film critique, anatomical identification, pathologies and an energized section using phantoms. Department permission required. Prerequisite: RAD 102.

RAD 105 Methods of Patient Care 3 Cr. - Covers general care of patients in radiology department. Emphasizes radiographer's role regarding patient care with cardiac arrest, vital signs, accident victims, bedside procedures, aseptic techniques, contagious disease control, blood

borne pathogens, venipuncture, administration of medication and contrast media reactions. Introduces fundamentals of urinary catheterization. Lab provides application of theory. Department permission required.

RAD 106 Radiologic Physics I 4 Cr. - Covers fundamental concepts of energy and measurements, atomic structures, molecules, electricity, magnetism, electromagnetism, transformers, and rectifiers. Department permission required.

RAD 107 Radiologic Equipment II 4 Cr. - Covers generators, timers, x-ray tubes, recording devices, physiology of sight, image intensifiers, television camera/monitors, digital radiography, mobile radiography and fluoroscopic equipment, tomography and telerradiography. Department permission required. Prerequisite: RAD 106.

RAD 107C Radiographic Equipment Update 1 Cr. - Covers recent advances in radiologic equipment such as high frequency generators, digital imaging, fluoroscopy and automatic exposure devices. Designed as an update for graduates on technical advances in equipment and for those wishing re-entry into the profession. ARRT certification or department permission required.

RAD 110 Radiographic Clinic I 4 Cr. - Provides clinical education experience in an affiliated hospital radiology department under the supervision of a registered radiographer and radiologist. Includes application of equipment manipulation and operation, radiological imaging procedures, radiation protection, medicolegal and ethical protocol, record keeping and patient care. Requires clinical competencies, objectives, performance assessment and attendance. Department permission required.

RAD 115 Principles of Exposure I 3 Cr. - Covers production and control of scattered radiation, stereo radiography, grid technique, filtration, half value layer, magnification, contrast and density principles. Lab includes application of theories using energized equipment and test tools. Department permission required. Prerequisite: RAD 106.

RAD 120 Radiographic Clinic II 4 Cr. - Provides clinical education experience in an affiliated hospital radiology department under the supervision of a registered radiographer and radiologist. Includes application of equipment manipulation and operation, radiological imaging procedures, radiation protection, medicolegal and ethical protocol, recordkeeping and patient care. Requires clinical competencies, objectives, performance assessment and attendance. Department permission required. Prerequisite: RAD 110.

RAD 122 Radiation Protection - Biology 3 Cr. - Introduces biological effects of ionizing radiation and application of principles to minimize the risks of man-made radiation. Examines standards and requirements determined by government guidelines. Department permission required. Prerequisite: RAD 106.

RAD 122B Radiation Protection Seminar 1 Cr. - Covers biological effects of ionizing radiation, especially high level effects such as Acute Radiation Syndrome and low level effects from diagnostic exams; current radiation protection standards from federal and state guidelines. ARRT certification or department permission required.

RAD 130 Radiographic Clinic III 4 Cr. - Provides clinical education experience in an affiliated hospital radiology department under the supervision of a registered radiographer and radiologist. Includes application of equipment manipulation and operation, radiological imaging procedures, radiation protection, medicolegal and ethical protocol, recordkeeping and patient care. Requires clinical competencies, objectives, performance assessment and attendance. Department permission required. Prerequisite: RAD 120.

RAD 132 Radiographic Image Production 3 Cr. - Introduces theory and practical application of film/screen systems, sensitometry, image formation, automatic film processing, subtraction/duplication, computed radiography and quality assurance. Lab includes using test tools with energized equipment. Department permission required. Prerequisite: RAD 115.

RAD 140 Radiographic Clinic IV 10 Cr. - Provides clinical education experience in an affiliated hospital radiology department under the supervision of a registered radiographer and radiologist. Includes application of equipment manipulation and operation, radiological imaging procedures, radiation protection, medicolegal and ethical protocol, recordkeeping and patient care. Requires clinical competencies, objectives, performance assessment and attendance. Department permission required. Prerequisite: RAD 130.

RAD 204 Radiographic Positioning IV 3 Cr. - Advanced positioning techniques of the upper and lower extremities, thoracic cage, pectoral girdle, and pelvic girdle. Lab includes peer positioning, film critique, anatomical identification, pathologies and energized imaging using phantom models. A.R.R.T.(R) certification or department permission required. Department permission required.

RAD 205 Radiographic Positioning V 3 Cr. - Covers basic positioning of the skull, paranasal sinuses, facial bones, temporal bone, mastoids and mandible. Lab includes peer positioning, film critique, anatomical identification, pathologies and energized imaging with the use of phantoms. Department permission required. Prerequisite: RAD 103.

RAD 206 Survey of Medical Imaging Diseases 3 Cr. - Covers basic principles and processes of disease, characteristics of neoplasms and systems with related disease as it applies to the radiological science imaging. Department permission required.

RAD 209 Advanced Radiological Procedures 4 Cr. - Covers contrast media, fluoroscopic exams and special procedures involving the following systems: biliary, mammary, lymph, female reproductive, respiratory, pancreatic and salivary. Also covers techniques and equipment used to catheterize the vascular system, indications for various vascular procedures, contrast agents used for specific procedures and selective vascular anatomy. Department permission required. Prerequisite: RAD 105.

RAD 210 Radiographic Clinic V 6 Cr. - Provides clinical education experience in an affiliated hospital radiology department under the supervision of a registered radiographer and radiologist. Includes application of equipment manipulation and operation, radiological imaging procedures, radiation protection, medicolegal and ethical protocol, recordkeeping and patient care. Requires clinical competencies, objectives, performance assessment and attendance. Department permission required. Prerequisite: RAD 140.

RAD 211 Advanced Imaging Modalities 4 Cr. - Builds on information from previous radiation physics courses in the series. Introduces computed tomography, magnetic resonance, nuclear medicine, sonography and radiation therapy. Department permission required. Prerequisite: RAD 107.

RAD 215 Principles of Exposure II 3 Cr. - Introduces theory and application of inverse square law, distortion, radiographic quality, technique conversion factors, formulation of technique charts, and quality assurance. Lab includes use of energized equipment and test tools. Department permission required. Prerequisite: RAD 132.

RAD 215B Image Analysis and QC 1 Cr. - Covers technical factor considerations, in both application and evaluation of how changes affect the imaging process. Includes technique conversion factors, formulation of technique charts, and all factors affecting radiographic quality. ARRT certification or department permission required.

RAD 220 Radiographic Clinic VI 6 Cr. - Provides clinical education experience in an affiliated hospital radiology department under the supervision of a registered radiographer and radiologist. Includes application of equipment manipulation and operation, radiological imaging procedures, radiation protection, medicolegal and ethical protocol, record keeping and patient care. Requires clinical competencies, objectives, performance assessment and attendance. Department permission required. Prerequisite: RAD 210.

RAD 230 Radiographic Clinic VII 10 Cr. - Provides clinical education experience in an affiliated hospital radiology department under the supervision of registered radiographer and radiologist. Includes application of equipment manipulation and operation, radiological imaging procedures, radiation protection, medicolegal and ethical protocol, recordkeeping, and patient care. Requires clinical competencies, objectives, performance assessment and attendance. Department permission required. Prerequisite: RAD 220.

RAD 240 Radiographic Clinic VIII 10 Cr. - Provides clinical education experience in affiliated hospital radiology department under supervision of registered radiographer and radiologist. Includes application of equipment manipulation and operation, imaging radiological procedures, radiation protection and patient care. Requires clinical competencies, completion of clinical objectives, clinical assessments, attendance and terminal clinical competencies in radiological imaging. Department permission required. Prerequisite: RAD 230.

RAD 251 Sectional Anatomy - Neck/Thorax 1 Cr. - Introduces the normal appearance of anatomical structures in multiple planes. Enables student to differentiate between normal anatomical structures and abnormalities. Designed for graduate technologists or senior radiography students. ARRT certification, or department permission required.

RAD 252 Sectional Anatomy - Abdomen/Pelvis 1 Cr. - Introduces the normal appearance of anatomical structures in multiple planes. Enables student to differentiate between normal anatomical structures and abnormalities. Designed for graduate technologists or senior radiography students. ARRT certification, or department permission required.

RAD 253 Sectional Anatomy - Head/Spine 1 Cr. - Introduces the normal appearance of anatomical structures in multiple planes. Enables student to differentiate between normal anatomical structures and abnormalities. Designed for graduate technologists or senior radiography students. ARRT certification or department permission required.

RAD 281C Computed Tomography 1 Cr. - Emphasizes imaging procedures, physics, and instrumentation, radiation safety, contrast agents, artifacts, data acquisition and processing. A.R.R.T.(R) certification or department permission required.

RAD 281D Magnetic Resonance 1 Cr. - Emphasizes imaging procedures, physical principles of image formation, data acquisition and processing, safety precautions, contrast agents, biological effects, patient assessment and monitoring. A.R.R.T.(R) certification or department permission required.

RAD 285 Imaging for Pathology 1 Cr. - Compares the appearance of pathology using various imaging modalities such as CT, MRI, diagnostic radiography, and others. Covers variables of imaging exam selection according to pathology. All classes are designed for graduate technologists and senior medical imaging students. ARRT certification or department permission required.

RAD 290 Mammography I 4 Cr. - Provides means for a certified radiographer (A.R.R.T.) to learn the necessary knowledge and skills to become certified as an A.R.R.T. mammographer. Enables radiographer to understand the requirements and procedures for the new regulations in mammography.

RAD 291 Mammography II 1 Cr. - The certified radiographer (A.R.R.T.) will learn the necessary knowledge and skills to become certified as an A.R.R.T. mammographer. Offers the application theory and criteria for anatomical and pathological variances of positioning techniques for mammography imaging.

RD - Reading

RD 80 Reading 80 3 Cr. - Instruction in vocabulary, dictionary use, motor skills, comprehension, some study skills. Prerequisite: Reading placement test score above 31; or successful completion of RD 70.

RD 80A Reading II 3 Cr. - Topics include vocabulary, dictionary use, motor skills, comprehension, reading rate improvement, and study skills. Prerequisite: Reading placement test score above 31 or successful completion of RD 70.

RD 80B Reading 80 3 Cr. - Instruction in vocabulary, dictionary use, motor skills, comprehension, some study skills. Prerequisite: Reading placement test score above 31 or successful completion of RD 70.

RD 80C Reading 80 3 Cr. - Topic include vocabulary, dictionary use, motor skills, comprehension, reading rate improvement, and study skills. Prerequisite: Reading placement test score above 31 or successful completion of RD 70.

RD 81 Reading 81 1 Cr. - Topics include vocabulary, dictionary use, motor skills, comprehension, and study skills. Prerequisite: Reading placement test score above 31 or successful completion of RD 70.

RD 81A Reading 81A 1 Cr. - Focuses on instruction in vocabulary, study skills, and dictionary use. Prerequisite: Asset reading placement score 32-35.

RD 82 Reading 82 2 Cr. - Topics include vocabulary, dictionary use, motor skills, comprehension, some reading rate improvement, and study skills. Prerequisite: Reading placement test score above 31 or successful completion of RD 70.

RD 82A Reading 82A 2 Cr. - Focuses on instruction in vocabulary, comprehension, study skills, and dictionary use. Prerequisite: Asset reading placement score 32-35.

RD 90 Reading 90 3 Cr. - Instruction in reading improvement through work on vocabulary development, motor skills, comprehension and some reading rate improvement. Prerequisite: Reading placement test score above 35; or successful completion of RD 80.

RD 90A Reading 90 3 Cr. - Reading improvement through work on vocabulary development, motor skills, comprehension and reading rate. Prerequisite: Reading placement test score above 35 or successful completion of RD 80.

RD 91 Reading 91 1 Cr. - Reading improvement through work on vocabulary development, motor skills, comprehension and some reading rate. Prerequisite: Reading placement test score above 35 or successful completion of RD 80.

RD 91A Reading 91A 1 Cr. - Focuses on reading effectiveness. Comprehension strategies, vocabulary development, and reading rate are emphasized.

RD 92 Reading 92 2 Cr. - Reading improvement through work on vocabulary development, motor skills, comprehension and some reading rate. Prerequisite: Reading placement test score above 35 or successful completion of RD 80.

RD 92A Reading 92A 2 Cr. - Focuses on reading effectiveness. Comprehension strategies, vocabulary development, and reading rate are emphasized. Prerequisite: Reading placement score 36-41 or successful completion of RD 80.

RD 95 Reading for Enjoyment 3 Cr. - Instruction in developing abilities to read, understand, and enjoy literature. Discussion topics include vocabulary, story line, character development, and major themes. Prerequisites: Reading placement test score above 35; or successful completion of RD 80.

RD 115 College Reading 3 Cr. - Improve reading rate, vocabulary and comprehension. Includes formation of efficient reading habits, vocabulary development, inferential and critical reading, and adapting reading rate to different reading tasks. Prerequisite: Reading placement score above 41; or successful completion of RD 90.

RD 115A Speed Reading and Vocabulary 3 Cr. - Improve reading rate, vocabulary and comprehension. Includes formation of efficient reading habits, vocabulary, development, inferential and critical reading, and adapting reading rate to different reading tasks. Prerequisite: Reading placement score above 41; or successful completion of RD 90.

RD 116 College Vocabulary Development 3 Cr. - Adds significantly to the students' reading, writing, and speaking vocabularies, fosters interest in words, and offers strategies for continuous vocabulary development throughout life. Prerequisite: Reading placement test score above 41; or successful completion of RD 90.

RD 117 Advanced Speed Reading 3 Cr. - Further exploration of topics covered in RD 115, emphasizing inferential, critical, and technical reading. Prerequisite: Successful completion of RD 115.

RE - Real Estate

RE 100 Introduction to Real Estate 3 Cr. - Real estate brokerage, appraisal, escrow, and management. Focuses on these aspects of the real estate industry and provides basic information for choosing real estate as a career.

RE 110 Real Estate Practices 3 Cr. - Course satisfies Oregon pre-licensing requirements for a broker's license. Topics include business relationships between broker and client, basic licensing law, the law of listing and sale agreements, Civil Rights Act, and an overview of related business activities such as appraising, exchanging, securities, and business brokers.

RE 112 Real Estate Law 3 Cr. - Course satisfies Oregon pre-licensing requirements for an Oregon broker license. Topics include basic real estate law, legal descriptions, transfer of title, encumbrances, title insurance, escrow, recording, real property taxes and assessments, and land use.

RE 114 Real Estate: Agency Law 2 Cr. - Course satisfies Oregon pre-licensing requirements for the broker license. Topics covered are common law and statutory law aspects of agency.

RE 116 Real Estate Finance 3 Cr. - Methods for financing the acquisition and transfer of real property. Emphasizes the mortgage market, lending instruments, foreclosures and remedies, governmental loan programs, private loan programs, loan applications, appraisals and closings. Satisfies Oregon Real Estate pre-licensing requirements.

RE 118 Real Estate Brokerage 2 Cr. - Satisfies Oregon pre-licensing requirements for the broker license. Topics include advertising, financial records, regulatory requirements for real estate offices, escrow, office manuals, and other topics.

RE 120 Oregon Real Estate Agent Licensing Examination Review 1 Cr. - Reviews the material introduced in RE 110, 112 and 116 to prepare for the Oregon Real Estate Salesperson's Licensing examination.

RE 126 Real Estate Contracts 2 Cr. - Satisfies Oregon pre-licensing requirements for the broker license. Topics include basic contract law, listing agreements, earnest money agreements, options, first rights of refusal, leases and escrow agreements.

RE 130 Real Estate Advanced Practices 3 Cr. - Satisfies the Oregon Real Estate Agency requirement to complete an advanced course related to the practice of real estate prior to their first renewal of their license.

RE 140 Real Estate: Broker Property Management 1 Cr. - Satisfies Oregon pre-licensing requirements for the broker license. Topics include Oregon real estate license and administrative rules, Oregon Residential Landlord and Tenant Act, record keeping, and anti-discrimination statutes.

RE 210 Real Estate Appraisal-Foundations 3 Cr. - Basic principles, methods and techniques of determining the value of real estate in condemnation, and as a basis for taxation. Meets State of Oregon requirements for licensing/certification.

RE 211 Real Estate Appraisal-Single Family Residences 3 Cr. - Introduces more sophisticated methods and techniques of valuation related to the appraisal of single family residential properties. Satisfies Oregon State pre-licensing requirements.

RE 212 Real Estate Appraisal - USPAP 2 Cr. - Focuses on the requirements for ethical behavior and competent performance by appraisers which are set forth in the Uniform Standards of Professional Appraisal Practice. Satisfies Oregon State pre-licensing requirements.

RE 226 Real Estate Finance II 3 Cr. - Introduces more sophisticated and complex real estate finance and investments concepts.

RE 240 Supervision of Real Estate Sales Person 3 Cr. - Concepts and theories related to supervision of sales personnel including the normal daily supervision of personnel both inside and outside the real estate office. Satisfies Oregon State pre-licensing requirements.

RE 241 Real Estate Office Management/Supervision of Sales Persons 3 Cr. - Management theory, characteristics and functions of successful management organization formats. Includes corporate, partnerships and proprietorships, management, corporate, partnerships and proprietorships, management related problems and license types and requirements. Required prior to taking the Oregon Real Estate Broker's exam.

RE 250 Real Estate Investments I 3 Cr. - Introduces various aspects of personal real estate investments. Discussion of basic strategies of real estate investment, including the relationship between risk and return. Introduces important considerations for potential investors when purchasing, holding and selling investment property.

RE 252 Oregon Real Estate Property Management 6 Cr. - Course satisfies Oregon pre-licensing requirements for a property manager's license. Topics include Oregon real estate license law and administrative rules, clients' trust accounts, Oregon Residential Landlord and Tenant Act, economics of property management, leases, agency relationships, record keeping, and anti-discrimination statutes.

RUS - Russian

RUS 101 First Year Russian 5 Cr. - Emphasizes active communication in beginning Russian. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture. For beginners.

RUS 102 First Year Russian 5 Cr. - Continues the work of RUS 101. Emphasizes active communication in Russian. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary, and culture. Recommended: Completion of RUS 101 or instructor permission.

RUS 103 First Year Russian 5 Cr. - Continues the work of RUS 102. Emphasizes active communication in Russian. Includes listening, speaking, reading, writing, pronunciation, structure and culture. Recommended: Completion of RUS 102 or instructor permission.

RUS 111A First Year Russian Conversation 3 Cr. - Continues to practice structures and vocabulary presented in RUS 101 in a conversational format.

RUS 111B First Year Russian Conversation 2 Cr. - Continues to practice structures and vocabulary presented in RUS 101 in a conversational format.

RUS 111C First Year Russian Conversation 1 Cr. - Continues to practice structures and vocabulary presented in RUS 150 in a conversational format. Recommended: Enrollment in RUS 150.

RUS 112A First Year Russian Conversation 3 Cr. - Continues to practice structures and vocabulary presented in RUS 102 in a conversational format.

RUS 112B First Year Russian Conversation 2 Cr. - Continues to practice structures and vocabulary presented in RUS 102 in a conversational format.

RUS 112C First Year Russian Conversation 1 Cr. - Continues to practice structures and vocabulary presented in RUS 151 in a conversational format. Recommended: Enrollment in RUS 151.

RUS 113A First Year Russian Conversation 3 Cr. - Reviews structures and vocabulary presented in first year Russian. Special emphasis on conversational skills. Recommended: Completion of RUS 103, 151; or instructor permission.

RUS 113B First Year Russian Conversation 2 Cr. - Continues to practice structures and vocabulary presented in first year Russian in a conversational format. Recommended: Completion of RUS 103, 151; or instructor permission.

RUS 113C First Year Russian Conversation 1 Cr. - Continues to practice structures and vocabulary presented in RUS 103 in a conversational format.

RUS 150 First Year Russian 6 Cr. - For beginners. Emphasizes active communication in beginning Russian. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture. Recommended: Enrollment in RUS 111C when offered.

RUS 151 First Year Russian 6 Cr. - Continues the work of RUS 150. Emphasizes active communication in Russian. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture. Recommended: Completion of RUS 150; or instructor permission. Recommended: Enrollment in RUS 111C when offered.

RUS 201 Second Year Russian 5 Cr. - Continues the work of first year Russian, reviewing, expanding, and perfecting pronunciation, structure, and vocabulary for the purpose of active communication. Includes practice in reading and writing. Recommended: Completion of first year Russian at college level; or instructor permission.

RUS 202 Second Year Russian 5 Cr. - Continuation of RUS 201. Continues to expand structure and vocabulary for the purpose of active communication. Includes practice in reading and writing. Recommended: Completion of RUS 201; or instructor permission.

RUS 203 Second Year Russian 5 Cr. - Continuation of RUS 202. Continues to expand structure and vocabulary for the purpose of active communication. Includes practice in reading and writing. Recommended: Completion of RUS 202; or instructor permission.

RUS 211A Intermediate Russian Conversation 3 Cr. - Emphasizes conversational skills and listening comprehension at the second-year level. Recommended: Completion of first year Russian at college level; or instructor permission.

RUS 211B Intermediate Russian Conversation 2 Cr. - Emphasizes conversational skills and listening comprehension at the second-year level. Recommended: Completion of first year Russian at college level; or instructor permission.

RUS 211C Intermediate Russian Conversation 1 Cr. - Emphasizes conversational skills and listening comprehension at the second year level. Recommended: Completion of first year Russian at college level; or instructor permission.

RUS 212A Intermediate Russian Conversation 3 Cr. - Emphasizes conversational skills and listening comprehension at the second-year level. Recommended: Completion of RUS 201, RUS 211B; or instructor permission.

RUS 212B Intermediate Russian Conversation 2 Cr. - Emphasizes conversational skills and listening comprehension at the second-year level. Recommended: Completion of RUS 201, 211B; or instructor permission.

RUS 212C Intermediate Russian Conversation 1 Cr. - Emphasizes conversational skills and listening comprehension at the second-year level. Recommended: Completion of RUS 201, 211B; or instructor permission.

RUS 213A Intermediate Russian Conversation 3 Cr. - Emphasizes conversational skills and listening comprehension at the second-year level. Recommended: Completion of RUS 202; or instructor permission.

RUS 213B Intermediate Russian Conversation 2 Cr. - Emphasizes conversational skills and listening comprehension at the second-year level. Recommended: Completion of RUS 202; or instructor permission.

RUS 213C Intermediate Russian Conversation 1 Cr. - Emphasizes conversational skills and listening comprehension at the second-year level. Recommended: Completion of RUS 202; or instructor permission.

RUS 217 Russian for Native Speakers 3 Cr. - Improve skills in spelling, grammar, reading, composition, and translation. Recommended: Speaker of Russian as first language and ability to read and write.

RUS 218 Russian for Native Speakers 3 Cr. - Improve skills in spelling, grammar, reading, composition, and translation. Recommended: speaker of Russian as first language and ability to read and write.

RUS 219 Russian for Native Speakers 3 Cr. - Improve skills in spelling, grammar, reading, composition, and translation. Recommended: speaker of Russian as first language and ability to read and write.

RUS 250 Second Year Russian 6 Cr. - Continues the work of first year Russian, reviewing, expanding, and perfecting pronunciation, structure, and vocabulary for the purpose of active communication. Includes practice in reading and writing. Recommended: completion of first year Russian at college level or instructor permission.

RUS 251 Second Year Russian 6 Cr. - Continuation of RUS 250. Continues to expand structure and vocabulary for the purpose of active communication. Includes practice in reading and writing. Recommended: Completion of RUS 250; or instructor permission.

RUS 262R Russian Culture in Russia 4 Cr. - Studies and discusses Russian culture and history. Facilitates excursions which parallel topics in class. Designed for students participating in approved Russian study abroad programs. Recommended: Completion of RUS 103 or RUS 203.

RUS 270A Readings in Russian 3 Cr. - Read and discuss accessible works of Russian prose and poetry. Emphasizes skills for reading in Russian. Recommended: Completion of or concurrent enrollment in RUS 203; or instructor permission.

RUS 270B Readings in Russian 2 Cr. - Read and discuss accessible works of Russian prose and poetry. Emphasizes skills for reading in Russian. Recommended: Completion of completion of or concurrent enrollment in RUS 203; or instructor permission.

RUS 270C Readings in Russian 1 Cr. - Read and discuss accessible works of Russian prose and poetry. Emphasizes skills for reading in Russian. Recommended: Completion of or concurrent enrollment in RUS 203; or instructor permission.

RUS 271A Readings in Russian 3 Cr. - Read and discuss accessible works of Russian prose and poetry. Emphasizes skills for reading in Russian. Recommended: Completion of or concurrent enrollment in RUS 203; or instructor permission.

RUS 271B Readings in Russian 2 Cr. - Read and discuss accessible works of Russian prose and poetry. Emphasizes skills for reading in Russian. Recommended: Completion of or concurrent enrollment in RUS 203; or instructor permission.

RUS 271C Readings in Russian 1 Cr. - Read and discuss accessible works of Russian prose and poetry. Emphasizes skills for reading in Russian. Recommended: Completion of or concurrent enrollment in RUS 203; or instructor permission.

RUS 272A Readings in Russian 3 Cr. - Read and discuss accessible works of Russian prose and poetry. Emphasizes skills for reading in Russian. Recommended: Completion of or concurrent enrollment in RUS 203; or instructor permission.

RUS 272B Readings in Russian 2 Cr. - Read and discuss accessible works of Russian prose and poetry. Emphasizes skills for reading in Russian. Recommended: Completion of or concurrent enrollment in RUS 203; or instructor permission.

RUS 272C Readings in Russian 1 Cr. - Read and discuss accessible works of Russian prose and poetry. Emphasizes skills for reading in Russian. Recommended: Completion of or concurrent enrollment in RUS 203; or instructor permission.

SOC - Sociology

SOC 204 General Sociology: Sociology in Everyday Life 3 Cr. - Introduces sociological perspective and sociology as a scientific discipline. Focuses on individuals and groups and how they are shaped by their social locations (status, roles, race, class, sex, age, etc.), society's structures, stratification, institutions, groups and organizations and by such cultural processes as socialization and group interaction.

SOC 205 General Sociology: Social Change & Social Institutions 3 Cr. - Explores various social institutions (family, economy, polity, and religion) from a social change perspective. Various theories of social organization and social change are compared and contrasted.

SOC 206 General Sociology: Social Problems 3 Cr. - Applies sociological frame of reference to the study of social problems, their identification, analysis of causes and possible solutions. Problems explored may include mental disorders, drug and alcohol addiction, crime and delinquency, group discrimination, inequality, poverty, alienation, domestic and international violence, environment and energy.

SOC 211 Peace and Conflict 3 Cr. - Explores causes and manifestations of violence in actions involving oneself, society, one's nation, and the global community. Alternatives to oppressive behavior, undemocratic institutions, and the violent resolution of conflict are considered.

SOC 213 General Sociology: Diversity in America 3 Cr. - Examines a variety of topics such as race and ethnicity, gender, age, sexual orientation, social class, and related issues and concepts from a number of sociological perspectives. There are no prerequisites for this course, but it is strongly recommended that the student have taken SOC 204 and 205 or their equivalent before taking this course.

SOC 215 Global Studies: Social Issues and Movements 3 Cr. - Explores social issues and movements from a global perspective. Examines the impact of social change and cultural contact on individuals and social structure and focuses on organized social responses to social problems, utilizing a multicultural, multidisciplinary approach.

SOC 218 Sociology of Gender 3 Cr. - Focuses on how socialization is affected by gender. Topics include how gender is reflected in culture through values, norms, language, media, power, violence, various theoretical approaches, significant social institutions, social movements and issues. SOC 204, 205; or instructor permission recommended.

SOC 219 Religion & Culture: Social Dimensions 3 Cr. - Explores the relationship between culture, social structure, and religion, through a comparative and cross-cultural examination of religious beliefs, practices, and organization.

SOC 223 Sociology of Aging 3 Cr. - Explores the impact of social and sociocultural conditions on the process of aging and the social consequences of this process. Also explores the aging process through a life-course perspective and adopts a social problems approach to aging and related issues. Recommended: SOC 204 or 205; or instructor permission.

SOC 228 Introduction to Environmental Sociology 3 Cr. - Examines the relationship between society and the environment. The industrialization of society and our increasing demand for natural resources has significantly impacted the earth's ability to meet the needs of humanity and other species. Explores the causes and consequences of such topics as population, consumption, development, pollution, public policy, and environmental justice.

SOC 230 Introduction to Gerontology 3 Cr. - Introduces current theories, policies, and practices in gerontology and professional opportunities in the field. Addresses the concerns of practitioners and focuses on service delivery and policy directions. Recommended: SOC 204 or 205; or instructor permission.

SOC 231 Sociology of Health & Aging 3 Cr. - Provides an introduction to age related health issues in social and cultural context. Topics include the social structuring of age, health and illness; demographics and patterns of health and illness of older adults; issues related to medical and healthcare services; health and long-term care policy and programs.

SOC 232 Death and Dying: Culture and Issues 3 Cr. - Introduces the student to the institution of death in the United States. From a sociological frame of reference, the student will study death as a system for dealing with the social processes of dying, death, and bereavement. SOC 204, 205; or instructor permission recommended.

SOC 252 Introduction to Sociological Theory 3 Cr. - Provides foundation in classical and contemporary sociological theory for sociology and social science majors, or those who are interested in this area of study. Prerequisites: SOC 204, 205.

SOC 280A Cooperative Education: Sociology 1-3 Cr. - Extend knowledge of sociology through work and/or volunteer time spent in settings that provide learning experiences. Instructor permission required.

SOC 280B Cooperative Education: Community Service & Action Seminar 3 Cr. - Provides a forum for students engaged in cooperative education worksite placements in the social sciences to develop personal, group, and organizational skills for a successful community service and career development experience. Seminar becomes interdisciplinary and team-taught, integrating psychological, political science and sociological perspectives to enhance service ethic.

SOC 280M Cooperative Education: Mentoring 1 Cr. - Provides a forum for students engaged in cooperative education worksite placements in sociology with a focus on a mentoring partnership. Can be taken in conjunction with any sociology offering.

SOC 298 Independent Study: Sociology 1-3 Cr. - Advanced, individualized study of areas of sociology not considered in other courses to meet special interests or program requirements. Includes a term project and readings approved by the instructor. Instructor permission required. Recommended: prior study of sociology.

SON - Diagnostic Medical Sonography

SON 100 Introduction to Sonography 1 Cr. - Introduces the normal appearance of anatomical structures in multiple planes. Differentiate between normal anatomical structures and abnormalities for a specific anatomical region. Department permission required.

SON 101A Sectional Anatomy 1 Cr. - Covers the necessary knowledge to provide the physician with the diagnostic images, differentiate between normal and abnormal sectional anatomy and determine the correct medico-legal responsibilities as a sonographer or radiographer.

SON 103 Sonographic Physical & Instrumentation I 3 Cr. - Develops knowledge of the basic physical principles of ultrasound and its interaction with human tissue. Prerequisite: admission to program.

SON 104 Sonographic Physical and Instrumentation II 3 Cr. - Develops knowledge of ultrasound instrumentation including the transducer, signal processor, scan converter, scan display and storage devices. Prerequisite: SON 103.

SON 113 Abdominal Sonography I 4 Cr. - Sonography of the abdominal and superficial parts of the human body will be examined with respect to normal anatomy and abnormal disease processes. Routine scanning protocol for selected body parts will be learned and practiced during lecture/lab. Admission to the Medical Sonography Program required.

SON 114 Obstetrical/Gynecologic Sonography I 4 Cr. - Obstetrical and gynecological sonographic protocols studied and practiced in lab. Emphasizes identification and imaging of normal anatomy and physiology of the female reproductive system and fetus during various developmental stages. Prerequisite: SON 113.

SON 120 Sonographic Clinic II 5 Cr. - Provides clinical educational experiences in an affiliated hospital sonography department. Includes professional skills, scanning techniques, protocols, patient care and quality assurance. Prerequisites: SON 100, 113.

SON 121 Sonographic Critique/Pathology I 3 Cr. - Correlate didactic clinical and image information. Covers basic instrumentation, normal anatomy, pathology identification and image critique. Requires case studies. Prerequisites: SON 101, 103, 110, 113.

SON 130 Sonographic Clinic III 8 Cr. - Requires clinical competencies, objectives and attendance. Provides clinical education experience in an affiliated hospital sonography department under the supervision of a registered sonographer and licensed physician. Includes necessary skills and knowledge required to function as a sonographer; scanning techniques, protocols, patient care and attendance required. Prerequisite: SON 120.

SON 210 Sonographic Clinic IV 8 Cr. - Learn necessary skills required to function in the clinical area as a sonographer. Gain an awareness of patient conditions, ultrasound examinations and procedures, sonographic imaging and ancillary equipment, medico-legal and ethical protocol and record keeping. Prerequisite: SON 130.

SON 211 Sonographic Critique/Pathology III 3 Cr. - Correlate didactic, clinical and imaging information. Lab course will cover instrumentation, normal anatomy, pathology identification and image critique. Prerequisite: SON 131.

SON 213 Abdominal Sonography II 4 Cr. - Sonography of the abdominal and superficial parts of the human body will be studied and practiced during the lecture/lab section. Concentration on pathology and abnormal anatomy as well as pediatric sonography. Prerequisites: SON 113, 114.

SON 215 OB/GYN Sonography II 3 Cr. - Obstetrical and gynecological sonography will be examined in detail. Sonographic protocols will be covered. There is a greater emphasis on anomalies and pathologies in this course than in the first term of gynecologic and obstetrical sonography. Prerequisite: SON 114.

SON 217 Vascular Sonography/Echocardiography 3 Cr. - Develops knowledge of basic vascular and echo sonography. Normal anatomy and abnormal disease processes will be studied along with routine scanning protocols for vascular sonography and echocardiography. Prerequisite: SON 105.

SON 220 Sonographic Clinic V 11 Cr. - Covers skills required to function in the clinical area as a sonographer. Gains an awareness of patient conditions, ultrasound examinations and procedures, sonographic imaging and ancillary equipment, medico-legal and ethical protocol and record keeping. Prerequisite: SON 210.

SON 221 Sonographic Critique/Pathology IV 3 Cr. - Correlate didactic, clinical and imaging information. Covers instrumentation, normal anatomy, pathology identification and image critique. Prerequisite: SON 211.

SON 230 Sonographic Clinic VI 11 Cr. - Covers necessary skills required to function in the clinical area as a sonographer. Gains an awareness of patient conditions, ultrasound examinations and procedures, sonographic imaging and ancillary equipment, medico-legal and ethical protocol and record keeping. Prerequisite: SON 220.

SON 231 Sonographic Critique/Pathology V 3 Cr. - Correlate didactic, clinical and imaging information. Covers instrumentation, normal anatomy, pathology identification and image critique. Prerequisite: SON 211.

SP - Speech Communication

SP 100 Introduction to Speech Communication 3 Cr. - Covers complexities of the communication process. Includes insights into the causes and effects of general communication behaviors, involvement in active exploration of basic communication theories and concepts, and opportunities to develop communication strengths.

SP 101 Oral Communication Skills 3 Cr. - Improve listening and speaking skills. Includes oral reports, conference procedures and everyday conversation.

SP 105 Listening 3 Cr. - Analyzes listening behavior. Emphasizes developing an understanding and appreciation of listening as a vital element in the communication process. Includes theory and individual skill development.

SP 110 Fundamentals of Voice and Articulation 3 Cr. - Voice production and articulation of speech sounds. Focuses on elementary speech physiology and phonetics. Includes practice in perception and production of American speech and greater competency using standard English.

SP 111 Fundamentals of Speech 3 Cr. - Prepare and present original speeches with emphasis on organization and outlining. Present informative, persuasive and other types of speeches. Prerequisite: Current enrollment in or satisfactory completion of WR 121.

SP 112 Fundamentals of Speech: Persuasive Speaking 3 Cr. - Reasoning as related to oral discourse. Emphasizes analysis, reasoning and evidence in the applied sense. Prerequisite: SP 111; or department permission.

SP 113 Fundamentals of Speech: Argument and Debate 3 Cr. - Principles of argumentation. Focuses on application of critical reasoning to decision making and debate. Prerequisite: SP 111.

SP 130 Business and Professional Speech Communication 3 Cr. - Communication as it relates to business and professional settings. Readings and discussions focus on the climate and settings, philosophies and practices of organizational communication and use of visual aids in briefings and presentations.

SP 140 Introduction to Intercultural Communication 3 Cr. - Explores the nature and impact of different cultures on communication. Includes interactive relationship forms as the basis for global understanding in the classroom, business or travel. Focus on processing messages with accelerating changes in political, economic and immigration patterns through individual cultural perceptions. Understand and communicate with people who are "different."

SP 212 Voice and Diction 3 Cr. - Voice production and articulation of speech sound, with attention to elementary speech physiology and phonetics. Develops more effective speech for teachers, radio and television speakers, public speakers and others who require special competence in speaking. Prerequisite: SP 111; or instructor permission.

SP 214 Interpersonal Communication: Process and Theory 3 Cr. - Covers interpersonal communication beyond introductory communication. Improves personal communication effectiveness through structured experiences and theory analysis. SP 100 recommended.

SP 215 Small Group Communication: Process and Theory 3 Cr. - Problem solving aspects of small group activities. Includes process and task, leadership, verbal and non-verbal messages in the small group, norms and roles, conflict reduction, and decision making. Focuses on theory and practice. SP 100 recommended.

SP 217 Theories of Persuasion 3 Cr. - Crucial factors involved in the process of persuasion. Examines audience psychology and communication strategies that enhance speaker effectiveness. Apply principles to individual projects.

SP 227 Nonverbal Communication 3 Cr. - Studies nonverbal aspect of communication as related to verbal communication. Emphasizes theories and typologies of nonverbal communication. Consideration of the influence of such factors as paralanguage, body movement, eye behavior, touch, space, time, smell, and physical and social environments.

SP 228 Rhetoric of the Media 3 Cr. - Explores the symbiotic relationship of the mass media and society from a rhetorical perspective. Investigation into the technological advancements in mass communications and their subsequent affect on public discourse and the individual in society will be examined.

SP 229 Oral Interpretation 3 Cr. - Oral interpretation of literature from the areas of prose, poetry and drama. Analyze specific literary works and communicate that understanding through performance.

SP 237 Gender and Communication 3 Cr. - Examines similarities and differences in male and female communication styles and patterns. Particular attention given to the implications of gender as social construct upon perception, values, stereotypes, language use, nonverbal communication, and power and conflict in human relationships. Discusses influence of mass communication upon shaping and constructing male and female sex roles. Course fulfills block transfer and cultural diversity requirements and is transferable to state four-year colleges and universities.

SP 270 Forensics: Speech & Debate 1-3 Cr. - Development of public communication skills by representing the college in intercollegiate competition. Designed to improve skills in reasoning and public communication.

SP 270B Projects in Public Speaking 3 Cr. - Intercollegiate forensics and non-competitive speaking. Represent the college through participating in the forensics team. Requires one hr/wk meetings with instructor and four hr/wk outside sessions and speech tournaments. SP 111 recommended.

SPA - Spanish

SPA 101 First Year Spanish 4 Cr. - Beginning communication in Spanish. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture.

SPA 102 First Year Spanish 4 Cr. - Active communication in Spanish. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture. Recommended: Simultaneous enrollment in SPA 112C. Successful completion of SPA 101; or instructor permission.

SPA 103 First Year Spanish 4 Cr. - Active communication in Spanish. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture. Recommended: Simultaneous enrollment in SPA 113C. Successful completion of SPA 102; or instructor permission.

SPA 111A First Year Spanish Conversation 3 Cr. - Practice of structures and vocabulary of first year Spanish in a conversational format. Recommended: First year Spanish at the college level; or instructor permission.

SPA 111B First Year Spanish Conversation 2 Cr. - Practice of structures and vocabulary of first year Spanish in a conversational format. Recommended: First year Spanish at the college level; or instructor permission.

SPA 111C First Year Spanish Conversation 1 Cr. - Practice of structures and vocabulary of first year Spanish in a conversational format. Recommended: Simultaneous enrollment in SPA 101; or instructor permission.

SPA 112A First Year Spanish Conversation 3 Cr. - Practice of structures and vocabulary of first year Spanish in a conversational format. Recommended: First year Spanish at the college level; or instructor permission.

SPA 112B First Year Spanish Conversation 2 Cr. - Practice of structures and vocabulary of first year Spanish in a conversational format. Recommended: First year Spanish at the college level; or instructor permission.

SPA 112C First Year Spanish Conversation 1 Cr. - Practice of structures and vocabulary of first year Spanish in a conversational format. Recommended: Simultaneous enrollment in SPA 102; or instructor permission.

SPA 113A First Year Spanish Conversation 3 Cr. - Continuation of SPA 112A. Recommended: First year Spanish at the college level; or instructor permission.

SPA 113B First Year Spanish Conversation 2 Cr. - Continuation of SPA 112B. Recommended: First year Spanish at the college level; or instructor permission.

SPA 113C First Year Spanish Conversation 1 Cr. - Continuation of SPA 112C. Recommended: Simultaneous enrollment in SPA 103; or instructor permission.

SPA 150 First Year Spanish 6 Cr. - Emphasizes active communication in Spanish. Includes listening, speaking, reading, writing, pronunciation, structure, vocabulary and culture. For beginners.

SPA 151 First Year Spanish 6 Cr. - Increases vocabulary and proficiency in the present, past and future tenses, and the command of verb forms. Engage in and initiate Spanish dialogue. Recommended: SPA 150; or completion of at least two years of recent high school Spanish.

SPA 201 Second Year Spanish 4 Cr. - Reviews and expands the use of basic vocabulary, structural patterns, indicative tenses and commands from first-year college Spanish. Listen, speak, write and read in Spanish. SPA 151, 103, or instructor permission required. Recommended: Simultaneous enrollment in SPA 211.

SPA 202 Second Year Spanish 4 Cr. - Practice and expand vocabulary and structures. Emphasizes subjunctive tenses to express personal feelings, doubts and opinions in Spanish. Recommended: Simultaneous enrollment in SPA 212. Successful completion of SPA 201; or instructor permission.

SPA 203 Second Year Spanish 4 Cr. - Practice and expand vocabulary and subjunctive patterns. Listen, speak, read, write and begin to sense the culture in the idiom. Recommended: Simultaneous enrollment in SPA 213. Successful completion of SPA 202; or instructor permission.

SPA 211A Intermediate Spanish Conversation 3 Cr. - Stresses conversational skills at the second year level. Recommended: Completion of or simultaneous enrollment in SPA 201; or instructor permission.

SPA 211B Intermediate Spanish Conversation 2 Cr. - Stresses conversational skills at the second year level. Recommended: Completion of or simultaneous enrollment in SPA 201; or instructor permission.

SPA 211C Intermediate Spanish Conversation 1 Cr. - Stresses conversational skills at the second year level. Recommended: Completion of or simultaneous enrollment in SPA 201; or instructor permission.

SPA 212A Intermediate Spanish Conversation 3 Cr. - Continuation of SPA 211. Recommended: Completion of or simultaneous enrollment in SPA 202; or instructor permission.

SPA 212B Intermediate Spanish Conversation 2 Cr. - Continuation of SPA 211B. Recommended: Completion of or simultaneous enrollment in SPA 202; or instructor permission.

SPA 212C Intermediate Spanish Conversation 1 Cr. - Continuation of SPA 211C. Recommended: Simultaneous enrollment in SPA 202. Completion of SPA 201; or equivalent also recommended.

SPA 213A Intermediate Spanish Conversation 3 Cr. - Continuation of SPA 212. Recommended: Completion of or simultaneous enrollment in SPA 203; or instructor permission.

SPA 213B Intermediate Spanish Conversation 2 Cr. - Continuation of SPA 212B. Recommended: Completion of or simultaneous enrollment in SPA 203; or instructor permission.

SPA 213C Intermediate Spanish Conversation 1 Cr. - Continuation of SPA 212C. Recommended: Simultaneous enrollment in SPA 203; or instructor permission.

SPA 217 Reading & Writing for Experienced Speakers of Spanish 3 Cr. - Part of a three-course sequence to be taken in any order. Improve experienced speaker of Spanish skills in spelling, grammar, reading, composition and translation. Recommended: Experienced speaker of Spanish who can read and write.

SPA 218 Reading & Writing for Experienced Speakers of Spanish 3 Cr. - Part of a three-course sequence to be taken in any order. Improve experienced speaker of Spanish skills in spelling, grammar, reading, composition and translation. Recommended: Experienced speaker of Spanish who can read and write.

SPA 219 Reading & Writing for Experienced Speakers of Spanish 3 Cr. - Part of a three-course sequence to be taken in any order. Improve experienced speaker of Spanish skill in spelling, grammar, reading, composition and translation. Recommended: Experienced speaker of Spanish who can read and write.

SPA 250 Second Year Spanish 6 Cr. - Develop and practice language competence and proficiency by reinforcing all basic structures and expanding vocabulary of first year Spanish. Emphasizes understanding, speaking, reading and writing. Recommended: Completion of first year college Spanish; or three or more years of recent high school Spanish; or instructor permission.

SPA 251 Second Year Spanish 6 Cr. - Develop and practice communicative competence and proficiency. Emphasizes proper use of the subjunctive to understand and express personal feelings and thoughts. Focuses on various dimensions of Hispanic culture. Recommended: Completion of SPA 250; or four or more years of recent high school Spanish; or instructor permission.

SPA 255 Accelerated Spanish 8 Cr. - For beginners. Covers the material of SPA 101 and SPA 102 in an accelerated format. Stresses the development of listening, speaking, reading, writing and cultural awareness through a communicative approach. Primary emphasis on student's active use of the language. Recommended for the motivated student.

SPA 256 Accelerated Spanish 8 Cr. - Covers the material of SPA 103 and SPA 201 in an accelerated format. Continues the work of SPA 255C further developing all skills. Primary emphasis is on student's active use of the language. Recommended: Completion of SPA 102; or SPA 255; or instructor permission.

SPA 257 Accelerated Spanish 8 Cr. - Covers the material of SPA 202 and 203 in an accelerated format. Continues the work of SPA 256, further developing all skills. Primary emphasis is on the student's active use of the language. Recommended: Completion of SPA 201; or SPA 256; or instructor permission.

SPA 260A Spanish Culture 3 Cr. - Hispanic culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 260B Spanish Culture 2 Cr. - Hispanic culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 260C Spanish Culture 1 Cr. - Hispanic culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 261A Spanish Culture 3 Cr. - Hispanic culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 261B Spanish Culture 2 Cr. - Hispanic culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 261C Spanish Culture 1 Cr. - Hispanic culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 262A Spanish Culture 3 Cr. - Spanish culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 262B Spanish Culture 2 Cr. - Spanish culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 262C Spanish Culture 1 Cr. - Spanish culture through reading, conversation, and writing. Conducted in Spanish. Specific regional and topical focus is subtitled in the schedule when offered. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 270A Readings in Spanish Literature (Hispanic) 3 Cr. - Reading and discussion of Hispanic people and culture through essays, poetry, short story, novels and theater. Focuses on the Hispanic region, period and genre subtitled in the schedule. Conducted in Spanish.

SPA 270B Readings in Spanish Literature (Hispanic) 2 Cr. - Reading and discussion of Hispanic people and culture through essays, poetry, short story, novels and theater. Focuses on the Hispanic region, period and genre subtitled in the schedule. Conducted in Spanish.

SPA 270C Readings in Spanish Literature (Hispanic) 1 Cr. - Reading and discussion of Hispanic people and culture through essays, poetry, short story, novels and theater. Focuses on the Hispanic region, period and genre subtitled in the schedule. Conducted in Spanish.

SPA 271A Readings in Spanish Literature (Women Writers) 3 Cr. - Literature written by women in Spanish. Read literary essays, poetry, short stories, novels and/or theater by Spanish and Latin American women. Conducted in Spanish.

SPA 271B Readings in Spanish Literature (Women Writers) 2 Cr. - Literature written by women in Spanish. Read literary essays, poetry, short stories, novels and/or theater by Spanish and Latin American women. Conducted in Spanish.

SPA 271C Readings in Spanish Literature (Women Writers) 1 Cr. - Literature written by women in Spanish. Read literary essays, poetry, short stories, novels and/or theater by Spanish and Latin American women. Conducted in Spanish.

SPA 272A Readings in Spanish Literature (Spain) 3 Cr. - Reading and discussion of Spanish people and culture through essays, poetry, short story, novels and/or theater. Focuses on peninsular literature, period and genre subtitled in the schedule. Conducted in Spanish.

SPA 272B Readings in Spanish Literature (Spain) 2 Cr. - Reading and discussion of Spanish people and culture through essays, poetry, short story, novels and/or theater. Focuses on peninsular literature, period and genre subtitled in the schedule. Conducted in Spanish.

SPA 272C Readings in Spanish Literature (Spain) 1 Cr. - Reading and discussion of Spanish people and culture through essays, poetry, short story, novels and/or theater. Focuses on peninsular literature, period and genre subtitled in the schedule. Conducted in Spanish.

SPA 290A Spanish Composition 3 Cr. - Reviews and practices basic grammatical concepts to increase confidence and fluency in writing correctly. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 290B Spanish Composition 2 Cr. - Reviews and practices basic grammatical concepts to increase confidence and fluency in writing correctly. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 290C Spanish Composition 1 Cr. - Reviews and practices basic grammatical concepts to increase confidence and fluency in writing correctly. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 291A Spanish Composition 3 Cr. - Reviews and practices basic grammatical concepts to increase confidence and fluency in writing correctly. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 291B Spanish Composition 2 Cr. - Reviews and practices basic grammatical concepts to increase confidence and fluency in writing correctly. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 291C Spanish Composition 1 Cr. - Reviews and practices basic grammatical concepts to increase confidence and fluency in writing correctly. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 292A Spanish Composition 3 Cr. - Reviews and practices basic grammatical concepts to increase confidence and fluency in writing correctly. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 292B Spanish Composition 2 Cr. - Reviews and practices basic grammatical concepts to increase confidence and fluency in writing correctly. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

SPA 292C Spanish Composition 1 Cr. - Reviews and practices basic grammatical concepts to increase confidence and fluency in writing correctly. Recommended: Completion of SPA 203; SPA 251; or instructor permission.

TA - Theater Arts

TA 101 Theater Appreciation 3 Cr. - Introduces theater through studying plays and the artists who participate in the theatrical experience. Attend local productions and discover how and why the event happens from the viewpoint of the actor, director, playwright, designer and audience.

TA 111 Fundamentals of Technical Theater 4 Cr. - Covers basic principles and techniques of technical theater such as stage design, lighting, properties and stage management. Explores role of the technician in the theater organization. Lecture and lab allows flexible scheduling.

TA 112 Introduction to Set Design 3 Cr. - Covers elements of technical theater including practical hands-on experience in designing a stage set, construction, the set design and stage rigging. Lecture/lab format provides time for individualized projects.

TA 113 Introduction to Stage Lighting 3 Cr. - Explores theater and studio lighting. Focuses on elements of electricity, optics, stage lighting design, color in light, stage lighting instruments and intensity controls. Participate in stage lab activities.

TA 141 Fundamentals of Acting Techniques 3 Cr. - Explores the actor's resources to develop physical and vocal expressiveness providing insight to the process of dramatic characterization and "believability" in a role. Includes two hours of group activity and two hours of lab time.

TA 142 Fundamentals of Acting Techniques 3 Cr. - Acquire concentration and relaxation in approaching a role. Improve performance skills with focus on vocal and physical control. Scene study is used. Prerequisite: TA 141.

TA 143 Fundamentals of Acting Techniques 3 Cr. - Practice skills from TA 141 and TA 142. Stresses further inquiry and use of knowledge and skills in performance. Includes audition techniques. Prerequisite: TA 141.

TA 144 Improvisational Theater 3 Cr. - Become more in touch with the body and senses as used to express yourself and communicate with others. Includes exercise, theater games and impromptu scenes to tap the creative potential of the human imagination.

TA 147 Voice and Diction for the Theater 3 Cr. - Introduces vocal production through a series of exercises which will increase muscle awareness, flexibility and freedom. Includes the mechanics of blank verse, auditioning and material selection as well as voice projection, articulation and performance.

TA 148 Movement for the Stage 3 Cr. - Develops awareness and skills in movement as related to acting and communication. Focuses on body awareness, relaxation, energy, creating physical images and character, and communicating through body language. Explores expression through movement.

TA 155 Readers Theater 3 Cr. - Oral interpretation techniques as applied to group reading. Includes organization and preparation of scripts and creative oral reciting. Emphasizes verbal interpretation of literature.

TA 160 Agents and Acting 3 Cr. - Discover world of commercial acting including television and film. Professionals will teach classes in areas including resumes and head shots, marketing, voice work and film auditioning.

TA 180 Theater Rehearsal and Performance 1-4 Cr. - Credit for performance in theater production, if cast. Gain first-hand experience in performance techniques. Audition required.

TA 190A Projects in Theater 3 Cr. - Design an independent project associated with the theater. Develop a contract with a theater arts instructor covering the course content.

TA 190B Projects in Theater 2 Cr. - Develop a study contract emphasizing self-directed research, on an individualized basis allowing for maximum flexibility.

TA 190C Projects in Theater 1 Cr. - Develop a study contract emphasizing self-directed research, on an individualized basis allowing for maximum flexibility.

TA 227 Stage Make-up 3 Cr. - Techniques of applying stage make-up including use of tools and products. Focuses on analyzing the character and theater to create the best make-up for various roles on any given stage. Class time is divided into lecture and student make-up projects.

TA 240 Beginning Pantomime 3 Cr. - Mime in the classic, white face tradition, using methods of muscle tone improvement, posture, balance, and flexibility to introduce techniques of play writing and storytelling.

TA 241 Intermediate Acting Technique 3 Cr. - Concentrate on in-depth study of the skills introduced in first year acting. One-act plays will be assigned as projects.

TA 242 Intermediate Acting Technique 3 Cr. - Comedy characterization as a style of performance. Study and perform a variety of comic literature. Focuses on comedy techniques.

TA 243 Intermediate Acting Technique 3 Cr. - Emphasizes vocal and physical techniques as well as stylized and contemporary acting methodology. Projects are approved by the instructor to strengthen all areas of stage performance.

TA 253A Theater Rehearsal and Performance 3 Cr. - Performance in a play. Audition required.

TA 253B Theater Rehearsal and Performance 2 Cr. - Performance in a play. Audition required.

TA 253C Theater Rehearsal and Performance 1 Cr. - Performance in a play. Audition required.

TA 261 Introduction to Costuming 3 Cr. - Surveys costume history, design, and basic patterning-to-construction techniques.

TA 274 Theater History 3 Cr. - Explores the nature of the theatrical event, its emergence and significance in the lives of the people of the past from ancient Greece to the present.

TA 290A Projects in Theater 3 Cr. - Advanced independent study course. Contract with a theater arts instructor for individual project. Examples of projects could be assistant directing, lighting design, costuming, dramaturge.

TA 290B Projects in Theater 2 Cr. - Develop a study contract emphasizing self-directed research, on an individualized basis allowing for maximum flexibility.

TA 290C Projects in Theater 1 Cr. - Develop a study contract emphasizing self-directed research, on an individualized basis allowing for maximum flexibility.

TE - Trade Extension

TE 280A Cooperative Work Experience 1-8 Cr. - Provides "hands-on" work experience for students enrolled in Facilities Maintenance Technology. Department permission required.

TE 9061 National Electrical Code 3 Cr. - Instructs electrical professional WHERE and HOW to find required information in the NEC book, demonstrating how various articles work together to provide complete information on a subject. Most code articles (90 through 450) explained in detail. National Electric Code II (advanced) is the sequel to this course. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TE 9083 National Electric Code II 3 Cr. - Prepares electricians for state examinations as prescribed by Oregon State Building Codes Division. Includes code explanations and applications. Prerequisite: TE 9061; or instructor permission. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TE 9110 Introduction to Facilities Maintenance Systems 2 Cr. - Overview of industrial maintenance. OSHA approved industrial safety procedures are practiced. Includes use of basic tools and specialized equipment; lubrication, maintenance and repair of motors, drive belts, pulleys, and sheaves. Examines the inter-dependency of related systems. Prerequisites: MTH 20; WR 90 or 262; RD 90 or ENL 260.

TE 9121 Intermediate Programmable Controllers (PC Based) 2 Cr. - Presents advanced features of programmable controllers. Designing, monitoring, and editing programs with practical hands-on computer experience.

TE 9126 Basic Programmable Controllers (PC Based) 2 Cr. - Develops the student's understanding of the complete operation of a variety of programmable controllers. The applications, operations, and programming of P.C.'s are the areas of study with the main emphasis on programming. (Computers will be used as programmers)

TE 9127 Advanced Programmable controllers, PC Based 2 Cr. - Advanced features including designing, monitoring, troubleshooting and editing techniques with practical hands-on experience.

TE 9140 Chiller System Fundamentals 3 Cr. - Chilled water and its application in the industrial/institutional setting. Covers Chiller compressors, refrigerants, air cooled and water cooled condensers, controls and piping. Prerequisite: TE 9244.

TE 9141 Water Treatment 2 Cr. - Covers basics of cooling tower, boiler, waste water, and water purification systems. Topics include corrosion, scale, fouling and bacteria related issues. Mechanical equipment pertaining to water treatment is included.

TE 9145 Electrical Motor Controls 2 Cr. - Provides knowledge and skills needed to service electric motors. Focuses on operation and installation of control systems, specifically motor starters and controllers. Includes 16 Code Related hours of Continuing Education Unit credits for Oregon State relicensing purposes. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TE 9146 Adjustable Speed Drives 2 Cr. - Theory, operation, installation and maintenance of adjustable speed motor drives. Drive applications and selection for industrial, utility, and commercial structures. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TE 9151 Pneumatic Controls 2 Cr. - Provides HVAC service technicians with proper methods of diagnosing malfunctions in Honeywell control systems. Covers thermostat/controllers of Robert Shaw, Johnson, Honeywell, and Barber Coleman. Includes elements of pneumatic systems, valve assemblies, dampers, controllers, thermostats, sensors, relays and air supply equipment. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TE 9152 Direct Digital Control Advanced Technology 3 Cr. - Covers spectrum of advanced HVAC control applications for commercial building systems. Topics range from the single zone air handler to multi-zone and VAV systems. Included are central heating/cooling plants, piping systems, valve configurations, engineering calculations and how this equipment interfaces to Life Safety systems. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TE 9155 Lock Service and Repair 4 Cr. - Maintaining residential and commercial locks and related hardware. Includes basic operating principles of cylinders, types of locking mechanisms, desk type locks, and master key systems. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TE 9161 Introduction to Boilers 3 Cr. - Covers process and comfort heating, types of boilers and limitations, principles of combustion, boiler water treatment and fire side equipment. Includes maintenance principles, diagnostic procedures, properties of steam systems, hot water and process systems, steam traps, condensate returns, distribution, characteristics of water and control valves, safety systems, and assorted components for equipment operation. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TE 9163 Boilers: Electrical Control Systems 3 Cr. - Covers operation of boilers and burner control systems, including limit controls, fuel flow control valves, primary controls and programming controls. Use control system schematic diagrams and troubleshoot control systems directly connected to the boiler and burner. Prerequisite: TE 9161.

TE 9233 Advanced Oil Burners 2 Cr. - Covers oil flame combustion testing, chimney lining, inducers and regulators. Includes electricity, meter use, wiring connections, controls, stats, motors, fan couplings, pumps, nozzles, tank connections, pipe flaring, service procedures and troubleshooting techniques. Prerequisite: TE 9234.

TE 9234 Oil Furnace Service 2 Cr. - Covers oil burner service and installation procedures, fuel oil principles, motors, fan couplings, nozzles, transformers, burner construction, pumps, controls and troubleshooting procedures. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TE 9237 Refrigeration Electrical I 2 Cr. - Basic theory and applications of electrical concepts including Ohm's law, electric power, and concepts of electric circuits are emphasized. Alternating current, power distribution and installation of HVAC systems using wiring diagrams and schematics included. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TE 9238 Refrigeration Electrical II 2 Cr. - Theory and application of electrical motor concepts and electrical circuits are emphasized. Control system components, wiring diagrams and schematics included. Prerequisite: TE 9237.

TE 9239 Refrigeration Electrical III 2 Cr. - Schematic development and use in diagnosis, service, and repair of HVAC systems; controls applications and circuit evaluation. Prerequisite: TE 9238.

TE 9242 Refrigeration I 2 Cr. - Covers refrigeration principles and different basic cycles which include heat transfer temperature, basic physics laws and gas laws. Lab includes the use of tools and instruments used for charging and evacuation and recovery methods. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TE 9243 Refrigeration II 2 Cr. - Cover and analyze the operation of refrigeration system components. Includes compressors, condensers, evaporators, refrigerants and metering devices. Lab includes system components and compressor testing methods, focusing on charging and evacuation and recovery methods. Prerequisite: TE 9242.

TE 9244 Refrigeration III 2 Cr. - Covers the operation of refrigeration HVAC systems, emphasizing maintenance and controls. Lab includes troubleshooting systems along with evacuation and charging techniques. Prerequisites: TE 9242, 9243.

TE 9245 Commercial Systems Design 3 Cr. - Covers refrigeration loads, equipment selection, piping and installation procedures. Focuses on calculating loads for walk-in units, sizing condensing units, and evaporative coils. Includes use of catalogs to locate and properly select components, for design and troubleshooting new and existing applications. Prerequisite: TE 9244.

TE 9246 Residential Systems Design 3 Cr. - Covers residential heat loads, equipment selection, piping and installation procedures. Calculating loads for residential homes, sizing furnaces, condensing units, and evaporative coils. Includes use of catalogs to locate and properly select components and for design and troubleshooting new and existing applications. Prerequisite: TE 9244.

TE 9248 Shop - Commercial Refrigeration II 2 Cr. - Includes practical skills and knowledge in the area of refrigeration and air conditioning installation, servicing, troubleshooting on operating heat pumps, and commercial systems. Covers heat pump charging, troubleshooting and comparing actual conditions to normal conditions. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TE 9250 Shop - Light Commercial/Refrigeration I 2 Cr. - Lab covering troubleshooting, evacuation, charging, clean-up and compressor replacement of commercial refrigerators, and air-conditioners trainers. Prerequisites: MTH 20; 90 or ENL 262); (RD 90 or ENL 260).

TE 9252 Heat Pumps 2 Cr. - Focus on operation and service requirements of heat pumps. Demonstrates the application and understanding of the test equipment required to service the heat pumps. Includes the function of the control system required for operation of the heat pump system. Prerequisite: TE 9244.

TE 9253 Natural Gas Equipment I 2 Cr. - Covers natural gas and its properties, pressures, piping and the mechanical code requirements for natural gas installation. Utilizing basic knowledge gained in this course, students can apply this knowledge to basic diagnostic procedures. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TE 9254 Natural Gas Equipment II 2 Cr. - Provides continuing progress towards the ability to understand equipment controls and trouble shooting techniques for gas appliance equipment. Includes further understanding of natural gas burners, heat exchangers, controls, and essential components of gas fired equipment. Prerequisite: TE 9253.

TE 9605 OSHA 30 HR Safety Training 1 Cr. - Course for those desiring a safe working environment and who have compliance and training responsibilities. Covers how to establish employee protection programs and to inform and train employees properly. Includes introduction to OSHA, general safety and health provision, Hazcom, health hazards in construction, stairways and ladders, motor vehicles, materials handling, hand and power tools, scaffolding, fire protection, excavations, confined space entry, fall protection, personal protective and lifesaving equipment and electrical safety. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TE 9610 Electrical I: 1st Year, 1st Term 3 Cr. - Covers math for electrical applications, electron theory, Ohms Law, series circuits, parallel circuits and series/parallel circuits. Focuses on computing the values of voltage, amperage resistance and power. Includes electrical energy and power, the measurement of, and computing efficiency of same. Understand electrical conductors, wire sizes and basic voltage drop calculations in a circuit. Also, theory use and maintenance of safety as applied to the industrial plant environment. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TE 9611 Electrical II: 1st Year, 2nd Term 3 Cr. - Covers the theory and application of magnetism, electro-magnetism, the generation of electromotive force, AC and DC motor principles, transformer theory, types and applications. Focuses on alternating current principles and the theories involving the properties of inductance and capacitance. Lab covers the operation and use of electrical metering and testing devices used to analyze and troubleshoot the above subject matter. Prerequisite: TE 9610.

TE 9612 Electrical III: 1st Year, 3rd Term 3 Cr. - Introduces definitions, fundamental rules, purpose and scope covered by the National Electric Code (NEC). Covers general wiring methods, requirements for wiring, all varieties of conduit, associated electrical devices, and fittings. Included are over-current devices and the basics of lighting fundamentals which includes fluorescent and high intensity discharge types. Also, theory use and maintenance of batteries as applied to the industrial plant environment. Prerequisite: TE 9611.

TE 9613 Electrical IV: 2nd Year, 1st Term 3 Cr. - Covers use of AC measure instruments, transformer theory, review of Ohm's law, AC motor theory and motor controls, and general installation requirements to meet code specifications. Prerequisite: TE 9612.

TE 9614 Electrical V: 2nd Year, 2nd Term 3 Cr. - Covers appliances, branch circuits, calculations, services, and code requirements in detail. Prerequisite: TE 9613.

TE 9615 Electrical VI: 2nd Year, 3rd Term 3 Cr. - Covers residential and commercial lighting and fixtures, cranes and hoists, emergency systems, and power circuiting in various locations. Includes detailed code requirements. Prerequisite: TE 9614.

TE 9616 Electrical VII: 3rd Year, 1st Term 3 Cr. - Covers the theory of alternating current and power. Includes alternating current, resistance in AC circuits, inductance and inductive reactance, capacitance and capacitive reactance, power factor correction, power in AC circuits, vector analysis and three phase connections and calculations. Prerequisite: TE 9615.

TE 9617 Electrical VIII: 3rd Year, 2nd Term 3 Cr. - Includes introduction to hazardous locations, Class I, II, III installations, commercial garages-repair and storage, aircraft hangars, gasoline dispensing and service stations, bulk storage plants, finishing processes and health care facilities. Prerequisite: TE 9616.

TE 9618 Electrical IX: 3rd Year, 3rd Term 3 Cr. - Covers motor and machine controls. Includes fundamentals of motor control, control of motor starting, control components, programmable controllers, pilot devices, control circuit diagrams, solid state logic and diagrams, development of control circuits and troubleshooting electrical controls. Prerequisite: TE 9617.

TE 9619 Electrical X: 4th Year, 1st Term 3 Cr. - First of three courses which emphasize use and understanding of the National Electrical Code book. Assists plant maintenance electricians in preparing for the state electrical exam. Topics include grounding, motors, transformers, overcurrent protection and feeders. Prerequisite: TE 9618.

TE 9620 Electrical XI: 4th Year, 2nd Term 3 Cr. - Covers the second part of code review, motors, XFMRs., voltage drop calculations, feeder-broaders, and loads. Topics include busway, cable bus, switches, SWBDS., panel boards, high voltage equipment, and installation of electrical systems used in commercial and industrial installations. Prerequisite: TE 9619.

TE 9621 Electrical XII: 4th Year, 3rd Term 3 Cr. - Covers the National Electric Code and prepares the apprentice/student to become a licensed Manufacturing Plant Electrician journeyman. Prerequisite: TE 9620.

TE 9631 LME Electrical I 3 Cr. - Includes math for computing values of voltage, amperage, resistance and power plus conductors, wire sizes and basic voltage drop calculations in a circuit. Covers magnetism and the generation of electro-magnetic force applied to motors, transformers, inductors and capacitors. General wiring methods conduit and fittings, over current protection, and lighting fundamentals are presented. Industrial safety emphasized.

TE 9632 LME Electrical II 3 Cr. - Battery theory, application and maintenance; DC motor theory, types, applications and maintenance; magnetic theory and the generation of electro-motive force; alternating current principles; theory, types, applications and maintenance of transformers; inductance and capacitance in AC circuits; standards and issues of electrical safety.

TE 9633 LME Electrical III 3 Cr. - Introduction to the National Electric Code; electrical connections and applications; single and 3-phase motor theory, operation, types and operation; electric motor maintenance; motor control fundamentals; lighting fundamentals, applications and maintenance; safety standards and practices.

TE 9634 LME Electrical IV 3 Cr. - Includes mechanical drives and couplings, their types, uses and maintenance; electronic theory and troubleshooting of various components including diodes, varistors, triacs, and rectifiers; electrical blueprint reading fundamentals; electrical safety; National Electric Code.

TE 9693 NEC for Restricted Energy 3 Cr. - Covers material applicable to dealing with the NEC and Oregon regulations and amendments. Boundaries are 100 volt amperes or less in class II and III installations. Prerequisites: MTH 20; (WR 90 or ENL 262); (RD 90 or ENL 260).

TEL - Telecommunications

TEL 200 Survey of Telecommunications Industry 3 Cr. - Covers a broad array of subjects that comprise the industry including fundamentals of voice, data, transmission, switching, networks, cellular systems, vendors, regulation, inter-exchange carriers, and local exchange carriers. Includes key historical milestones, future trends, and explanations of jargon unique to the industry.

TEL 201 Business Issues for Telecommunications Professionals 3Cr. - Explores business issues in telecommunications, including industry regulation, carrier classification, business finance, budgeting and cost justification, contractual issues, vendor assessment and procurement. Perform cost/benefit analysis, develop procurement process and vendor assessment criteria. Prerequisite: TEL 200; or instructor permission.

TEL 255 Planning, Implementation and Operations 3 Cr. - Focuses on management techniques associated with planning of telecommunications, implementing projects, and ongoing systems administration in business context. Organization structure and constraints, budgeting, risk management, communications and supervision, and quality concerns will be addressed in the development of plans for security, project management, system management and disaster recovery. Prerequisite: TEL 200, 261, 262, 263, 266; or instructor permission.

TEL 261 Voice Communications 3 Cr. - Overview of systems for small and larger businesses to include telephone equipment, multiplexers, store-and-forward devices, public telephone network access, and frequency spectrum systems. Presents techniques in needs analysis, capacity measurement, video conferencing, user training, and expansion planning. Discusses acquisition of equipment and services. Instructor permission may be required. Prerequisite: TEL 200.

TEL 262 Data Communications 3 Cr. - Focuses on methods by which computers communicate over telecommunications networks. Covers fundamentals of protocols, hardware configurations, modems, and network enhancement techniques. Develops telecommunications strategies for data processing and transmission. Explains both analog and digital concepts to illustrate the merger of voice and data in modern networks. Instructor permission may be required. Prerequisite: TEL 200.

TEL 263 Advanced Voice Communications 3 Cr. - Explores advanced voice technologies and systems as used to support business needs. Design premises equipment and network service to support business applications. Needs analysis, cost justification, procurement, long distance planning and toll fraud prevention. Advanced voice applications including call centers, IVR, CTI, fax processing, voice synthesis/recognition, telecommuting, wireless services. Prerequisite: TEL 200, 261; or instructor permission.

TEL 265 Emerging Technologies 3 Cr. - Focuses on new technologies and a changing regulatory environment as they relate to strategic planning for business communications needs. Deregulation, wireless and packet technologies, integrated wide area networking, the Internet and emerging and existing industry standards will be examined in a business context. Prerequisite: TEL 200, 263, 266; or instructor permission.

TEL 266 Advanced Data Communications and Local Area Networks 3 Cr. - Explores traffic analysis, network design, network management, security and control. Focuses on topology, access methods, protocols, routers, bridges, and transmission media. Discusses high bandwidth requirements, Integrated Services Digital Network (ISDN), Switched Multimegabit Data Service (SMDS), T-carrier networking, and frame/cell relay. Instructor permission may be required. Prerequisite: TEL 200, 262.

TEL 267 Integrated Network Systems 3 Cr. - Reviews technical design issues related to corporate-wide network systems. Discusses current and emerging technologies, architecture, specific systems, accepted industry practices, U.S. and international standards, and the management concerns of integrated Local Area Networks (LAN), Metropolitan Area Networks (MAN), Wide Area Networks (WAN). Instructor permission may be required. Prerequisites: TEL 200, 261, 262, 266.

VT - Veterinary Technology

VT 100 Veterinary Medical Terminology 2 Cr. - Covers medical word parts, abbreviations and basic terms along with a basic knowledge of word construction are taught. Program admission or instructor permission required.

VT 101 Introduction to Veterinary Technology 2 Cr. - Covers the job of the veterinary technician. This will illustrate that the course work is both practical and necessary. Program admission required.

VT 102 Animal Nursing and Restraint 3 Cr. - Teaches nursing techniques and principles of restraint of dogs, cats, horses, cattle, sheep, birds and laboratory animals. Emphasizes techniques to maximize the safety aspect of restraint to both the handler and to the animal patient. Program admission required. Prerequisite: VT 101.

VT 103 Animal Health Record Systems 3 Cr. - An introduction to veterinary medical records, admitting procedures, history taking, record maintenance for both in/out patient, and kennel records. Includes follow-up and discharge procedures on filing and record retention. Covers using the computer in veterinary medicine.

VT 105 Comparative Veterinary Anatomy and Physiology I 4 Cr. - Covers the form and function of animal bodies and their anatomical and physiological differences between selected species are studied. Lab includes skeletons and cadaver specimens. Focuses on microscopic anatomy and anatomy and physiology of bones, muscles, and skin. Program admission required. Prerequisites: VT 121; (BI 101 or BI 101B); CH 100.

VT 106 Comparative Veterinary Anatomy and Physiology II 4 Cr. - Covers the form and function of animal bodies and their anatomical and physiological differences between selected species are studied. Lab includes skeletons and cadaver specimens. Focuses on anatomy and physiology of the digestive, nervous, urinary, reproductive, and endocrine system. Includes organs of special sense. Prerequisite: VT 105.

VT 107 Veterinary Parasitology 3 Cr. - Introduces life cycles, modes of transmission, geographical distribution and diseases associated with each parasite. Lab includes identification of parasites using prepared slides and collected specimens. Program admission required. Prerequisite: BI 101 or BI 101B.

VT 108 Pharmaceutical Mathematics 1 Cr. - Introduces mathematics as applied to pharmacology. Includes unit conversions, solutions and percentage calculations, and drug dosage calculations. Program admission required.

VT 109 Radiation Safety 2 Cr. - Introduces x-radiation and safety principles involved in using of x-ray machines. Program or current employment in a veterinary hospital or clinic doing x-ray work is required.

VT 110 Specimen Collection Laboratory 1 Cr. - Covers collection techniques used on both large and small animals and skills needed to obtain the specimens required for analysis in clinical laboratories. Prerequisites: VT 105; (BI 101 or BI 101B); BI 102; CH 100.

VT 111 Hematology and Urinalysis 5 Cr. - Develops knowledge and skills necessary to perform hematology and urinalysis. Includes how to perform a complete blood count and to do a urinalysis using current technology. Prerequisites: VT 105; (BI 101 or BI 101B); BI 102; CH 100.

VT 112 Clinical Laboratory Procedures 5 Cr. - Teaches knowledge and skills necessary to perform the various types of tests that are usually done in the clinical laboratory of a veterinary hospital. Includes learning to perform serum chemistries on various types of machines, knowledge of special commercial test procedures, and examination of cytology specimens. Prerequisites: VT 105, 106, 111; (BI 101 or BI 101B); BI 102; CH 100.

VT 113 Veterinary Microbiology 3 Cr. - Develops knowledge and skills necessary to perform microbiology functions. Includes learning about the various pathological genus and species of bacteria, fungi, and viruses. Focuses on the various laboratory methods used in the identification of bacterial and fungal organisms. Prerequisites: VT 105, 106, 111; (BI 101 or BI 101B); BI 102; CH 100.

VT 121 Basic Animal Science 4 Cr. - Introduces the livestock industry and the various species of large animal livestock. Includes livestock terminology, breeds, production systems, basic management practices, and animal products and by-products. Lab introduces the livestock production systems and producers.

VT 150 Veterinary Technician National Examination Prep Course 4 Cr. - Designed for veterinary assistants currently working in the field to prepare for the Veterinary Technician National Examination (VTNE). Emphasizes subject areas covered on the exam. Material presented provides foundation knowledge in animal health care principles and practice for those wishing to further their education.

VT 201 Anesthesiology 3 Cr. - Introduces basic anesthetic agents, use and operation of allied machines, monitoring and care of the anesthetized animal patient, and the pre-operative considerations and duties for both surgery and anesthesia. Second year standing required. Prerequisites: VT 105, 106, 111, 112, VT 113.

VT 202 Surgical Nursing and Lab Animal Procedures 4 Cr. - Covers surgical preparations of the patient, surgical monitoring, surgical assistance, pre-operative and post-operative animal care, instrument sterilization methods, instrument identification, and the veterinary technicians role in special surgical procedures. Also includes laboratory animal diseases and procedures. Prerequisite: VT 201.

VT 203 Veterinary Procedures Seminar 3 Cr. - Covers the special skill areas of technician training, such as electrocardiography, bandaging, and various diagnostic and therapeutic procedures. Students investigate, research and report (both orally and in writing) on topics of special interest. Prerequisite: VT 202.

VT 204 Applied Radiography 3 Cr. - Teaches the practical application of radiography in the veterinary profession. Includes principles of x-ray production, the operation and uses of x-ray machines, the care and development of films, and radiographic positioning of animals. Prerequisites: VT 105, 106, 109.

VT 205 Veterinary Pharmacology 4 Cr. - Introduces general pharmacological principles, drugs, and classification of agents used in veterinary medicine. Prerequisites: VT 105, 106, 107, 108, 111, 112, 113.

VT 207 Public Health and Sanitation 2 Cr. - Covers principles of public health and sanitation as they apply to veterinary medicine and the veterinary technician. Emphasizes epidemiology, public health principles and regulations, zoonoses, and meat and food hygiene. Prerequisites: VT 111, 112, 113.

VT 208 Small Animal Diseases 4 Cr. - Covers important diseases and disease processes occurring in small animals are covered. Includes the causes, pathogenesis, clinical signs, treatment and prevention of each disease. Prerequisites: VT 105, 106, 111, 205, 112, 113.

VT 209 Large Animal Diseases and Procedures 3 Cr. - Covers important disease and disease processes, and obstetrics as they occur in large animals. Includes causes, pathogenesis, clinical signs, treatment and prevention of each disease. Lab includes large animal treatment procedures. Prerequisites: VT 105, 106, 111, 205, 112, 113.

VT 210 Animal Nutrition 3 Cr. - Introduces various types of nutrients, basic principles of nutrition as applied to small and large animals, various feeding practices and their economic importance, and important nutritionally caused diseases. Covers care and handling of orphaned animals and special prescription diets. Prerequisites: VT 105, 106, 121; (BI 101 or BI 101B); BI 102; CH 100.

VT 211 Pharmaceutical Mathematics II 1 Cr. - Continues mathematics as applied to pharmacology from Pharmaceutical Mathematics I. Includes a review of drug dosage calculations and solutions and percent-

ages, except problems are more difficult. New topics covered are fluid therapy and cancer chemotherapy problems. Program admission or pre-requisite Pharmaceutical Mathematics I required.

VT 280A Cooperative Education: Clinic I 4 Cr. - Develops career objectives by linking their PCC course work with off-campus learning experiences in business, industry, and/or the public sector. Focuses on office/receptionist skills, animal nursing and restraint, and laboratory procedures. Department permission required.

VT 280B Cooperative Education: Clinic II 4 Cr. - Develops career objectives by linking their PCC course work with off-campus learning experiences in business, industry, and/or the public sector. Focuses on office/receptionist skills, animal nursing and restraint laboratory procedures, pharmacology, radiography, surgical preparation and assistance and anesthesiology. Students may request to attend a special clinic, such as the Oregon Regional Primate Center, Oregon Health Science University, The College of Veterinary Medicine at Oregon State University, or a large animal or equine practice. Department permission required.

VT 280C Cooperative Education: Clinic III 4 Cr. - Develops career objectives by linking their PCC course work with off-campus learning experiences in business, industry, and/or the public sector. Focuses on office/receptionist skills, animal nursing and restraint laboratory procedures, pharmacology, radiography, surgical preparation and assistance and anesthesiology. Students may request to attend a special clinic, such as the Oregon Regional Primate Center, Oregon Health Science University, The College of Veterinary Medicine at Oregon State University, or a large animal or equine practice. Department permission required.

WLD - Welding

WLD 100 Career Opportunities for Welders 1 Cr. - Explores various career paths open to welders. Introduces exploration resources assisting students in identifying skills needed to succeed in the field. Covers self-assessment, goal setting and job search skills preparation. Course is self-paced with required attendance. Appropriate for students currently enrolled in welding courses and students on the wait-list for welding courses.

WLD 101 Welding Processes & Applications 4 Cr. - Covers welding processes, safety, equipment, and essential variables of operation.

WLD 102 Blueprint Reading 4 Cr. - Covers language of blueprints including lines, views, dimensioning, print organization, welding symbols and structural shapes.

WLD 111 Shielded Metal Arc Welding (E7024) and Oxy-acetylene Cutting 3 Cr. - Covers uses, safety, nomenclature, equipment operation, and set-up and shutdown procedures for S.M.A.W. and O.A.C. Department permission required.

WLD 112 Shielded Metal Arc Welding: Mild Steel I (E7018) 3 Cr. - Develops knowledge and manipulative skills in the use of E7018 mild steel electrodes when performing various welds in the flat, horizontal and vertical positions. Department permission required.

WLD 113 Shielded Metal Arc Welding: Mild Steel II (E7018) 3 Cr. - Develops knowledge and manipulative skills in the use of E7018 mild steel electrodes when performing various welds in the vertical and overhead positions. Department permission required.

WLD 114 Shielded Metal Arc Welding: Mild Steel III (E6011) 3 Cr. - Develops knowledge and manipulative skills in the use of E6011 mild steel electrodes when performing various welds in the flat, horizontal and vertical positions. Department permission required.

WLD 115 Shielded Metal Arc Welding: Mild Steel IV (E6011) 3 Cr. - Develops knowledge and manipulative skills in the use of E6011 mild steel electrodes when performing various welds in the vertical and overhead positions. Department permission required.

WLD 121 Gas Tungsten Arc Welding: Mild Steel 3 Cr. - Develops knowledge and manipulative skills while welding common joints in all positions on mild steel with the G.T.A.W. process. Department permission required.

WLD 131 Gas Metal Arc Welding 3 Cr. - Develops knowledge and manipulative skills welding with solid wire on ferrous and non-ferrous materials using short arc in the flat, horizontal, vertical and overhead positions. Department permission required.

WLD 132 Gas Metal Arc Welding-Pulse 3 Cr. - Develops knowledge and manipulative skills while welding common joints in all positions on mild steel using Gas Metal Arc Welding, Pulse transfer. Department permission required.

WLD 141 Flux-Cored Arc Welding I (Gas Shielded) 6 Cr. - Develops knowledge and manipulative skills in the shielded flux-cored arc welding process in the flat, vertical, horizontal and overhead positions. Department permission required.

WLD 142 Flux-Cored Arc Welding II (Self Shielding) 3 Cr. - Develops knowledge and manipulative skills in the self-shielding arc welding process in the flat, vertical, horizontal and overhead positions. Department permission required.

WLD 151 SMAW Certification Practice: Unlimited Thickness Mild Steel 3 Cr. - Covers safety, welding technique, and qualification procedures in compliance with AWS D1.1 structural test. Department permission required.

WLD 152 Wire Welding Certification Practice 3 Cr. - Methods and skills to improve and upgrade welding techniques to a qualification level to become certified in the gas metal arc and flux-cored arc welding processes. Department permission required.

WLD 201 Welding Metallurgy I 4 Cr. - Covers basic concepts of metallurgy as related to welding. Includes properties of metals, materials testing, constitution of alloys, the iron carbon diagram, heat treatments of steels, carbon and alloy steels and the weldability of metals.

WLD 202 Welding Inspection and Quality Control 4 Cr. - Develops an understanding of the functions of a Quality Assurance program, and requirements to prepare for the American Welding Society C.W.I. (Certified Welding Inspector) examination.

WLD 203 Structural Steel Welding Code & Standards 4 Cr. - Develops technical knowledge necessary for the reading and understanding of the AWS Structural Steel Welding Code, D1.1. Purpose of course is to enable student to use a systematic method in the application and understanding of the Structural Steel Welding Code.

WLD 204 Nondestructive Testing I 4 Cr. - Develops technical knowledge and manipulative skills necessary for conducting Visual, Dye Penetrate and Magnetic Particle Inspections on weldments in accordance with AWS D1.1 Structural Steel Welding Code. Training will conform to SNT-TC-1A standards.

WLD 206 Seeing Beyond the Hood: (Developing High Performance Skills) 1 Cr. - Develops knowledge and acquire skills needed for success in a high performance work environment. Apply knowledge and skills through participation on high performance work teams within the Welding Program to facilitate continuous improvement strategies.

WLD 216 Miscellaneous Electrodes & Advanced Positions 3 Cr. - Develops knowledge and manipulative skills in the use of a variety of electrodes when welding complex joints and welding positions. Department permission required.

WLD 217 Diesel Welding 3 Cr. - Develops knowledge and skills in welding required of a diesel mechanic. Focuses on maintenance and repair applications using S.M.A.W., O.A.W., and O.A.C. processes. Department permission required.

WLD 222 Gas Tungsten Arc Welding: Aluminum 3 Cr. - Develops knowledge and manipulative skills while welding common joints in all positions on aluminum with the G.T.A.W. process. Department permission required.

WLD 223 Gas Tungsten Arc Welding: Stainless Steel 3 Cr. - Develops knowledge and manipulative skills while welding common joints in all positions on stainless steel with the G.T.A.W. process. Department permission required.

WLD 224 Gas Tungsten Arc Welding: (Mild Steel) Pipe I 3 Cr. - Develops knowledge and manipulative skills required to weld mild steel pipe in all positions using the G.T.A.W. process. Department permission required.

WLD 225 Gas Tungsten Arc Welding: (Mild Steel) Pipe II 3 Cr. - Develops knowledge and manipulative skills while welding a variety of diameters mild steel pipe in the 6G, (fixed 45 angle) using the G.T.A.W. process. Department permission required.

WLD 253 SMAW Certification Practice 3/8" Mild Steel (E6011) 3 Cr. - Practice for the American Welding Society Mild Steel Welding Certification tests using SMAW mild steel electrodes in the horizontal, vertical and overhead positions. Department permission required.

WLD 254 SMAW Certification Practice 3/8" Mild Steel (E7018) 3 Cr. - Practice for the American Welding Society Mild Steel Welding Certification tests using SMAW low hydrogen electrodes in vertical, horizontal and overhead positions. Department permission required.

WLD 256 Preparation for Pipe Certification I 3 Cr. - Develops knowledge and skills in the use of melt-through procedures in preparation for pipe welding with the shielded metal arc process. Department permission required.

WLD 257 Preparation for Pipe Certification II 3 Cr. - Practice for pipe certification using the S.M.A.W. process to weld pipes in all positions. Department permission required.

WLD 261 Basic Fabrication I 6 Cr. - Develops fabrication knowledge and skills in selection and use of layout tools and equipment, to assemble a fabrication project from given specifications. Department permission required.

WLD 262 Basic Fabrication II 6 Cr. - Develops knowledge and skills in the proper selection and safe use of hand tools and machinery while working on specific fabrication projects. Department permission required.

WLD 271 Oxy-acetylene Welding Projects 3 Cr. - Practice hand coordination and controlling heat while welding steel with oxy-acetylene equipment using all positions. Department permission required.

WLD 280A Cooperative Education: Welding 1-4 Cr. - On-the-job experiences which allow for the application and development of knowledge and skills acquired in the on-campus program. Work experiences are offered for variable credit up to a maximum of four credits. Department permission required.

WLD 280B Cooperative Education: Welding - Seminar 1 Cr. - Share experiences with other students and the on-campus instructor in order to develop strategies for successful cooperative work experiences and future employment. Department permission required.

WLD 295 Sculpture Welding II 4 Cr. - Develops the artist's knowledge and skills with Oxyacetylene welding and cutting, SMAW (stick) welding, GMAW (wire) welding and TIG (gas tungsten) arc welding processes. Explores metal sculpture design and construction with supporting demonstrations, slides, lectures and films. Completion of ART 293 strongly recommended. No prior welding experience is required.

WLD 9901 Welding Practice .75 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9902 Welding Practice 1 Cr. - Covers personal safety, shop safety and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9903 Welding Practice 1.5 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9904 Welding Practice 2 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9905 Welding Practice 3 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9910 Shielded Metal Arc Welding (Stick) 3 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9911 Shielded Metal Arc Welding (Stick) 3 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9912 Shielded Metal Arc Welding (Stick) 3 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9913 Shielded Metal Arc Welding (Stick) 3 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9920 Gas Tungsten Arc Welding (Heliarc) 3 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9921 Gas Tung Arc Welding (Heliarc) 3 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9922 Gas Tung Arc Welding (Heliarc) 3 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9923 Gas Tung Arc Welding (Heliarc) 3 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9930 Wire Welding 3 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9931 Wire Welding 3 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9932 Wire Welding 3 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WLD 9933 Wire Welding 3 Cr. - Covers personal safety, shop safety, and learning objectives agreed upon by the instructor and the student. Upgrade and develop welding skills as needed. Department permission required.

WR - Writing

WR 60 Spelling I 3 Cr. - Basic rules of English spelling and their frequent exceptions. Includes phonics, spelling rules, affixes and roots, misspelled words and apostrophe.

WR 60A Spelling I 1 Cr. - Basic rules of English spelling and their frequent exceptions. Includes phonics, spelling rules, affixes and roots, misspelled words and apostrophe.

WR 60B Spelling I 2 Cr. - Basic rules of English spelling and their frequent exceptions. Includes phonics, spelling rules, affixes and roots, misspelled words and apostrophe.

WR 60C Spelling I 1 Cr. - Basic rules of English spelling and their frequent exceptions. Includes phonics, spelling rules, affixes and roots, misspelled words and apostrophe.

WR 65 Spelling II 3 Cr. - Basic rules of English spelling and their frequent exceptions. Includes more advanced work with spelling and vocabulary for students who have completed Spelling I. Prerequisite: WR 60.

WR 80 Writing 80 3 Cr. - Includes basic communication skills, language mechanics, grammar, spelling, sentence structure and paragraph development. Prerequisite: Writing placement test score above 31; reading placement test score above 35.

WR 80A Writing 80 3 Cr. - Instruction Includes basic communication skills, language mechanics, grammar, spelling, sentence structure and paragraph development. Prerequisite: Writing placement test score above 31 or WR 70.

WR 80B Writing 80 3 Cr. - Instruction includes basic communication skills, language mechanics, grammar, spelling, sentence structure and paragraph development. Prerequisite: Writing placement test score above 31 or WR 70.

WR 80C Writing 80 3 Cr. - Instruction includes basic communication skills, language mechanics, grammar, spelling, sentence structure and paragraph development. Prerequisite: Writing placement test score above 31 or WR 70.

WR 90 Writing 90 3 Cr. - Includes sentence structure, paragraph and essay development, and written expression. Students can expect to increase working vocabulary and improve skills in basic communications. Prerequisite: writing placement test score above 35, or WR 80; reading placement test score above 35, or RD 80.

WR 90A Writing 90 1 Cr. - Instruction includes sentence structure, paragraph and essay development, and written expression. Prerequisite: Writing placement test score above 35 or WR 80.

WR 90B Writing 90 2 Cr. - Instruction includes sentence structure, paragraph and essay development, and written expression. Prerequisite: Writing placement test score above 35 or WR 80.

WR 90C Writing 90C 3 Cr. - Includes instruction in grammar, punctuation, sentence structure, essay development, and critical thinking skills. Improves basic writing skills by learning to use simple and complex sentences in developing a good essay, and by developing critical thinking skills that are used in the writing process. Prerequisites: (Writing placement test score above 35 or WR 80) and (reading placement test score above 35 or RD 80).

WR 91 Basic Grammar 1 Cr. - Overview of some fundamental principles of American English grammar, including parts of speech, sentence types, sentence analysis, simple/compound/complex sentences, and a brief overview of punctuation.

WR 91A Basic Grammar 1 Cr. - Overview of fundamental principles of American English grammar including parts of speech, sentence types, simple/compound/complex sentences, subject-verb agreement, pronoun usage, avoidance of fragments, run-ons, and other errors. Recommended: Ability to read, write and communicate at the RD/WR 90 level.

WR 92 Basic Grammar 2 Cr. - Overview of some fundamental principles of American English grammar, including parts of speech, sentence types, sentence analysis, simple/compound/complex sentences, a brief overview of punctuation, subject-verb agreement, pronoun usage, and selected homonyms.

WR 92A Basic Grammar 2 Cr. - Overview of fundamental principles of American English grammar including parts of speech, sentence types, sentence analysis, simple/compound/complex sentences, subject-verb agreement, pronoun usage, selected homonyms, punctuation, capitalization, and avoidance of fragments, run-ons, and other errors. Recommended: Ability to read, write and communicate at the RD/WR 90 level.

WR 93 Basic Grammar 3 Cr. - Overview of fundamental principles of American English grammar including parts of speech, sentence types, sentence analysis, simple/compound/complex sentences, subject-verb agreement, pronoun usage, selected homonyms, punctuation, capitalization, and avoidance of fragments, run-ons, and other errors.

WR 93A Basic Grammar 3 Cr. - Overview of some fundamental principles of American English grammar, including parts of speech, sentence types, sentence analysis, simple/compound/complex sentences, subject-verb agreement, pronoun usage, selected homonyms, punctuation, capitalization, avoidance of fragments, run-ons, and other errors.

WR 95 The Resume and Employment Interview 1 Cr. - Introduces evaluating personal employment goals, researching potential employers, writing a resume and application letter, and preparing for the employment interview.

WR 115 Introduction to Expository Writing 3 Cr. - Introduces college level skills in reading critically, exploring ideas, and writing. Compose essays which support a thesis through structure appropriate to both thesis and reader and learn to revise for clarity and correctness. Prerequisites: Writing placement test score of 41-44 or WR 90; or ENL 262; reading placement test score above 41 or RD 90; or ENL 260.

WR 117 Introduction to Technical Writing 3 Cr. - Focuses on the specific writing needs of career programs: procedures, proposals, letters, memoranda, lab reports, work reports. Prerequisite: WR 115; or placement into WR 121.

WR 121 English Composition 3 Cr. - Develops skills in analytical reading, critical thinking, and expository and persuasive writing. Compose several essays using a variety of strategies to present evidence in support of a thesis. Prerequisite: Writing and reading placement test scores above 44; or WR 115.

WR 122 English Composition 3 Cr. - Focuses on argument as a means of inquiry, clear and appropriate writing style, and critical reading. Explores ideas and issues through discussion and writing. Compose analytical, argumentative, and/or expository essays with appropriate documentation. Prerequisite: WR 121.

WR 123 English Composition 3 Cr. - Uses extensive research writing to develop skills in critical analysis and documented argument. Synthesize considered response to designated text(s) and/or issues with the reactions of other writers. Includes paraphrasing, summarizing, quoting, and documenting using style appropriate to discipline researched. Prerequisite: WR 122.

WR 180 Composition Conferencing and Tutoring 1 Cr. - Explores the techniques and philosophies involved in tutoring and conferencing one-to-one with writing students. Students practice skills learned in the classroom as they work in the PCC Writing Center, or as volunteers in local public schools.

WR 185 English Grammar 3 Cr. - Introduces linguistic analysis of written English, elementary history, and mastery of grammatical vocabulary. Includes language acquisition theory and the application of grammatical understanding to the art of composition. Prerequisite: Writing and reading placement test scores above 44; or WR 115.

WR 214 Business Communications II 3 Cr. - Explores writing as a strategy for problem-solving in business settings. Develops analytical skills and audience awareness in complex writing situations. Includes group problem-solving, fact-finding interviewing, library research, evaluating ethical issues, developing appropriate formats, and composing, revising, designing, and editing business documents. Prerequisite: WR 121.

WR 227 Technical Writing I 3 Cr. - Introduces technical and professional communications. Includes such projects as definitions, specifications, descriptions, instructions, manuals, warnings, liability statements, and analytical reports. Emphasizes precise use of language and graphics to communicate complex technical and procedural information safely, legally, and ethically. Prerequisite: WR 122 or 214.

WR 228 Police Report Writing 3 Cr. - Emphasizes writing skills and techniques appropriate to narrative structures necessary for operational police reports. Prerequisite: WR 122 or 214.

WR 240 Creative Writing (Nonfiction) 3 Cr. - Focuses on creative non-fiction, such as investigative journalism, nature writing, reviews, satire, and personal essays. Evaluates students' compositions in class discussion. Recommended: WR 122. Prerequisite: WR 121.

WR 241 Creative Writing (Fiction) 3 Cr. - Focuses on writing and submitting fiction for class discussion and analysis. Studies established writers for techniques, structures, and styles. Recommended: WR 121 level reading and writing skills.

WR 242 Creative Writing (Poetry) 3 Cr. - Introduces the craft of poetry through study of the works of established writers for writing techniques, forms, structures, and styles, and through the writing and submission of approximately one complete poem per week for class discussion and analysis. Recommended: WR 121 level reading and writing skills.

WR 243 Creative Writing (Script Writing) 3 Cr. - Focuses on writing and submitting scripts for class discussion and analysis. Studies established writers for techniques, structures, and styles. Recommended: WR 121 level reading and writing skills.

WR 244 Advanced Creative Writing - Fiction 3 Cr. - Focuses on continuing to apply the techniques and structures of fiction writing introduced in WR 241. Includes writing fiction, having work critiqued by instructor and peers, and critiquing that of others in a workshop setting. Students without WR 241 may enter with instructor permission. Prerequisite: WR 241.

WR 245 Advanced Creative Writing - Poetry 3 Cr. - Extends the introduction to the craft of poetry in WR 242. Presents the works of established writers for forms, techniques and styles of poetry as a context for the student's own production of one poem per week for class discussion and analysis. Students without WR 242 may enter with instructor permission. Prerequisite: WR 242.

WR 246 Advanced Creative Writing (Editing and Publishing) 3 Cr. - Emphasizes development of craft in students' writing while introducing basics of editing others' manuscripts and preparing them for publication in a variety of forms, including an annual student literary magazine. May be repeated twice for credit. Students are required to have instructor permission in addition to or in place of the listed course prerequisites. Prerequisites: WR 240, or 241, or 242, or 243 and 244 or 245.

WR 247 Creative Writing Advanced Scriptwriting 3 Cr. - Focuses on writing and submitting both drama and screen scripts for class discussion and analysis, as introduced in WR 243. Continues the study of established writers for techniques, structures, and styles. Includes lecture, small group activities, and conferences. Prerequisite: WR 243; or instructor permission.

WR 280A Cooperative Education: Technical Writing 1-5 Cr. - Offers technical and professional writing work experience is offered for variable credit up to a maximum of five credits. Students receive one credit for every 40 hours of successful work experience. Department permission is required to take this course.

WR 9599 Professional Editing 3 Cr. - Introduces different types of editors and edits. Includes extensive editing practice with a wide variety of projects, individual and team based. Also emphasizes the editor's critical role in the production process. Prerequisite: WR 122 or 214.

WR 9600 Technical and Professional Writing II 3 Cr. - Includes document design, researching, organizing, managing and producing complex technical and professional documents. Prerequisites: Grade of "B" or better in GD 120, WR 227, WR 9599 and WR 9601.

WR 9601 Graphics for Technical and Professional Writers 3 Cr. - Applies the graphic art skills learned in GD 120 to technical and professional writing projects. Combines those skills with skills in electronic layout and design. Prerequisite: Grade of "B" or better in GD 120 and WR 227.

WS - Women's Studies

WS 101 Women's Studies 3 Cr. - Surveys and critically analyzes the position of women in society, in terms of present realities and future possibilities. Provides a framework to connect personal experience with contemporary social and political issues.

WS 201 Women of the World 3 Cr. - Examines the position of women in society from a cross-cultural perspective. Topics include the process of gender enculturation, women's lives in foraging, pastoral and agricultural societies and international issues such as female circumcision, infanticide, child brides and honor/dowry deaths. Prerequisite: WS 101.

WS 202 Working Women for Change: History, Theory and Practice 3 Cr. - Examines how women have worked to empower girls and women and improve the conditions of their lives. Explores ways that feminist theories have shaped the goals and strategies of social change efforts. Offers an in-depth look at selected topic areas, connects analysis and personal experience, and prepares students to become effective change agents. Prerequisite: WS 101.

BOARD AND PROFESSIONAL STAFF

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BA, Theology, Marylhurst University -OR, 1967
 BD, Religion, U Toronto -CN, 1968
 PHD, Sociology, U Colorado Boulder -CO, 1977

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AA, Liberal Arts, Multnomah Junior Col -OR, 1968
 BS, Sociology, University of Oregon -OR, 1970
 MS, Counseling, University of Oregon -OR, 1972

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BS, Math, Virginia Poly Inst & St U -V, 1972
 MA, Mathematics Ed, Ohio University -OH, 1975

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Coord/Resource Ctr

AA, General Studies, Clark College -WA, 1980
 BS, Applied Design, Portland State U -OR, 1985
 MS, Educational Policy & Mgmt, PSU -OR, 2001

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BA, Education, Washington St University -WA, 1964
 MA, English, Portland State University -OR, 1979

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AA, General Studies, Portland CC -OR, 1992
 BA, Anthropology, Portland State U. -OR, 1997

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BA, Spanish, Rutgers St U NJ Newark -NJ, 1977
 MED, Curriculum Theory/Dev., Temple U -PA, 1991
 LIC, Administration, Lewis & Clark Col -OR, 2000

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BS, History, Portland State University -OR, 1967
 MBA, Management, Bryant C Bus Adm -RI, 1976

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BS, Business Admin., U. of Phoenix -AZ, 2001

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BA, Humanities, Michigan State University, 1969
 MS, Linguistics, Ill. Institute of Tech -IL, 1970

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AS, Aviation Maintenance Tech, Lane CC -OR, 1985
 CERT, Aviation Maint. Tech, Lane CC -OR, 1985

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BS, Biology, Portland State University -OR, 1990
 BS, General Studies, Portland State U. -OR, 1990
 MS, Biology, Portland State University -OR, 1992

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BS, Elem Education, Oregon Col. of Ed. -OR, 1964

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BS, Chemistry, Portland State U. -OR, 1964
 MS, Organic Chemistry, Michigan State U. - 1966

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BA, English, Williams C -MA, 1981

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BS, Anthropology, University of Oregon -OR, 1986
 MA, Cultural Anthropology, Indiana U Bloomington, 1994
 MFA, Film & Video, U Iowa -IA, 2000

Anthony, Ryan L*Supv/Data Base Admin*

AAS, Computer Programming, Portland CC -OR, 1983

Anthony, Sharon K*Instr/Engl*

BA, English, University of Oregon -OR, 1966
 MA, English, University of Oregon -OR, 1968
 PHD, English, University of Oregon -OR, 1974

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BS, Science, Portland State University -OR, 1971
 MS, Electronic/Computer Engrng, Portland St U.-OR, 1989

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BA, Commucations, U Massachusetts Amherst-MA,1986
 MFA, Crea. Writing, U Arkansas Main Camp -AR,1995

Arnold, Terry L*Spec/Coop Ed/Plcmt*

BS, Political Science, U. of Oregon -OR, 1975
 MS, Curriculum & Instruct., U. of Oregon-OR, 1979

Baarstad, Kimberley C*Spec/Employment*

BS, Psychology, Oregon State University -OR, 1992

Bach, Susan K*Dir/Instit Research*

BA, English, Willamette University -OR, 1968
 MPA, Public Admin., Lewis & Clark Col -OR, 1986

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BS, Chemistry, Ruhr Universitat Bochum, 1979
 MS, Chemistry, Ruhr Universitat Bochum, 1982
 PHD, Chemistry, Ruhr Universitat Bochum, 1985

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AS, Accounting, Lane CC -OR, 1975
 BS, Public Affairs, University of Oregon-OR, 1979
 MS, Public Affairs, University of Oregon-OR, 1987

Bailey-Fougner, Dennis L*Coord/Admissions*

AA, Liberal Arts, Mesa C -CO, 1980
 BS, Planning Public Policy & Mgmt, U of O, -OR, 1983
 MED, Counseling & School Psych., Wichita St, 1986

Bako, Maria M*Spec/Employment***Bales, Laura J***Mgr/Bookstores*

CERT, Merchandising, Portland CC -OR, 1993
 AS, Marketing, Portland CC -OR, 1998

Ball, Michael R*Spec/Employment*

BS, Anthropology, Southern Oregon U. -OR, 1979

Banks, Russell C*Mgr/Mktg Comm*

BJ, Journalism, Univ of Texas Austin, 1974

Barman, Farshad*Instr/Math*

BS, Electrical Engineer, Ohio Univ-OH, 1973
 MS, Elect Engr, U of CA/Santa Barbara -CA, 1976
 PHD, Elect Engr, U of CA/Santa Barbara -CA, 1979
 MS, Mathematics, Portland State U. -OR, 1995

Barnes, Timothy C*Instr/Comp & Lit*

BA, English, San Jose State University -CA, 1970
 MA, English, Portland State University -OR, 1976

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BA, Sociology, Stanford University -CA, 1973
 CERT, Lifetime Teaching Credential, U of Cal-UCLA, 1976
 CERT, Lrng Handicap Spec Cred., SF State-CA, 1978
 JD, , Lewis & Clark College -OR, 1985

Barnett, Wiley G*Coord/Admissions*

BA, Philosophy, California St U- Fresno -CA, 1969
 MSW, Social Work, California St U-Fresno-CA, 1971

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AA, Mental Health, Mt Hood CC -OR, 1978
 BA, English, University of Oregon -OR, 1986
 MS, Post Secondary, Adult, & Cont Ed, PSU, 2000

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BA, English, Lewis & Clark College -OR, 1984
 MA, Education, Portland State University-OR, 1996

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BS, Mathematics, CUNY York C -NY, 1972
 MS, Mathematics Education, CUNY Queens C-NY, 1977

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CERT, Dental Assisting, Portland CC -OR, 1975
 AS, Dental Hygiene, Portland CC -OR, 1978
 BS, General Studies, Eastern Oregon U. -OR, 1991
 MS, Post Secondary, Adult, & Cont Ed, PSU.-OR, 1998

Beck, Esperanza*Spec/Student Res***Bedient, Sonya F***Counselor*

BA, Psychology, Western Washington Univ -WA, 1994
 MA, Counseling Psych, Lewis & Clark Col -OR, 1998

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BS, Biology, U of Southern California -CA, 1977
 MS, Entomology, Washington St University-WA, 1980
 PHD, Horticulture, Oregon State University -OR, 1985

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AS, Nursing, Kaskaskia C -IL, 1990
 AM, Gerontological Nursing, OHSU U -OR, 1999

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BA, Psychology, Washington St University-WA, 1971
MPA, Public Administration, PSU -OR, 1987

Belt, Cheryl A*Human Resource Rep*

BA, Public Administration, U. of Oregon -OR, 1983

Bender, Byron B*Spec/Employment*

BS, Psychology, University of Oregon -OR, 1976
MS, Education, Portland State University-OR, 1980

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BA, Linguistics, U of CA/Santa Cruz -CA, 1991
MA, Linguistics, U of CA/Santa Cruz -CA, 1995

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BA, English, Lewis & Clark College -OR, 1961
MA, Applied Linguistics, American University, 1962
EDD, Education, Oregon State University -OR, 1983

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BA, English, U Wyoming -WY, 1987
MA, Literature, Arizona State U. Main -AZ, 1991

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BS, Mech. Engr, Farleigh Dickinson Univ. -NJ, 1970
ME, Engineer, Manhattan College -NY, 1974

Berkley, Linda D*Instr/Art*

BFA, Fine Arts, Museum Fine Arts -MA, 1986
MFA, Art, University of Arizona -AZ, 1992

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BS, Mathematics, Portland State U. -OR, 1975
MED, Education, Lewis & Clark College -OR, 1976

Berrong, Patricia A*Instr/Med Records Tech*

AA, Business, Hocking Tech C -OH, 1978
AA, Medical Record Tech, Portland CC -OR, 1988
BS, Health Care Admin, Concordia Col -OR, 1996

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BA, History, College of Notre Dame -CA, 1981
MA, History, U of Southern California -CA, 1986
MA, Political Science, U of Southern Cal -CA, 1988
PHD, Political Science, U of Southern Cal -CA, 1996

Biddle, Debra G*Dir/Medical Imaging*

MS, Public Health, U Missouri Columbia -MO, 1983

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BA, Elementary Ed, Portland State U. -OR, 1986

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BA, Foreign Language, Washington St U. -WA, 1971
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BS, Nursing, University of Portland -OR, 1997
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CERT, Business, Clark College -WA, 1982
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BA, French, U New Hampshire -NH, 1983
 MA, French, University of Oregon -OR, 1986
 CERT, Tesol, Portland State University -OR, 1999

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BA, Mass Media Comm, Linfield Col. -OR, 1995

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MA, Spanish, University of Oregon -OR, 1996

Bonner, Robert W*Instr/Diesel Serv Mech*

AS, Diesel Service Tech, OIT -OR, 1965

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BA, Business, Eastern Oregon University -OR, 1972

Braver, Seth P*Instr/Math*

BA, Mathematics, San Francisco State U -CA, 1999
 MA, Mathematics, U of CA/Santa Cruz -CA, 2001

Brayton, Kelley C*Dir/Int'l Ed*

BA, , Eastern Washington U -WA, 1988
 AM, , Sch Intrnatl Training -VT, 1997

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BS, Biology, Pacific University -OR, 1987
 BS, Psychology, Pacific University -OR, 1987
 MPA, Management, Lewis & Clark College -OR, 1999

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BA, English, Florida St U -FL, 1980
 MA, English, Florida St U -FL, 1983
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AS, Criminal Justice Admin, Clackamas -OR, 1982

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BS, History-Secondary Educ, St C Boston -MA, 1966
 MA, History, Ohio University -OH, 1968

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BA, General Studies, Southern Oregon U. -OR, 1988
 MA, Rehabilitation Counseling, PSU -OR, 1997

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BS, Business Administration, PSU -OR, 1971
 MS, Business Education, PSU -OR, 1975

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BA, English, University of Puget Sound -WA, 1990
 MA, English, U Colorado Boulder -CO, 1993

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BS, Rec & Park Mgmt, U. of Oregon -OR, 1980

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BA, Computer Science, U. of Oregon -OR, 2001

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BS, Geography, Oregon State University -OR, 1987
 BS, History, Oregon State University -OR, 1987
 MAT, Secondary Social Sciences, U. of P. -OR, 1996

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BS, Sociology, Oregon State University -OR, 1981
 MS, Industrial Relations, U. of Oregon -OR, 1984

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Mt Hood CC -OR,

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BS, Natural Science, Lewis & Clark College -OR, 1969
 MS, Biology, University of Oregon -OR, 1974
 EDD, Education, Portland State University -OR, 1991

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AS, Gen Studies, Three Rivers C Tech -CT, 1983
 BS, Voc Ed, S Illinois U Carbondale -IL, 1990

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BA, International Studies, U. Pacific -CA, 1978
 ACERT1, English as a 2nd Language PSU -OR, 1978

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BA, Communication, U Missouri Kansas City-MO, 1989
 BA, English Lit, U Missouri Kansas City -MO, 1989
 MAT, English, U Iowa -IA, 1993
 PHD, Education, U Iowa -IA, 1999

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AGEN, Nursing, Portland CC -OR, 1974

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BS, Business Administration, OSU. -OR, 1970

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BS, Community Serv Public Affairs, EOU. -OR, 1974
 BS, Industrial Education, OSU -OR, 1978

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BA, English, U of CA/ Santa Barbara -CA, 1987
 MAT, Tesol, Sch Intrnatl Training -VT, 1999

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BS, Chemistry, Bridgewater St C -MA, 1979
 MS, Chemistry, U Colorado Boulder -CO, 1984

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BA, Social Work, Chapman University -CA, 1976
 MSW, Social Work, Portland State University -OR, 1992

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BA, Humanities, Michigan State U., -MI, 1987
 MFA, English, U of California/Irvine -CA, 1990

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BA, English, Portland State University -OR, 1984
 MA, English, Portland State University -OR, 1988
 PHD, English, University of Oregon -OR, 1996

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AB, Political Science, Ohio University -OH, 1982
 MA, English, Ohio University -OH, 1985
 PHD, English, Ohio St U Main Cam -OH, 1990

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AA, Gen Studies, Johnson Cty Area VOC TECH, 1984
 BA, Secnd. Ed: Math, U Missouri -MO, 1986
 MA, Special Education, U Missouri -MO, 1996

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BA, Biology, Carleton C -MN, 1975
 MS, Genetics, U Connecticut -CT, 1977
 PHD, Biochemistry, Washington U -MO, 1983

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BS, Mathematics, Portland State U. -OR, 1987
 MED, Education, Portland State U. -OR, 1995

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AAS, Mech Engr Tech, Portland CC -OR, 1974

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AS, General Education, Lincoln Land CC -IL, 1983
 BS, Psychology, Portland State U. -OR, 1992

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MS, Finance, Syracuse U Main Camp -NY, 1998

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BA, Business, Eastern Washington U -WA, 1965
 MST, , Portland State University -OR, 1976

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BS, Recreation & Park Mgmt, U. of Oregon-OR, 1983

Christopher, Connie S*Instr/Welding***Christopher, Susanne M***Instr/Pers Health*

BS, Health, Oregon State University -OR, 1974
 MED, Health Education, Oregon State U. -OR, 1976
 EDD, Adult Leadership & Post Sec Ed PSU -OR, 1995

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BS, Biology, SUNY C Oneonta -NY, 1967
 DA, , Idaho State University -ID,
 MST, Teaching, Antioch C Main Camp -OH,

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AS, Business Admin, Portland CC -OR, 1986
 BS, Business/Accounting, PSU -OR, 1990
 MBA, Business Admin, Portland State U. -OR, 1997

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BA, Business/Accting, Southern Oregon U.-OR, 1978
 MBA, Information Systems, Oregon State U.-OR, 1980

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BA, English, Portland State University -OR, 1976
 MA, English Literature, Portland State U-OR, 1979

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AAS, Medical Lab Technology, Portland CC OR, 1975
 BS, Science/Phs Certificate, PSU -OR, 1983
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BA, Sociology, University of Oregon -OR, 2000

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BS, Elementary Education, PSU -OR, 1969
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BS, Zoology, Oregon State University -OR, 1969
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AAS, Voc Teacher Ed, Portland CC -OR, 1977
BS, Mgmt, Marylhurst C Lifelong Lrn -OR, 1986

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BA, English, Virginia Poly Inst & St U U-V, 1992
MLS, Library Science, N Carolina Cntl U -NC, 1996

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MS, Elec Engr, Polytechnic Inst/Cluj, 1981
MS, Industrial Technology, Purdue U. -IN, 1994

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MA, English, Portland State University -OR, 1999
BA, English, Pacific University -OR,

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BA, Liberal Studies, Linfield College -OR, 1992

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BA, English Literature, Wheaton C -MA, 1969

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BA, Psychology, Rocky Mountain College -MT, 1981
MA, Anthropology, University of Montana -MT, 1984
PHD, Anthropology, University of Oregon -OR, 1991

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BS, Accounting, Utah State University -UT, 1983

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BFA, Liberal Arts, OSU -OR, 1977

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CERT, Mgmt Supervision, Portland CC -OR, 1994
AA, General Studies, Rogue CC -OR, 1997

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BA, Allied Health Ed, U Texas Hlth Sci -TX, 1979
BS, Allied Health Ed, U Texas Hlth Sci -TX, 1979
MBA, Health Care Administration, City Univ, 1992

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BA, Home Economics Ed, Idaho State U -ID, 1969
MED, Educational Administration, OSU -OR, 1976

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BS, Social Science, Portland State U. -OR, 1991
BS, Speech Communication, PSU -OR, 1991
MPA, Personnel Management, PSU -OR, 2000

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BS, Mathematics, Alabama St U -AL, 1989

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CERT, Machine Tech, De Anza College -CA, 1980
 CERT, Machine Manuf. Tech, Clackamas CC -OR, 1998

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BA, Soc Sci, Marylhurst C Lifelong Lrn -OR, 1994
 MED, Curriculum & Instruction, City Univ. 1995

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BA, English, Hamline U -MN, 1963
 MED, Secondary Education, U. of Arizona -AZ, 1966
 MA, English as a Second Lang, U. of Arizona -AZ, 1976

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BA, Physical Ed, California St U- Chico -CA, 1991
 MA, Physical Ed, California St U- Chico -CA, 1993

Dembrow, Michael E*Instr/Engl*

BA, English, U Connecticut -CT, 1973
 AM, Comparative Literature, Indiana U Bloom. -IN, 1975

Deming, James B*Instr/Dental Hyg*

BA, Chemistry, University of Oregon -OR, 1961
 DMD, Dentist, University of Oregon -OR, 1965

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CERT, Human Resource Mgmt., Portland State U.-OR, 2000
 BA, Organizational Communication, Marylhurst U.-OR,

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BA, Mgmt Of Human Resrc, George Fox C -OR, 1991

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BS, Psychology, U Wisconsin Stevens Pt -WI, 1991
 BS, Sociology, U Wisconsin Stevens Pt -WI, 1991
 MS, Ed Policy & Mgmt, Portland State U. -OR, 1995

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BA, Political Science, Gonzaga University -WA, 1983
 MA, English, Eastern Washington U -WA, 1985

Dittrich, William A*Instr/Physics*

BS, Physics, Western Washington Univ -WA, 1968
 MS, Physics, U Colorado Boulder -CO, 1973
 MS, Aeronautical Engineering, U. of Washington-WA, 1982

Do, Vinh T*Counselor*

BA, Western Philosophy, Saigon U. -Korea, 1967
 BA, English as a Second Language, Saigon U.-Korea, 1968
 MA, Counseling Education, Portland State U. -OR, 1981

Dodge, Kenneth E*Spec/Instructional Comp***Dolan, Janice L***Mgr/Comm Ed*

BS, Recreation & Park Mgmt, Oregon State U. -OR, 1971
 MS, Adult Education, Portland State U. -OR, 1997

Donnelly, Gerald T*Dir/Human Resources*

BS, American Studies, Oregon State U. -OR, 1981
 BS, Political Science, Oregon State U. -OR, 1981
 MS, Industrial Relations, U. of Oregon -OR, 1993

Dougherty, Daniel J*Instr/Comp Info Sys*

BS, Mathematics, SUNY Stony Brook -NY, 1975
 MS, , U of California/Berkeley -CA, 1977

Dow, Jo Lynn*Spec/Student Res*

BA, Humanities, Marylhurst University -OR, 1995
 BA, Science, Marylhurst University -OR, 1995

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BS, Education, Portland State University -OR,

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AA, Social Science, Chaffey College -CA, 1962
 BA, English, San Diego State University -CA, 1965
 MA, Col Student, Srv Admin, University of Portland -OR, 1995

Dulaney, Marjorie L*Instr/Nursing*

BS, Nursing, University of Portland -OR, 1995
 MS, Nursing, University of Portland -OR, 1995

Dumas, Leah M*Spec/Employment*

MPA, Public Admin, Portland State University -OR, 1996

Duncan, Colleen M*Instr/Nursing*

BS, Nursing, Oregon Health Sciences U -OR, 1980
 MPH, Public Health, Portland State U. -OR, 1989
 MS, Nursing, Oregon Health Sciences U -OR, 1990

Duncan, Thomas L*Dir/Industrial Occupaton Prog.*

AAS, Computer Science, St Tech Inst Memphis -TN, 1988
 AAS, Vocat. Ed Admin, St Tech Inst Memphis -TN, 1988

Dundorf, Christyn N*Instr/Child Dev/ECE*

BA, Psychology, Carleton C -MN, 1989
 PHD, Human Development, U. of Rochester, 1999

Dunnington, Russell J*Instr/Diesel Serv Mech*

AS, Diesel Power Technology, Lower Columbia C-WA, 1984
 BS, Diesel Power Technology, OIT -OR, 1987

Duszynski, Landa M*Spec/Mental Health*

BA, Social Work, Marycrest, 1981
 MSW, Social Work, U Iowa -IA, 1984

Dykes, Sarah Z*Spec/Employment*

BA, Human Services, University of Oregon -OR, 1993

Easton, Kari A*Instr/Foreign Lang*

BA, Spanish, University of Oregon -OR, 1983
 MA, Spanish, University of Oregon -OR, 1988

Eaton, Gary R*Mgr/ITS Client Suppt*

BS, Business Administration, Oregon State U. -OR, 1974
 AS, Computer Field Servicing, Portland CC OR, 1991

Ebert, Donald R*Instr/Dev Ed/Lang Arts*

BS, Education, Lewis & Clark College -OR, 1958
 MED, Education, University of Oregon -OR, 1965

Eby, Linda L*Instr/Nursing*

BS, Nursing, Oregon Health Science U -OR, 1975
 MS, Nursing, Oregon Health Science U -OR, 1981

Eden, James W*Instr/Econ*

BS, Economics, University of Hull England, 1972
 MS, Economics, Portland State University -OR, 1985

Eden, Linda J*Dir/Aux Services*

BS, Institutional Mgmt & Dietetics, OSU -OR, 1978

Edwards, Heidi D*Spec/Employment*

BS, Cultural Anthropology, Purdue University -IN, 1996
 MS, Communication, Portland State University -OR, 1998

Edwards, Jeff A*Instr/Bus Admin*

BS, Business Administration, U. of Oregon -OR, 1969
 MBA, , Portland State University -OR, 1977

Eid, Marlene*Instr/Psych*

MA, , Portland State University -OR, 1986

Ellertson, Amanda T*Coord/Stud Ldrshp*

BA, Communication Arts, Pacific Lutheran U -WA, 1983

Elliott, Jacqueline M*Spec/Student Res*

BS, Secondary Ed, U Wisconsin Milwaukee -WI, 1992

MS, Counseling, Portland State University -OR, 1999

Ellis, Diana L*Instr/Comp Appl/Office Syst*

BS, Education, Henderson St U -AR, 1978

MS, Education, Henderson St U -AR, 1982

Ells, Christopher J*Mgr/Safety & Risk*

AS, Parks Management, West Valley College -CA, 1974

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MN, Nursing, University of Washington -WA, 1965

PHD, Nursing, University of Washington -WA, 1971

BS, Nursing, University of Oregon -OR,

Eng, Russell B*Instr/Mech Eng*

BS, Mechanical Engineering, Portland State U. -OR, 1973

MS, Mechanical Engineering, U. of Portland -OR, 1987

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AGEN, TV Production Tech, Mt Hood CC -OR, 1979

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BS, Microbiology, Oregon State University -OR, 1972

BS, Medical Technology, Oregon State U. -OR, 1973

MPA, Public Administration, Portland State U. -OR, 1993

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BA, Humanities, Iowa State Teachers Coll -IA, 1949

MA, History, Colorado State University -CO, 1951

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BA, Recreation, Eastern Washington U -WA, 1992

AA, General Studies, Columbia Basin College -WA, 1993

MED, Student Personnel Admin, WSU -WA, 1995

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BS, Sociology, Portland State University -OR, 1986

MED, Education, Portland State University -OR, 1995

Espinosa, Jorge E*Instr/Speech*

BS, Music, Lewis & Clark College -OR, 1979

MA, Speech Communication, Oregon State U.-OR, 1982

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BA, Anthropology, University of Washington -WA, 1965

MA, English, University of Oregon -OR, 1967

DA, English, University of Oregon -OR, 1973

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AA, Psychology, Santa Rosa Junior College -CA, 1983

BA, Psychology, Sonoma State University -CA, 1985

Ewing, Robert R*Instr/Phys Sci*

BS, General Science, Oregon State University -OR, 1971

MS, Science Ed, Oregon College of Education -OR, 1973

Fan, Lee*Coord/Train Prg for Stud w/DisBS,*

Management, U Wisconsin Superior -WI, 1975

BS, Marketing, U Wisconsin Superior -WI, 1975

MS, Special Education, Portland State U. -OR, 1989

CERT, Urban Special Education, Harvard U MA, 1997

Farra, Carol L*Spec/Student Res*

BS, Secondary Education, Texas Tech U -TX, 1968

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BS, Physics, Portland State University -OR, 1991
 MS, Physics, Portland State University -OR, 1996

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BA, History, Weber State University -UT, 1973
 BA, English, Weber State University -UT, 1973

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BA, Elementary Education, Western Oregon U.-OR, 1967
 MS, Interdisciplinary Studies, WOU -OR, 1988

Fisher, Andrew H*Instr/Hist*

BA, History, University of Oregon -OR, 1992

Flaman, Michael J*Instr/Mach Tech*

AAS, Machine Technology, Portland CC -OR, 1978
 AAS, Business Management, Portland CC -OR, 1979
 AAS, Vocational Teacher Ed, Portland CC -OR, 1985
 BS, Manufacturing Engineer Tech, OIT -OR, 1991

Flint, Karen M*Spec/Employment*

BA, English, U of California/Berkeley -CA, 1974
 MS, Education, Portland State University -OR, 1999

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BS, Psychology, University of Oregon -OR, 1972
 MS, Counseling, University of Oregon -OR, 1976

Fong, April A*Instr/Biology*

BA, Biology, U of California/Berkeley -CA, 1984
 BA, Psychology, U of California/Berkeley -CA, 1984
 MS, Entomology, U of California/Davis -CA, 1992

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BS, Medical Tech, U Illinois Chicago Circle Cir, 1973
 MS, Computer Science, N Illinois U -IL, 1982

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BS, Economics, Portland State University -OR, 1972
 JD, Law Enforcement, U. of Puget Sound -WA, 1975

Frank, Simone J*Counselor*

BA, Psychology, University of New Mexico, 1988
 MA, Counseling Psychology, Lewis & Clark C.-OR, 1990

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BA, Business, University of Oregon -OR, 1960
 MBA, Finance, Portland State University -OR, 1971

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AAS, Building Construction Tech, Portland CC -OR, 1979
 AAS, Vocational Teacher Ed, Portland CC -OR, 1981

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BA, Social Service, University of Washington -WA, 1972
 MBA, Business, University of Washington -WA, 1974
 MS, Law Enforcement, University of Portland -OR, 1979

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BS, Mathematics, University of Portland -OR, 1993
 MS, Mathematics, Portland State University -OR, 1996

Furrer, Cheryl L*Spec/Employment*

BS, Social Science, Oregon College of Ed -OR, 1973

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BA, Physics, Portland State University -OR, 1991

PHD, Environmental Science, Portland State U.-OR, 1996

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BA, Industrial Psychology, U of Cal/Berkeley -CA, 1986

MA, Speech Communication, SF State U -CA, 1993

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BA, Psychology, Portland State University -OR, 1974

MED, Counseling, Lewis & Clark College -OR, 1978

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BA, , U Kansas -KS, 1995

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BA, English, Iowa St U Sci & Tech -IA, 1976

BA, Sociology, Iowa St U Sci & Tech -IA, 1976

MA, English, Iowa St U Sci & Tech -IA, 1984

MA, Tesol, Iowa St U Sci & Tech -IA, 1984

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BA, English, Brigham Young University -UT, 1993

BA, History, Brigham Young University -UT, 1993

MA, History, Portland State University -OR, 1997

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BA, Interpersonal Communication, U. of Montana - MT, 1991, MSW, Wash. U - MO, 1997

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BS, Psychology, Eastern Oregon University -OR, 1991

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BA, Education, University of Oregon -OR, 1966

MS, Management, Marylhurst C Lifelong Lrn -OR, 1990

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BA, History, Portland State University -OR, 1976

AAS, Medical Record Technology, Portland CC -OR, 1989

MS, Management, Marylhurst University -OR, 1998

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BS, Psychology, University of Oregon

-OR, 1981

MS, Counseling, University of Oregon -OR, 1987

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AS, Human Services, Blue Mountain CC -OR, 1976

AAS, Applications Computer Prg, Portland CC -OR, 1982

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BS, Microbiology, Oregon State University -OR, 1976

MS, Exercise Physiology, U.of Oregon -OR, 1983

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BA, English, U Illinois Urbana -IL, 1971
 MA, English, Portland State University -OR, 1982

Goldberg, David M*Div Dean*

BA, Sociology, U Colorado Denver -CO, 1970
 MS, , U Colorado Denver -CO, 1977

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BA, Accounting, University of Oregon -OR, 1975
 BA, Economics, University of Oregon -OR, 1975

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BA, Psychology, George Washington U -DC, 1969
 MS, Science Education, American University, 1978

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AA, Secretarial Science, Fullerton College -CA, 1977
 BA, History, California St U-Fullerton -CA, 1986
 MA, History, California St U-Fullerton -CA, 1988
 DIP, , U of California/L.A.(UCLA) -CA, 1993

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BS, Psychology, Missouri S St C -MO, 1985
 PHD, Experimental Psy, U Tennessee/Knoxville -TN, 1991

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BA, Criminal Justice, Cal St U-Sacramento -CA, 1982

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BA, Anthropology, University of Montana -MT, 1973

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BA, History, Southern Oregon University -OR, 1973
 MS, College Student Servcs Admin, OSU -OR, 1978
 EDD, Educational Leadership, PSU -OR, 1990
 MA, History, Portland State University -OR, 1995

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BS, Statistics, Colorado State University -CO, 1974
 BA, Physical Education, Purdue University -IN, 1978
 MS, Education, Oregon State University -OR, 1981

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BA, Social Welfare, University of Portland -OR, 1969
 MS, Post Secondary,Adult,& Cont Ed, PSU -OR, 1995

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BS, , St Louis U Main Camp -MO, 1973
 MA, , Arizona State Univ. Main -AZ, 1983

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BA, English Literature, Miami U Cntl Off -OH, 1993
 MA, English Literature, Portland State U. -OR, 1997

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BA, Sociology, University of Oregon -OR, 1967
 MS, Social Science, Portland State U. -OR, 1970
 PHD, Counseling, Oregon State University -OR, 1987

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 BS, Graphic Design, San Jose State U. -CA, 1978

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BSW, Social Work, U Wisconsin Milwaukee -WI, 1997

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BA, Business Administration, U Hawaii Manoa -HI, 1985
 MST, Physical Ed, Portland State U. -OR, 1991

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BA, English, University of Oregon -OR, 1996
 BA, Mathematics, University of Oregon -OR, 1996
 MA, Mathematics, University of Montana -MT, 2000

Hackney, Catherine D*Spec/Employment*

BA, Marketing, St Martin's College -WA, 1993

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AAS, Engineering Tech, Clark College -WA, 1985**Haigler, Susan L***Instr/Speech*BS, Business Administration, Wingate U.-NC, 1986
BS, Speech Communication, Wingate U.-NC, 1986
MA, Speech Communication, U Georgia -GA, 1990
PHD, Speech Communication, U. of Washington -WA, 1996**Hall, David G***Instr/Math*BS, Psychology, Western Oregon Univ. -OR, 1980
BS, Corrections, Western Oregon Univ. -OR, 1980
CERT, Secondary Education, PSU -OR, 1988
MST, Mathematics, Portland State U. -OR, 1998**Halloran, Paul L***Spec/Comm Resource*

BA, Sociology, Regis University -CO, 1972

Hamilton, Vivian M*Instr/Psych*BA, Political Sci, CA Poly State U -CA, 1989
MA, Social Ecology, U of California/Irvine -CA, 1995**Hammond, Jessie F***Instr/Nursing*BA, Biology, Whitman College -WA, 1965
BS, Nursing, University of Portland -OR, 1976
MN, Nursing, Oregon Health Science U -OR, 1980**Handy, Carolina A***Instr/Chem*BA, Chemistry, Whittier College -CA, 1971
MS, Chemistry, California St U-Long Beach -CA, 1973
MS, Chemistry, University of Oregon -OR, 1986**Hanken, Kari L***Counselor*BA, Elementary Education, U N Iowa -IA, 1990
MSE, Special Ed, U Wisconsin Whitewater -WI, 1995**Hanna, Evelyn D***Spec/Student Loan*Sonoma State University -CA,
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AAS, Data Processing, Portland CC -OR, 1978**Hannigan, Penelope J***Instr/Legal Asst*AA, English, San Jose City College -CA, 1973
BA, English, Portland State University -OR, 1982
JD, Law, Lewis & Clark College -OR, 1985**Hanson, Dale M***Mgr/Plant Services***Hargrave, Sara M***Occup Cluster Trainer***Harmon, Linda F***Spec/Instructional Comp***Harris, Jennifer P***Instr/Chem*BS, Chemistry, SW Texas St U -TX, 1998
MS, Chemistry, University of Oregon -OR, 1999**Harris, Joanne M***Instr/Optical Med Tech***Harrison, James S***Instr/Hist & Poli Sci*BA, History, Hunter College -NY, 1967
MA, History, City College of New York -NY, 1973
MA, Administration/Curriculum, Gonzaga U. -WA, 1987

Harshberger, Deborah M*Spec/Employment*

BS, Rehabilitation Ed, Pennsylvania State U., 1990

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BS, General Science, University of Portland -OR, 1972

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BS, Business, University of Oregon -OR, 1959

BS, Education, University of Oregon -OR, 1959

MBA, Business, Portland State University -OR, 1978

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BS, Electrical Engineering, Washington St U. -WA, 1969

MS, Electrical Engineering, U. of Washington -WA, 1971

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BS, Fire Protection Tech, Cal St U- L.A. -CA, 1993

MA, Education, California St U- Dmngz Hlls -CA, 1996

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BS, Secondary Education, U. of Portland -OR, 1986

MFA, Theatre Arts, University of Portland -OR, 1992

Hayward, Joan*Div Dean*

BS, Medical Record Admin, Seattle University -WA, 1969

MS, Management, Marylhurst C Lifelong Lrn -OR, 1989

Hecht, Gary W*Instr/Elec Eng*

BS, Elec. Engineering, U of Texas/Arlington -TX, 1971

Helzer, Richard H*Instr/Vis Arts*

BS, Art, Portland State University -OR, 1966

MST, , Portland State University -OR, 1971

Hennessy, Sharon G*Instr/ABE/ESL*

BA, Tesol, Portland State University -OR, 1986

MED, Adult Education (ABE or GED), OSU -OR, 1998

Henning, Martha L*Instr/Comp & Lit*

AB, English, Stanford University -CA, 1970

MA, Humanities, SUNY Buffalo Main Camp -NY, 1972

PHD, Rhetoric and Composition, U Louisville -KY, 1993

Hereford, Susan K*Mgr/Comm/Media Rel*

BA, English, Lewis & Clark College -OR, 1970

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BA, Counseling Ed, Columbia Christian C -OR, 1976

MS, School Psychology, Lewis & Clark College -OR, 1984

Heumann, Judy R*Instr/ABE/GED*

BA, Education, San Diego State University -CA, 1973

MS, Education, Portland State University -OR, 1991

Hicks, James H*Instr/Art Hist*

BA, English, University of Oregon -OR, 1969

MA, Art History, University of Oregon -OR, 1973

Hilderbrand, Janice G*Supv/Food Svcs*

Hill, Paul C*Dean/Instruction*

MM, Choral Conducting, New England Conservatory Music MA,
 BME, Music (Professional) Program, Kent State University Main Campus-OH,
 EDD, Higher Education Administration, University of Nebraska -NE

Hill, Roxanne W*Instr/ENNL*

BA, Linguistics, University of Minnesota, 1983
 MA, Teaching ESL, University of Minnesota, 1990

Hinkle, Spencer W*Instr/Bldg Trades*

BA, Geography, University of South Florida -FL, 1974
 ACERT1, Building Construction Technology, Portland Community College-OR, 1980

Hirsch, Peter M*Div Dean*

AB, Sociology, University of Illinois Urbana -IL, 1960
 AM, Sociology, University of Illinois Urbana -IL, 1964
 AM, Sociology, Washington University -MO, 1964

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BA, Speech Pathology, Pacific University -OR, 1974
 MS, Education-Deaf Specialist, Oregon College of Education OR, 1977

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AA, Liberal Arts, Central Oregon Community College -OR, 1966
 BLA, Landscape Architecture, University of Oregon -OR, 1974

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BA, Psychology, Pacific Lutheran University -WA, 1977
 MA, Teaching ESL, School International Training -VT, 1990

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BA, English, Lewis & Clark College -OR, 1963
 MS, Education And Human Services, PSU -OR, 1983

Holman, Jane E*Instr/Comp & Lit*

BS, Sociology, University of Oregon -OR, 1977
 MA, English, Portland State University -OR, 1988

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AAS, Drafting Technology, Lane Community College -OR, 1971
 AAS, Industrial Drafting, Lane Community College -OR, 1971
 AAS, Prof/Tech Teacher Train, Portland Community College -OR, 1996

Horani, Laura A*Instr/ENNL*

MA, Tesol, Portland State University -OR, 1995

Hornshuh, Mark W*Spec/EMS Prog*

BS, Business Administration, PSU -OR, 1984

Howell, James S*Instr/Psych*

AA, Liberal Arts, Mt San Antonio College -CA, 1968
 BA, Psychology, California State University-Fullerton -CA, 1970
 MA, Psychology, University of Texas/Arlington -TX, 1972

Howse, W Frances*Div Dean*

BS, Sociology, Tennessee State University -TN, 1978
 MA, Sociology, University of Pittsburgh -PA, 1980

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BA, Spanish, University of Oregon -OR, 1964
 MA, Industrial/Labor Relations, University of Oregon -OR, 1975

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BA, English, Washington State University -WA, 1963
 MA, English, University of Oregon -OR, 1967

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BS, Civil Engineering, University of Maine Orono -ME, 1972
 MS, Civil Engineering, Oregon State University -OR, 1975

Hull, Bryan G*Instr/Engl*

BA, English, Boston University -MA, 1983
 MA, English, University of California/Irvine -CA, 1987

Humphrey-Keever, Mary Ann*Instr/Phys Ed*

MA, Physical Education, U Denver -CO, 1969
 MED, Counseling, Oregon State University -OR, 1970
 EDD, Educational Admin., U N Colorado -CO, 1983

Hunt, Teri L*Mgr/Payroll***Huseby, Barbara J***Instr/Comp Sci*

BS, Mathematics, Oregon State University -OR, 1968
 MS, General Science, Oregon State University -OR, 1969

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BS, Geophysics, University of Minnesota, 1982
 MS, Earth Science, SUNY Stony Brook -NY, 1988
 PHD, Planetary Science, U. of Arizona -AZ, 1996

Hutt, Nancy L*Instr/Nursing*

BS, Nursing, U Wyoming -WY, 1981
 MS, Nursing, U Colorado Health Sci Ctr, 1992

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BA, Women's Studies, Oberlin C -OH, 1991

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ACERT2, Dental Hygiene, U. of Oregon -OR, 1970
 BS, Science, Portland State University -OR, 1976
 MED, Adult Education, OSU -OR, 1992

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BA, English, Cal St U-Northridge -CA, 1975
 MS, Special Education, Lewis & Clark Col -OR, 1976

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BA, Literature, University of Oregon -OR, 1978
 MA, English, University of Oregon -OR, 1980

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AB, English, Western College for Women -OH, 1967
 MA, Higher & Adult Ed, Columbia U Tchrs C -NY, 1970
 EDD, Higher Ed, Columbia U Teachers C -NY, 1985

Jeffery, James D*Instr/Auto Body Rep*

AAS, Auto Body Repair, Portland CC -OR, 1974

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BS, History, U. of Nevada/Reno -NV, 1993
 BS, Secondary Ed, U. of Nevada/Reno -NV, 1993
 MS, Education, Western Oregon Univ -OR, 1997
 MS, Information Systems, WOU -OR, 1997

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BA, Economics, University of New Mexico, 1976
 BBA, HR Mgmt, University of New Mexico, 1978
 MS, Educational Admin, Portland State U. -OR, 1997

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MA, English, University of Dhaka, 1961
 MED, Education, Northern Col St Univ Proj, 1966
 PHD, Voc Education, U N Dakota C -ND, 1972

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BA, Business, Pacific Lutheran U -WA, 1968
 MST, , Portland State University -OR, 1974

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AAS, Vocational Music, Portland CC -OR, 1985
 BA, HR Mgmt, George Fox College -OR, 1993

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BA, Mathematics, Reed College -OR, 1979
 MBA, Management, University of Oregon -OR, 1999

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CERT, Lifetime Teaching Cred, SF State U -CA,
 BA, Elem Education, Western Oregon Univ -OR,
 CERT, Head Start, W Michigan U -MI,

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BS, Housing Design, Oregon State Univ -OR, 1996

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BA, History, Loyola Marymount University-CA, 1968
 MS, Curriculum & Instruction, PSU -OR, 1994

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BS, Sociology, Oregon State University -OR, 1996

Jones, Regena B*Spec/Employment*

BS, Social Science, Portland State U. -OR,

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BS, Biology, University of Oregon -OR, 1991
 MS, Biology, University of Oregon -OR, 1995

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AAS, Prof/Tech Tchr Train, Portland CC -OR, 1994

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BA, Human Services, Chabot College -CA, 1976
 BA, Human Services, Antioch Col San Fran-CA, 1979

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AS, Biology, Umpqua CC -OR, 1992
 AAS, Medical Lab Tech, Portland CC -OR, 1996
 BS, General Science, Portland State U. -OR, 1998

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BS, Nursing, California St U- Fresno -CA, 1976
 MS, Nursing, U of CA/ San Francisco -CA, 1981

Judge-Morris, Maureen A*Mgr/Employment Svcs*

BA, , U Illinois Chicago Circle Cir, 1973

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AAS, Welding Technology, Portland CC -OR, 1981
 AAS, Auto Body Repair, Portland CC -OR, 1985

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CERT, Hum. Serv, Marylhurst C Life Lrn -OR, 1980

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BA, Psychology, University of Portland -OR, 1968
 MTH, Theology, University of Innsbruck, 1975
 MDIV, Theology, Princeton Theol Sem -NJ, 1976

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BA, Education, Western Washington Univ -WA, 1969
 MA, Education, Western Washington Univ -WA, 1975

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AB, English, San Diego State University -CA, 1973
 MA, Education, San Diego State Univ -CA, 1975
 ACERT1, English as a Second Lang PSU -OR, 1983

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BA, Education, San Francisco State U -CA, 1962
 MA, Counseling & Guidance, SF State U -CA, 1964
 PHD, Education, University of Oregon -OR, 1967

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BA, Biology, Central Washington U -WA, 1973
 MAT, English as a 2nd Lang, U of Wash -WA, 1980

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AAS, Dental Hygiene, Portland CC -OR, 1990
 BS, Dental Hygiene, Eastern Wash U -WA, 2001

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BS, Culture and Tech, Humboldt State -CA, 1994

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AGEN, Aviation Maint Tech, Portland CC -OR, 1996

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AA, General Studies, Highline CC -WA, 1979
 BA, English Literature, Univ of Wash -WA, 1981
 MLS, Library Science, Univ of Wash -WA, 1985

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BS, Business, Rasht Business College -Iran, 1977
 MA, Economics, New Sch Soc Research -NY, 1980
 PHD, Urban Studies, Portland State U. -OR, 1986

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CERT, Photography, San Francisco Art Inst-CA, 1985
 BA, Photography, San Francisco State U -CA, 1986
 MFA, Photography, San Francisco State U -CA, 1992

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BA, History, Portland State University -OR, 1987
 AAS, Voc Teacher Education, Portland CC -OR, 1993

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BS, Physics, U Hawaii Manoa -HI, 1979
 MS, Physics, University of Washington -WA, 1984

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BS, Civil Engineer, Oregon State Univ -OR, 1984

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BA, English, University of Puget Sound -WA, 1985
 MA, English, SUNY Buffalo Main Camp -NY, 1993
 PHD, English, SUNY Buffalo Main Camp -NY, 1997

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BA, Speech Communication, S. Francisco St U -CA, 1986
 MA, Speech Communication, S. Francisco St U -CA, 1989

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BS, Social Science, University of Oregon -OR, 1964
 MS, Teaching, University of Oregon -OR, 1968
 PHD, Geography, University of Oregon -OR, 1982

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BS, Mathematics, Montana State U/Bozeman -MT, 1989
 MS, Mathematics, Montana State U/Bozeman -MT, 1990

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 BS, Mgmt/Communication, Concordia Col -OR, 1999

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BS, Business Admin, Oregon State University -OR, 1980

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BA, Mathematics, U of California/L.A.(UCLA) -CA, 1965
 MS, Mathematics, Wisconsin, 1967

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ACERT1, Diesel Service Mechanics, Portland CC-OR, 1987
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 AAS, Agriculture Mechanics, Portland CC -OR, 1988

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BS, Mathematics, Portland State University -OR, 1990
 MS, Mathematics, Portland State University -OR, 1992

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BA, English, U New Hampshire -NH, 1979
 MFA, English, U Massachusettes Amherst -MA, 1989

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BA, Psychology, Oregon State University -OR, 1987

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BA, Mathematics, U New Hampshire -NH, 1967

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 MS, Adult Education, Portland State University -OR, 1997

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AS, Drafting Technology, Clackamas CC -OR, 1986

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MA, Biology, San Francisco State U -CA, 1969
 MPA, Public Admin, Portland State University -OR, 1978
 PHD, Educational Policy & Mgmt, Univ of Oregon -OR, 1989

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BS, Data Processing, Moscow St.Inst.Communication, 1962

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BS, Sociology, U Wisconsin Stevens Pt -WI, 1969
 CERT, Cytotechnologist, Marshfield Clinic, 1976

Kraxberger, Darrel O*Managing Architect*

BARC, , University of Oregon -OR, 1965

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AA, Business, Southwestern Illinois Coll -IL, 1978
 BS, Psychology, Portland State University -OR, 1999

Kruse, Dean H*Instr/Biology*

BS, Foreign Language, Iowa St U Sci & Tech -IA, 1969
 MS, Biology, San Diego State University -CA, 1975
 PHD, Environmental Science, Portland State U -OR, 1999

Kuhn, Lauren L*Instr/Psych*

BA, Anthropology, U of CA-San Diego (UCSD) -CA, 1974
 MS, Social Work, San Diego State University -CA, 1977

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BA, English, Washington U -MO, 1975
 MA, English, University of Minnesota, 1978
 PHD, Educational Policy & Mgmt, U of Oregon -OR, 1997

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BS, Biology, Portland State University -OR, 1978
 MS, Biology, Portland State University -OR, 1981

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BS, Accounting, Claremont Mens College -CA, 1970
 MBA, Business, University of Portland -OR, 1976
 JD, Law Enforcement, Lewis & Clark College -OR, 1982

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AA, Business, Clark College -WA, 1972
BA, Finance, University of Oregon -OR, 1975
MBA, Business, University of Oregon -OR, 1976

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BA, Sociology, Gallaudet U -DC, 1982
MED, Spec Ed: Hearing Impaired, Lewis & Clark C-OR, 1986

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BA, Psychology, Whitman College -WA, 1992

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BS, Physical Education, Linfield College -OR, 1967
MED, Ed. And Human Services, Linfield Col-OR, 1984

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BS, Business Management, Portland State Univ -OR, 1993

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BA, Psychology, University of Washington -WA, 1975
MSW, Community Org & Dev, U of Wash -WA, 1977

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BA, History, University of Washington -WA, 1965
MA, English, Portland State University -OR, 1978

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BA, Sociology, University of Oregon -OR, 1967
MSW, Social Work, Portland State University -OR, 1979

Lepschat, Steven*Instr/Diesel Serv Mech*

CERT, Diesel Service Mechanics, Portland CC -OR, 1980

Lewis, Patricia M*Instr/Comp Appl/Office Syst*

BS, Business Administration, Portland State U -OR, 1969
MST, Education, Portland State University -OR, 1971

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MS, Computer Science, Portland State Univ -OR, 2001

Lien, Kevin J*Instr/Biology*

BS, Biology, Stanford University -CA, 1979
MS, Biology, Portland State University -OR, 1982
MA, Education, University of Portland -OR, 1990

Lincoln, Eddie R*Coord/Bus Service*

BA, Business Administration, Univ of Portland -OR, 1992

Lindahl, Eva J*Instr/Ophthal Med Tech*

CERT, Ophthalmic Medical Tech, U of Minnesota, 1979

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BS, Communication, Portland State University -OR, 1989
MPA, Public Admin, Portland State University -OR, 1998

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BA, German, Portland State University -OR, 1969
MLS, Library Science, University of Oregon -OR, 1969

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BA, Dance, U Cincinnati Main Camp -OH, 1971
MFA, Dance, U Cincinnati Main Camp -OH, 1973

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MA, Teaching Of Nursing, Columbia U Tchrs C -NY, 1979
MED, Curriculum & Inst, Columbia U Tchrs C -NY, 1980
EDD, Health Education, Columbia U Tchrs C -NY, 1987

Logan, Mary D*Instr/ABE/GED*

BA, Geography, U of California/Berkeley -CA, 1986
 MS, Post Secondary, Adult, & Cont Ed, PSU -OR, 1995

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BA, Sociology, University of San Francisco -CA, 1972
 MA, Psychology, Sonoma State University -CA, 1975

Love, Theresa M*Instr/Developmental Ed*

BA, Drama, Humboldt State University -CA, 1984
 MA, English, U of California/Davis -CA, 1989
 MFA, Drama, U of California/Davis -CA, 1989

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BS, Industrial Management, Purdue University -IN, 1965
 MBA, Finance, U of Southern California -CA, 1975

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BA, History, U of California/Berkeley -CA, 1968
 MS, Education, U of Southern California -CA, 1970
 PHD, History, Stanford University -CA, 1986

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BA, Political Science, Portland State University -OR, 1987

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BS, Economics, Portland State University -OR, 1983
 PHD, Economics, University of Utah -UT, 1994

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BA, Social Work, University of Montana -MT, 1985

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BA, English, SUNY C Oswego -NY, 1974
 MA, English, SUNY C Oswego -NY, 1976
 PHD, English, U Oklahoma Norman Camp -OK, 1982

Majidi, Abdelmajid*Mgr/Wrkfr Train&Dev*

BA, Business Administration, Washington St U -WA, 1999

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BA, Psychology, U of CA/Santa Cruz -CA, 1986
 MA, Counselor Education, San Jose State Univ -CA, 1991

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BS, Business Administration, Eastern Oregon U -OR, 1983
 MBA, Business Administration, Oregon State U -OR, 1988

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BA, Physics, Northwest Nazarene College -ID, 1964
 MS, General Science, Oregon State University -OR, 1965

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BA, Biological Sciences, Indiana U Bloomington -IN, 1972
 MS, Statistical Science, George Mason U -VA, 1995
 MST, Teaching, Virginia Commonwealth U -VA, 1999

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 AAS, Vocational Teacher Ed, Portland CC -OR, 1989

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BS, Psychology, Willamette University -OR, 1973
 MS, Education, Portland State University -OR, 1982

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BA, Spanish, University of Puget Sound -WA, 1988
 MA, Romance Languages, Univ of Washington -WA, 1991

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BA, History, Linfield College -OR, 2000
 BA, Religion, Linfield College -OR, 2000

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BS, Chemistry, Portland State University -OR, 1987
 MS, Chemistry, Portland State University -OR, 1989

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AA, Social Service, Foothill College -CA, 1972
 BA, Sociology, San Jose State University -CA, 1976

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AS, Computer Info Systems, Portland CC -OR, 1994

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BA, History, Portland State University -OR, 1967
 MA, History, Portland State University -OR, 1971

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BS, Home Economics Ed, Oregon State Univ -OR, 1970
 MS, Early Childhood Ed, Oregon College of Ed OR, 1979

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BS, Chemistry, Abilene Christian U -TX, 1960
 JD, Law, University of Washington -WA, 1967
 MBA, Business, University of Puget Sound -WA, 1974

McDaniel, Camille S*Spec/Employment*

BBA, Marketing, U Wisconsin Milwaukee -WI, 1977

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AB, English, Stanford University -CA, 1973
 MA, English, U of Virginia, 1975
 PHD, English, University of Oregon -OR, 1992

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BS, Electrical Engineering, Stanford University -CA, 1970
 MS, Electrical Engineering, Stanford University -CA, 1970

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AAS, Radiography, Oregon Inst of Technology -OR, 1982
 BS, General Science, Oregon State University -OR, 1986

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BA, Literature, Antioch C Main Camp -OH, 1976
 MAT, Liberal Studies, Lewis & Clark College -OR, 1989

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BS, Nursing, Florida A&M U -FL, 1969
 MA, Nursing, University of Washington -WA, 1973

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BS, Sociology, Portland State University -OR, 1975
 MST, Sociology, Portland State University -OR, 1983
 EDD, Educational Leadership, Portland State U -OR, 1996

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BA, Sociology, University of Montana -MT, 1973

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BA, Russian, Colby C -ME, 1988
 BA, English Literature, Colby C -ME, 1988

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BS, Consumer and Family Studies, Oregon St U-OR, 1967
 MS, Apparel, Interiors & Merch, Oregon State U-OR, 1977

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BS, Aeronautical Engineering, Texas A & M Univ, 1985
 MBA, Marketing, City University, 1997

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BS, Recreation, S Illinois U Carbondale -IL, 1974
 MS, Counseling, Western Oregon University -OR, 1982

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BM, Music, University of Arizona -AZ, 1993
 MM, Music, University of Arizona -AZ, 1996

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BS, Mathematics, CA Polytechnic State U -CA, 1993
 MS, Mathematics, Northern Arizona University -AZ, 1995

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BARC, Architecture, Washington St University -WA, 1981
 BS, Architecture, Washington St University -WA, 1981
 MA, Architecture, University of Idaho -ID, 1988

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BS, Health Education, University of Oregon -OR, 1976
 MS, Health Education, Portland State Univ -OR, 1983

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BS, General Science, Portland State University -OR, 1985
 MA, Anthropology, Portland State University -OR, 1989

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BS, Nursing, Loma Linda University -CA, 1975
 MN, Nursing, Oregon Health Sciences U -OR, 1983

Mikhailov, Slava*Spec/Student Res*

BA, Literature, University of Oregon -OR, 1992

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BA, French, University of Minnesota, 1991
 CERT, Teaching ESL, Hamline U -MN, 1992
 MA, English as a 2nd Language, U of Arizona-AZ, 1996

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 MED, Secondary Education, Northern Arizona U-AZ, 2001

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BS, Psychology, Pacific University -OR, 1973
 MS, Education, Portland State University -OR, 1981

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BA, Psychology, Mills College -CA, 1979
 MA, Human Development, Pacific Oaks College -CA, 2000

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BS, Public Relations, U Wisconsin Superior -WI, 1990

Miller, Sandra K*Spec/Apprenticeship & Training,*

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BS, Psychology, Portland State University -OR, 1984
 MA, Counseling Psychology, Lewis & Clark Col -OR, 1986

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AA, Nursing, College of San Mateo -CA, 1973
 BS, Nursing, Sonoma State University -CA, 1976
 MS, Nursing, University of Portland -OR, 1980

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BS, General Studies, Eastern Oregon University -OR,

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BS, Physics, Saratov State Univ, 1961
 MS, Physics, Saratov State Univ, 1962
 PHD, Physics, Saratov State Univ, 1968
 MS, Environmental Science, Oregon Grad Ctr -OR, 1992

Mitchell, Libardo*Instr/Foreign Lang*

BA, Spanish, Washington St University -WA, 1992
 MA, Spanish, Washington St University -WA, 1994

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BS, Psychology, Southern Oregon University -OR, 1976
 MPA, Public Admin, Portland State University -OR, 1980

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BA, Community Serv Public Affairs, Seattle U -WA, 1975
 MED, Curriculum & Instruction, Chapman U -CA, 1997

Moore, J Kenneth*Instr/Crim Justice*

BS, Education, University of Texas El Paso, 1968
 MED, Education, University of Texas El Paso, 1970

Moore, Julie S*Instr/Interp Trng*

AB, Latin, Oberlin C -OH, 1969
 MA, Interdisciplinary Studies, Antioch C -OH, 2002

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BS, Mechanical Engineering, U New Haven -CT, 1979
 MS, Mech Engineering, Virginia Poly Inst & St U -V, 1981
 PHD, Mechanical Engineering, Oregon State U -OR, 1988

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BA, Computer Science, Western Oregon Univ -OR, 1987
 MS, Interdisciplinary Studies, Wstrn Oregon U -OR, 1990

Morgan, Samuel W*Instr/Vis Arts*

BFA, Ceramics, U Colorado Boulder -CO, 1993
 MFA, Ceramics, New York St C Ceramics -NY, 1996

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BA, Political Science, California St U- L.A. -CA, 1969
 MA, Education, Concordia C St Paul -MN, 2000

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MS, Business Education, Portland State Univ -OR, 1981

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BS, Comm. Serv Public Affairs, U of Oregon -OR, 1974
 MS, Curriculum & Instruction, Univ of Oregon -OR, 1979
 PHD, Educ. Policy & Mgmt, Univ of Oregon -OR, 1994

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AA, Speech, San Diego Mesa College -CA, 1970
 AB, Speech Commun., San Diego State U -CA, 1972
 MA, Speech Commun., San Diego State U -CA, 1975

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BA, Mathematics, Temple U -PA, 1990
 MS, Mathematics, Portland State University -OR, 1997

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BA, History, Lewis & Clark College -OR, 1980

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BS, Mathematics, Ohio University -OH, 1967

MBA, Business Administration, Oregon State U -OR, 1977

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BS, Education: Math, U Illinois Urbana -IL, 1967

MA, Education, Chapman University -CA, 1971

MS, Mathematics, Portland State University -OR, 1983

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BA, Anthropology, Portland State University -OR, 1974

MA, Education, Portland State University -OR, 1977

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BS, Business, San Francisco State U -CA, 1989

MBA, Business, Portland State University -OR, 1992

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BS, Psychology, Lewis & Clark College -OR, 1990

MA, Counseling Psychology, Lewis & Clark C -OR, 1995

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AA, General Studies, Mt Hood CC -OR, 1985

BS, Social Science, Portland State University -OR, 1989

MED, Special Education, Portland State U -OR, 1992

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BA, French, U of California/Berkeley -CA, 1986

MAT, French, Sch Intrnatl Training -VT, 1995

MAT, Tesol, Sch Intrnatl Training -VT, 1995

MA, French, Sch Intrnatl Training -VT,

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BA, Political Science, Howard Univeristy -DC, 1972

MED, Education, Oregon State University -OR, 1974

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BA, English, Wiley C -TX, 1963

MA, Library Science, University of Oregon -OR, 1965

MS, Education, University of Oregon -OR, 1967

PHD, Education, University of Oregon -OR, 1969

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BS, Business Administration, Portland State U -OR, 1977

MBA, Business Administration, DePaul U -IL, 1978

Norton, Sharlene K*Mgr/Telecommunications*

BS, Management, Marylhurst University -OR, 1988

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BS, Education, Marylhurst University -OR, 1963

MS, Education, Portland State University -OR, 1990

O'Connor, Maureen E*Instr/Phys Ed*

BS, Physical Education, Bradley U -IL, 1974

MST, Physical Education, Portland State Univ -OR, 1979

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BS, Mathematics, SUNY C Fredonia -NY, 1971

MS, Mathematics, SUNY C Fredonia -NY, 1976

O'Shaughnessy, Kathleen K*Instr/Engl*

BA, English, Tufts U -MA, 1973
 MA, English, U New Hampshire -NH, 1974
 MFA, Creat. Writing, U N Carolina Greensboro -NC, 1986

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BA, Communication, Western Oregon U -OR, 1995
 MS, Education, Portland CC -OR, 1998
 MS, Education, Portland State University -OR, 1998

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BA, Education, Xavier U Louisiana -LA, 1960
 MA, Education, Walla Walla College -WA, 1967
 EDD, Educational Leadership, Seattle Univ -WA, 1988

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BA, Library Science, U S Dakota Main Camp -SD, 1963
 MS, Library Science, U of Southern California -CA, 1964

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BS, Business Administ., Oregon State Univ -OR, 1970
 MS, Education, Oregon State University -OR, 1973

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BA, Education, Pacific Lutheran U -WA, 1965
 MA, Business, Western Washington Univ -WA, 1970

Pake, Catherine E*Instr/Biology*

BS, Nursing, Oregon Health Sciences U -OR, 1980
 MPH, Public Health, University of Minnesota, 1986
 PHD, Plant Ecology, University of Arizona -AZ, 1993

Palmer, Linda L*Coord/Women's Res Cntr*

BS, Sociology, Southern Oregon University -OR, 1970
 MS, Ed Policy, Foundation & Admin, Portland St -OR, 1999

Palmer, Wendy M*Coord/Special Needs***Parker, Carl E***Spec/Learning Skills*

BA, Psychology, Oakwood C -AL, 1971
 MS, Counseling, Portland State University -OR, 1972
 PHD, Counseling, Oregon State University -OR, 1978

Parks-Hilden, Susan M*Instr/Theater Arts*

BA, English, University of Oregon -OR, 1967
 MAT, Language Arts, Lewis & Clark College -OR, 1975
 MAT, Communications, Lewis & Clark College -OR, 1975

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BS, Information Systems, San Diego State Univ -CA, 1982

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AA, Humanities, Portland CC -OR, 1990
 BA, English Literature, Portland State Univ -OR, 1993
 MSW, Social Work, Portland State University -OR, 1995

Pearson, Hope E*Coord/Acad Advising*

BA, Biology, Concordia College -OR, 1991
 MS, Educational Policy & Mgmt, Portland St U -OR, 1999

Peden, Kelly J*Instr/Comp Appl/Office Syst*

BS, Business Education, Oregon State Univ -OR, 1982
 MED, Business Education, Oregon State Univ -OR, 1988

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BS, Education, Marylhurst University -OR, 1960
 MS, Education, Portland State University -OR, 1971

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Peot, Mary L*Spec/Learning Skills*

BA, Math/Biology, Marylhurst C Lifelong Lrn -OR, 1967

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MS, Adult Education, Portland State University -OR, 1997
MS, Secondary Education, Portland State Univ -OR, 1997**Perry, Jeffrey S***Instr/Math*BA, Mathematics, California St U-Long Beach -CA, 1975
MA, Mathematics, California St U-Long Beach -CA, 1978**Perry, Thom***Instr/Print Tech*BA, English, U Iowa -IA, 1969
MS, Vocational Education, Pittsburg State Univ -KS, 1973**Persen, John A***Mgr./Bond MWESB & Procurement*

BS, Business Administration, Warner Pacific Col -OR, 1994

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BA, Business, U Florida -FL, 1975
MS, Mathematics, Portland State University -OR, 1982**Pfund, Nerva O***Spec/Student Res*BA, Management, George Fox College -OR, 1998
MA, Educ. Policy & Mgmt, Portland State U -OR, 2001**Phillips, Steven H***Instr/Aviation Maint Tech*AAS, , Lane CC -OR, 1980
Southern Oregon University -OR,**Pilgrim, Nancy C***Instr/Dental Asst*BA, Chemistry, Bemidji State University -MN, 1978
DDS, Dentistry, University of Minnesota, 1982**Pinas-Espigule, Maribel***Instr/Foreign Lang*BA, Romance Languages, Univ of Oregon -OR, 1987
MA, Romance Languages, Univ of Oregon -OR, 1989**Pitzer, Nancy A***Spec/Student Employment*

Riverside CC -CA,

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BA, Elementary Education, U Illinois Cntl Off -IL, 1980
MED, Reading Specialist, U Illinois Cntl Off -IL, 1985
MA, Mathematics Education, Fresno Pacific Col -CA, 2001**Poppe, Nancy E***Dean/Adult & Contin Ed*BA, Psychology, San Diego State University -CA, 1974
BA, Social Work, San Diego State University -CA, 1974
MSW, Social Work, California St U- Fresno -CA, 1978
EDD, Community Coll Ldrshp., Oregon State U -OR, 1995**Potter, Amy J***Spec/Comm Resource*BA, Anthropology, Carleton C -MN, 1996
BA, Sociology, Carleton C -MN, 1996**Putnam, Scott H***Instr/Auto Serv Tech*AA, Automotive Tech, Oregon Inst of Tech. -OR, 1967
BS, Automotive Tech, Oregon Inst of Tech. -OR, 1971**Quast, Sue A***Mgr/TV Prod Svcs*

BFA, Art, Boise State University -ID, 1985

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MS, Telecommunications, U Denver -CO, 1997**Rabottini, Joan M***Counselor*BA, Human Studies, Marylhurst University -OR, 1993
MS, Counselor Education, Portland State Univ -OR, 1996

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BS, Agriculture, Cornell U Cntl Off -NY, 1977
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BA, Psychology, Northwest Nazarene College -ID, 1973
 MA, Education, California St U- Hayward -CA, 1977
 MS, Psychology, California St U-San Brndno -CA, 1991

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BA, Philosophy, C William & Mary -VA, 1984
 MFA, Creative Wr. Virginia Commonwealth U -VA, 1990

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 MBA, Business Administ., Portland State Univ -OR, 1991

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 MED, Business Education, Oregon State Univ -OR, 1980

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 BA, International Business, Lake Erie C -OH, 1984
 MA, Interdisciplinary Studies, Oregon State U -OR, 1995

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AA, Secretarial Science, Lower Columbia C -WA, 1967
 BA, Business Educ., Western Washington U -WA, 1971
 MBA, Business Administ., George Fox College -OR, 1995

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 MS, Nursing, C New Rochelle -NY, 1998

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BA, English, U of CA/ Santa Barbara -CA, 1968
 MED, Counseling, U of CA/ Santa Barbara -CA, 1970
 EDD, Higher Ed, U Massachusettes Amherst -MA, 1973

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AB, Mathematics, Cornell U Cntl Off -NY, 1967
 MS, Computer Science, U Wisconsin Madison -WI, 1969

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BS, Adult Fitness, Central Washington U -WA, 1996
 BS, Sports Administ., Central Washington U -WA, 1996
 MS, Health, PE & Recr., Central Washington U -WA, 1998

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BS, Mech Engr., California St U-Sacramento -CA, 1978

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BA, Speech Comm, U Missouri Cntl Adm Off -MO, 1992

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BA, Bacteriology, U of California/L.A.(UCLA) -CA, 1972
 MS, Microbiology, San Diego State University -CA, 1976
 PHD, Microbiology, U of California/L.A.(UCLA) -CA, 1981

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BA, Journalism, University of Michigan, 1974
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 MLS, Info. Systems, U Michigan Ann Arbor -MI, 1989

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AGEN, General Studies, Saddleback College -CA, 1993
 BS, Elementary Education, Southern Utah Univ -UT, 1996
 AM, Special Education, Portland State Univ -OR, 2000

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 MS, Counseling Education, Portland State Univ -OR, 1982

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BS, Natural Resources Mgmt, Ohio St U -OH, 1974
 MS, Biology, U Minnesota Duluth -MN, 1980
 PHD, Animal Ecology, Iowa St U Sci & Tech -IA, 1987

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 BS, Physical Education, Oregon State Univ -OR, 1988
 MPH, Health Education, Portland State Univ -OR, 1997

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AA, Liberal Studies, Fresno City College -CA, 1985
 BA, Public Aid, California St U- Fresno -CA, 1988

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 BA, Anthropology, Oregon State University -OR, 1997

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BA, International Studies, Univ of Oregon -OR, 1994
 BA, Spanish, University of Oregon -OR, 1994

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BA, Psychology, SUNY Buffalo Main Camp -NY, 1972
 MA, Humanities, SUNY Buffalo Main Camp -NY, 1974
 PHD, Education, U of California/L.A.(UCLA) -CA, 1987

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 MS, Mathematics, Portland State University -OR, 1990

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 MLS, Library Science, Indiana U Bloomington -IN, 1995

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MS, Sociology, University of Oregon -OR, 1982
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PHD, Sociology, University of Oregon -OR, 1995

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CERT, Tesl, U of California/Riverside -CA, 1992

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