Syllabus

MTH111 Precalculus I: Functions

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1 Basic Needs Statement

PCC wants you to be successful and have the resources that you need. If you need help with food, housing, healthcare, or other resources, check out these resources[1]. You can also contact conductandcare@pcc.edu to connect with a person at PCC who will help you find support.

2 Course Description

Taken from the official PCC course description:

Course Number	MTH 111
Course Title	Precalculus I: Functions
CRN	20518
Credit Hours	4
Lecture Hours	30
Lab Hours	30
Prerequisites	MTH 95, and (RD115 and WR115) or IRW115 or equivalent placement.

Povides Provides preparation for trigonometry or calculus. Focuses on functions and their properties, including polynomial, rational, exponential, logarithmic, piecewise-defined, and inverse functions. Explores topics symbolically, numerically, and graphically in real-life applications and interprets them in context. Emphasizes skill building, problem solving, modeling, reasoning, communication, connections with other disciplines, and the appropriate use of present-day technology. This course is part of Oregon Common Course Numbering. MTH 111 and MTH 111Z are equivalent. The PCC Mathematics Department recommends that students take MTH courses in consecutive terms. Audit available.

Learning Outcomes. Upon completion of the course students should be able to:

[1] www.pcc.edu/student-life/single-stop

1. Explore the concept of a function numerically, symbolically, verbally, and graphically and identify properties of functions both with and without technology.
2. Analyze polynomial, rational, exponential, and logarithmic functions, as well as piecewise-defined functions, in both algebraic and graphical contexts, and solve equations involving these function types.
3. Demonstrate algebraic and graphical competence in the use and application of functions including notation, evaluation, domain/range, algebraic operations and composition, inverses, transformations, symmetry, rate of change, extrema, intercepts, asymptotes, and other behavior.
4. Use variables and functions to represent unknown quantities, create models, find solutions, and communicate an interpretation of the results.
5. Determine the reasonableness and implications of mathematical methods, solutions, and approximations in context.

The complete Course Content and Outcome Guide can be found at www.pcc.edu/ccog/[1].

3 Instructor Information

3.1 Contact

To reach me or PCC:

Instructor	Miranda Ramsey
Office	SE SCOM 214
Phone	971-722-3542[1]
Email	miranda.ramsey@pcc.edu
Address	Portland Community College Southeast Campus 12000 SW 49th Ave. Portland, OR 97219

3.2 Communication

I highly encourage you to exchange information with your peers, especially those you are working with in groups, to work together outside of class. Email, group chats, and Discord servers are all excellent ways to connect and collaborate.

The best way to contact me is through email. I check my email often! please email me at miranda.ramsey@pcc.edu. Due to federal privacy laws, ***We must use your PCC email address to communicate,*** so make sure you are contacting me from your PCC email address or the D2L Classlist feature, and checking your PCC email regularly for my replies.

Emails sent on weekdays will be answered within 24 hours. Emails sent over a weekend or holiday will be answered the following scheduled school day.

[1] www.pcc.edu/ccog

[1] Voicemail only. Not a good way to reach me.

3.3 Office Hours

I have scheduled office hours where you can come see me in person, or we can schedule a Zoom appointment as needed. I encourage you to come to office hours whenever you need additional help.

Day	Location	Time
Mondays	Student Learning Center	12:00–1:00
Wednesdays	Student Learning Center	12:00–1:00
Fridays	Zoom	By Appointment

3.4 Instructional Approach

Mathematics has an unfortunate reputation for being a challenging subject that only some people are capable of engaging with. I strongly believe that this is not true, and that more people are capable of mathematics than we give credit to. My goal is to facilitate creativity and discovery, rather than simply dictating facts and procedures to memorize. In my lectures I set out to establish a question that can ground us and give us context for the math we are working with, and through group work students will be encouraged to talk through problems, ask for help, and lift each other up.

3.4.1 Weekly Structure

To perform best in the class, each week you should:

Read Ahead — Read the textbook material ahead of the days we will be covering it in class, so that you can ask questions and get clarification during lectures and group work.

Do Homework As We Go — Work on the homework throughout the week, rather than waiting until the end of the week. This way, challenging problems can be brought up in class with me or with your group.

Come to Office Hours — Visit me in Office Hours to fill in gaps in your understanding, before they become stressful issues.

3.5 My Schedule

Class	CRN	Days	Time	Place	Midterm	Final
MTH 111	20518	MW	9:00–11:50	LIBR 216	Wed 4/30	Mon 6/9
MTH 20	25135	MW	2:00–4:20	SCOM 320	Wed 4/30	Wed 6/11

Exams are in class starting at the usual class time. For details, see Subsection 6.2.

4 Class Materials

4.1 Textbook

For this class we will be using *Algebra and Trigonometry 2e*. This is an Open Education Resource from OpenStax and is free to access. We will be covering chapters 3 through 6.

Access the digital version of this book at openstax[1]. There are also additional resources for Algebra and Trigonometry[2] if you would like to download a PDF or purchase a print copy.

Learn more about OERs currently used in PCC math classes here.[3]

4.2 Supplies

- Pencils and Erasers. Mistakes happen in math, and trying to correct mistakes made with an ink pen is challenging and creates messy work.
- A 1-inch, 3-ring binder for organizing your Workbook activities and notes, *unless using a digital alternative.*
- Graph Paper for notes and assignments. My favorite choice is Engineering Paper[4], which is constructed to have faint lines on the front for a clean appearance, but any graph paper[5] will do.

4.3 Technology

- Regular access to D2L[6] (Desire2Learn) will be required to access materials and submit assignments for this class. Please visit the technology support section of Student Support Resources[7] for a complete list of apps and tools for PCC students.
- A personal graphing calculator (such as a TI-84+) or Scientific Calculator (such as a TI-30XS) may be helpful for this class but is not required. *All quizzes and exams will be done without access to a calculator.* Where technology is required in this class, a free online tool such as Desmos[8] can be used.

5 Attendance

5.1 Attendance Policy

Attendance and participation are crucial to succeed in a math course. In this class, Group Work will be a large component, so students are expected to attend class and collaborate with each other. Credit for group work will not be given if students are absent or not participating.

However, I understand that perfect attendance is not a practical expectation. If you must miss class, please email me to let me know, and I will work with you to make sure you keep up and that your grade is minimally affected.

[1] openstax.org/books/algebra-and-trigonometry-2e/pages/3-introduction-to-functions

[2] openstax.org/details/books/algebra-and-trigonometry-2e

[3] www.pcc.edu/programs/math/oer/

[4] https://bookstore.pcc.edu/store4/MerchDetail?MerchID=1621016

[5] https://bookstore.pcc.edu/store4/MerchDetail?MerchID=1415029

[6] https://online.pcc.edu

[7] https://online.pcc.edu/shared/dl_template_8/student-resources/Student_Support_Resources.html

[8] www.desmos.com

5.2 First Week Activities

During the first week of the term, instructors must identify students who are enrolled but not engaged in a class. These are referred to as "No Show" students and will be dropped from the class as per PCC's G302 Grading Guidelines Policy.[1]

In order to avoid being dropped as a "No Show" student, you must complete the following activities by their deadlines:

- Attend and participate in class during the first week (Monday, March 31 and Wednesday, April 2)
- Complete the MTH 111 Student Introduction[2] form before class Wednesday, April 2.
- Complete and turn in the Personal Plan self-assessment worksheet by the end of class on Wednesday, April 2.

6 Grades

For general information about grades, please go to the PCC Grading Guidelines.[1]

Table 6.1 Grades

Assignment	Number	Weight
Homework Sets	7	20%
Workbook Activities	18	20%
Quizzes	7	10%
Midterm Exam	1	20%
Final Exam	1	30%

6.1 Assignments

Homework Sets Each week you will have a set of homework problems to complete and submit on your own.

Workbook Activities For each class session there is an associated workbook activity. For most activities, there is a prep-work portion, a group-work portion, and a post-work reflection portion. It is your responsibility to arrive to class with the prep work completed so that you can fully participate with your group. The workbook will be turned in with a self assessment before each Exam.

[1] https://catalog.pcc.edu/handbook/g302-gradingguidelines-attendanceparticipationandnoshows/
[2] forms.gle/ox3tKbZ8nX7SeZddA
[1] http://catalog.pcc.edu/handbook/g301-gradingguidelines/

Quizzes There will be seven quizzes, each administered on a Wednesday at the start of class and covering material from the week before.
Quiz Corrections: After your graded quiz is returned, you may redo the quiz in its entirety and submit it as a Quiz Correction. Your final grade will be an average of your two submissions, meaning you can recover up to half of your missed points by submitting a quiz correction. For example, if you score a 6/10 on a quiz, you may upgrade your score to an 8/10 with a quiz correction.

6.2 Exams

Midterm Exam There is one Midterm Exam in this class, administered on Wednesday, April 30. There will be no calculator allowed on this exam, as all of your work will need to be shown by hand.
Practice Midterm: One week before the Midterm, I will release a Practice Midterm. Working on it together with your group will be one of the Workbook Activities, and you can make sure that you are prepared for the exam and support your classmates by preparing together.
Midterm Corrections: After your graded exam is returned, you may redo the exam in its entirety and submit it as a Midterm Correction. Your final grade will be an average of your two submissions, meaning you can recover up to half of your missed points by submitting a Midterm correction. For example, if you score a 74% on the exam, you may upgrade your score to an 87% with a midterm correction.

Final Exam There is one Final Exam in this class, administered on Monday, June 9. Unfortunately, since the Final will be during our last class meeting, there is no opportunity for a Final Correction.
Practice Final: One week before the Final, I will release a Practice Final. Working on it together with your group will be one of the Workbook Activities, and you can make sure that you are prepared for the exam and support your classmates by preparing together.

6.3 Late Work and Make-Up Policy

Mathematics is a subject that builds on itself, so it is crucial that you stay on top of your work at the pace of the class. However, I understand that life does not always line up with college schedules and deadlines. If you need more time to complete a homework assignment, or if you need to miss class, please contact me (see Subsection 3.2) to work out an extension, or another way to make up work.

7 Policies

Visit the PCC Policies[1] page for information on:

- Academic Integrity Policy
- Accessibility Statement and Resources
- Drop/Withdraw Deadlines
- Grading Policy
- Internet Etiquette
- PCC Payment Policy
- PCC Registration Policy
- Sanctuary College
- Student Rights and Responsibilities
- Title IX/Non-Descrimination

7.1 Student Rights and Responsibilities

Students are required to complete this course in accordance with the Student Rights and Responsibilities Handbook.[2] The Handbook establishes students' freedoms and protections as well as the expectations of appropriate behavior and ethical academic work. The Handbook includes items such as the Policy on Student Rights, and the Student Code of Conduct Policy and Procedures.

7.1.1 Academic Integrity

The handbook contains the Code of Student Conduct and the Academic Integrity Policy. **Cheating** includes any attempt to defraud, deceive, or mislead the instructor in arriving at an honest grade assessment, and may include copying answers from other students or using unauthorized notes during tests. **Plagiarism** is a particular form of cheating that involves presenting as one's own the ideas or work of another and may include using other people's ideas without proper attribution and submitting another person's work as one's own. Dishonest activities such as cheating on exams and submitting or copying work donw by others will result in disciplinary actions including but not limited to receiving a failing grade. For further information, review the institution's Academic Integrity Policy.[3]

[1] `https://online.pcc.edu/shared/IDEAS-developments/template-deschutes/pages/course-information/PCC_Policies.html`

[2] `https://www.pcc.edu/policy/student-rights/`

[3] `https://www.pcc.edu/student-conduct/conduct/academic-integrity-at-pcc/`

7.1.2 Artificial Intelligence Statement

The use of generative AI and Language Learning Models in this course such as, but not limited to ChatGPT, should be used only if it does not otherwise violate the Academic Integrity Policy of the College. Such violations include turning in work that is not your own.

In this class specifically, while generative AI and language learning models can be excellent tools for summarizing and presenting information, leaning on such tools when you are yourself trying to learn something, even in ways that seem to be academically honest, can instill a dependency that is really challenging to let go of later. ***I highly recommend avoiding the use of tools like ChatGPT, even as a study assistant!*** Please ask me for help instead.

7.2 Internet Etiquette

Click here for more information about Internet Etiquette (or Netiquette).[4]

7.3 Sanctuary College Statement

PCC is a sanctuary college. For more information and resources, see the resources for undocumented students page.[5]

7.4 Inclement Weather Statement

Our course is typically unaffected by college campus and facility closures or delayed class start times. Our regular due dates [and Zoom class meeting times (if a remote class)] apply. However, if PCC must close all operations, our regular due dates will be adjusted accordingly. Please check your email for my instructions and continue to check Brightspace during closures.

7.5 Flexibility Statement

The instructor reserves the right to modify course content and/or substitute assignments and learning activities in response to institutional, weather, or class situations.

8 Accessibility

8.1 Statement

This course uses digital courseware, software, or texts that may cause barriers for those using assistive, or accessibility-related technologies. If you encounter barriers, please contact the Access Tech Team at `access-tech-group@pcc.edu` or by calling 971-722-TECH (971-722-8324).

8.2 Accomodations

PCC is committed to supporting all students. If you plan to use academic accommodations for this course, please contact your instructor as soon as possible to discuss your needs. Accommodations are not retroactive; they begin when

[4] `https://www.pcc.edu/online/students/preview/your-computer/communicating/`

[5] `https://www.pcc.edu/dream/undocumented/`

the instructor receives the "Approved Academic Accommodations" letter from you (submitted in person for courses on campus; via email for Online Learning courses). To request academic accommodations for a disability, please contact an Accessible Education and Disability Resources counselor on any PCC campus. Office locations, phone numbers, and additional information may be located on the Accessible Education and Disability Resources[1] website.

9 Calendar

9.1 Course Calendar

Note that the specific dates of material and assignments in this calendar are subject to change as needed during the term.

Week	**Monday**	**Wednesday**	**Assignments**
3/31-4/6	Algebra Review	Sets and Functions	Intro Form (see Subsection 5.2) Prob. Set 1 (due 4/7)
4/7-4/13	Graphs of Functions	Domain and Range	Prob. Set 2 (due 4/14)
4/14-4/20	Analyzing Functions	Analyzing Functions	Prob. Set 3 (due 4/21)
4/21-4/27	Function Arithmetic	Linear Functions	
4/28-5/4	Catch Up and Review	*Midterm Exam*	Self-Assessment 1
5/5-5/11	Exponentials	Exponential Functions	Prob. Set 4 (due 5/12)
5/12-5/18	Logarithms	Logarithmic Functions	Prob. Set 5 (due 5/21)
5/19-5/25	*No Class* (School Holiday)	Inverse Functions	Prob. Set 6 (due 5/26)
5/26-6/1	Polynomial Functions	Radical Functions	Prob. Set 7 (due 6/2)
6/2-6/8	Rational Functions	Catch Up	
6/9-6/15	*Final Exam*	*No Class* (Finals Week)	Self-Assessment 2

9.2 Important Dates

See PCC's Academic Calendar[1] for more information.

Add/Drop Deadline	Tuesday, April 8 Last day to late register for the class Last day to drop for a refund.
Midterm Exam	Wednesday, April 30 In Class. See Subsection 6.2.
College Closure	Monday, May 26 No Class
Withdraw Deadline	Saturday, June 7 Last day to withdraw (no refund, W on transcript) Last day to change grade option.
Final Exam	Monday, June 9 9 AM, approximately 2 hours. See Subsection 6.2.
Grades Available	Tuesday, June 17

[1] `https://www.pcc.edu/disability/`

[1] `www.pcc.edu/enroll/registration/academic-calendar/#spring-2025-mar-jun`

Colophon

This book was authored in PreTeXt.