Annual Report for Assessment of Outcomes 2012-13

Subject Area Committee Name: _Landscape Technology_____
Contact person: ____Elizabeth Brewster_____
For LDC/DE: Core outcome(s) assessed: _____
For CTE: Degree or certificate* assessed: _LAT AAS Degree_____
*please attach a table showing the alignment of the degree or certificate outcomes with the College Core Outcomes

Please address the questions below and
send to *learningassessment@pcc.edu* by **June 21, 2013** with Annual Report in the subject line

Note: Information provided in this report may be inserted into or summarized in Section 2C Program Review Outline.

1. Describe changes that have been implemented towards improving students' attainment of outcomes that resulted from recent outcome assessments. These may include but are not limited to changes to content, materials, instruction, pedagogy etc. Please be sure to **describe the connection** between the assessment results and the changes made.

Our outcome assessments addressed the three major areas of our program-- Landscape Design, Landscape Construction and Landscape Management. We used 4 rubrics in key classes for grading of the student projects (see attached). Each rubric was used within the time frame submitted with the plan, as each class was completed. After the grading was complete, the entire fulltime faculty took time to "norm" the results for each class. This process has led to a better overall plan for assessment with the promise of developing it into a useful tool for the department. We will use it as a baseline to compare the achievement of skills of first year students with graduates that walk out the door. Once we know what skills are being attained in the first year, we will have a better idea of how to improve upon and fill in the gaps before they graduate.

The process of norming has been an extremely helpful and salient part of the faculty discussion regarding curriculum and grading. The process has encouraged and resulted in meaningful discussions of student work—including weaknesses in the program, and how to strengthen those weaknesses. The process of reviewing student work with other faculty members creates a collegial environment which fosters healthy debate over where the program should focus, what areas of the curriculum are lacking, what areas may be obsolete, and how those issues are reflected in student work. And finally, the process of norming also accomplishes the important work of ensuring that grading is relatively equal from instructor to instructor. Where we disagreed, we were able to discuss our reasoning and come to eventual agreement.

Specific changes that were made as a result of last year's assessment, by class and project:

For Landscape Construction:

In response to the results and our norming process the instructor rewrote and improved the portfolio assignment and rubric. Specifically, the rubric was adjusted to better emphasize evaluation of the skills being tested, rather than the production of a portfolio. The new model was implemented this past fall term in LAT 111 (2 sections) and LAT 211. Attached are the new 2012 portfolio assignment and rubric.

For Landscape Design:

The rubric for grading the Introduction to Landscape Design project was completely rewritten, with an entirely new rubric that was less focused on drafting skills, and more focused on specific design elements. Because grading design can be subjective, and this is a beginning class, the rubric was designed to be very specific and measurable. Some examples include "house is square," and "avoid acute angles," which are very specific and not subject to interpretation. This has taken some of the subjectivity out of the rubric, made it easier to grade, and also easier for students to understand what principles are important. The new rubric is attached.

The instructors also decided to focus less on the drafting element of the class, and more on the substance of design principles. The reason for this was because design students take drafting in the fall of their second year, and it was felt that time in the Introduction to Design class would be better spent on the other topics. The LAT faculty is also discussing the possibility of offering the drafting class before the Introduction to Design class, so that students come into the class with drafting skills in place.

For Landscape Management:

The rubric for the grounds maintenance calendar project was changed from last year's instructor. It needed simplifying and reworking to emphasize what was important for students to learn. The revised rubric is attached.

For Soils and Plant Nutrition:

The Soils and Plant Nutrition class was changed from 3 credits to 4 credits, in order to have more time for lab and to be able to go into more detail in lecture. The 4 credit class ran this winter.

For each outcome assessed this year:

2. Describe the assessment design (tool and processes) used. Include relevant information about:
   - The nature of the assessment (e.g., written work, project, portfolio, exam, survey, performance etc.) and if it is direct (assesses evidence mastery of outcomes) or indirect (student's perception of mastery). Please give rationale for indirect assessments (direct assessments are preferable).
   - The student sample assessed (including sample size relative to the targeted student population for the assessment activity) process and rationale for selection of the student sample. Why was this group of students and/or courses chosen?
   - Any rubrics, checklists, surveys or other tools that were used to evaluate the student work. (Please include with your report – OK to include in appendix). Where appropriate, identify benchmarks.
   - How you analyzed results, including steps taken to ensure that results are reliable (consistent from one evaluator to another.

Outcome 1 - Graduates should function as competent landscape professionals in their chosen area of the landscape industry whether it's landscape construction, maintenance, or design.

For Landscape Construction:

In LAT 111 - Landscape Construction Practices classes – individual portfolios were used for assessment and a rubric was constructed for grading the final project. The project contained both direct and indirect assessment of skills. Rationale for indirect assessment is contained in project outline. Project outline and rubric are attached.

Sample size was for two sections of this class, comprising 28 students out of a program total of 100-120 students (at anyone term). They are all considered first term, first year students, however many students do not take classes in a specific order. Also, many of our students (about a third) come from industry and may have quite a bit of knowledge pertaining to any one particular class they may encounter in the program. For our purposes, most students in these two sections would be considered beginners, and therefore appropriate for assessment of basic landscape construction skills and outcomes. In the future, we would like to use this assessment as a baseline for evaluating landscape construction graduates in their last year of the program.

After the instructor evaluated individual projects, the projects and grade sheets were laid out and further normed into groups of A's, B's, C's, etc. by the entire fulltime faculty. Discussion of grading practices, various graded results and regrouping lead to further discussion on the objectives achieved by the project and why students ended up as they did.

For Landscape Design:

In HOR 290 – Introduction to Landscape Design class – Individual final projects were used for assessment and a rubric was compiled for grading the final project. The project contained direct assessment of skills only. The project rubric is attached. For this project, students are asked to complete a landscape design for a real client, and follow the steps of design from the initial site visit, taking measurements of the property, drawing up a base map of the site, and drawing a design that includes all the necessary detail for installation. One student's design is selected for installation, and the entire class goes to the site and installs the project towards the end of the term.

Sample size was for one section (out of two) for this class, comprising 18 students out of a program total of 100-120 students (at anyone term). They are all considered second term, first year students, however many students do not take classes in a specific order. Also, some students may have been developing skills through self-study of design, or could have prior background and/or skills, such as drafting, that come from other similar professions. For our purposes, most students in this section would be considered beginners, and therefore appropriate for assessment of basic landscape design skills and outcomes. In the future, we would like to use this assessment as a baseline for evaluating landscape design graduates in their last quarter of the program. That assessment will come from the LAT 280 CE: Landscape Design class which has only a few students during a term, but has comprehensive outcomes to evaluate students. Comparison of a beginning class with future graduates would point out major holes and program inconsistencies, leading to improvement of technique, design practices and emphasis of key skills in the program.

Three LAT faculty got together to norm the grading, by evaluating each project and discussing where each project falls on the rubric. The discussion was quite productive and led to much helpful dialog about the rubric and how to gauge each project. Where we disagreed, we were able to discuss our reasoning and come to eventual agreement. This exercise was very helpful in guaranteeing that grading is even-handed across the program, and that students in one class are not treated more harshly than another.

For Landscape Management:

LAT 110 Grounds Maintenance—Individual projects were used for assessment and a rubric was created for grading. The project contained direct assessment of skills. In this project, students are asked to create a

Grounds Maintenance calendar for a specific property. The project should address all areas of landscape maintenance on the property for a full year, including mowing, weeding, fertilizing, pruning, mulching, and integrated pest management. The project should include a weekly and monthly list of tasks to be accomplished as well as a survey of plants on the property and their specific needs. A rubric was developed and was changed from last year's rubric, in order to focus more specifically on the most important skills.

Outcome 2 - Demonstrate knowledge to obtain and maintain certification and/or licensing required for their chosen field as prescribed by local, state or national organizations or associations.

As stated in our plan, we evaluated this outcome and decided that it wasn't valid considering licensing and certification for landscape design, landscape management and even landscape construction are currently optional, although recommended and certainly valued in the industry. Our new AASO degrees have dropped this outcome completely in favor of assessable outcomes that are needed by our students upon graduation.

Outcome 3 / Outcome 4

- Communicate effectively using verbal, written and/or graphic skills, individually or as a member of a team, to listen and relate with clients and coworkers of diverse cultures and backgrounds in a professional manner.

- Develop sensitivity toward current environmental and sustainable issues as they directly impact the landscape industry, and be able to assess and change practices to align with cultivating care for the earth.

For Landscape Design, Landscape Construction and Landscape Management:

In CSS 200 – Soils and Plant Nutrition classes – group projects were used for direct assessment of outcomes 3 and 4 above. The project consisted of testing soils, recording results, compiling data, analyzing existing soil conditions, making recommendations on fertilization and Best Management Practices (BMP's) for improving soils (see attached project sheet). They present their results, analysis and recommendations to the class verbally, using a variety of visuals, and also put together a written report graded by the instructor. A rubric was developed for grading the project. See attached rubric and project sheet.

Sample size was for two sections of this class, comprising 38 students out of a program total of 100-120 students (at anyone term). Group work was done in teams of 4-5 students per group, 4 groups/class, and 8 presentations/reports completed in total. They are all considered second term, first year students, however many students do not take classes in a specific order. Also, many of our students (about a third) come from industry and may have quite a bit of knowledge pertaining to soils that they have picked up through self-study, through outside classes (environmental science) or industry experience. For our purposes, most students in these two sections would be considered beginners, and therefore appropriate for assessment of basic understanding of soils and plant nutrition. They all have an affinity toward sustainable practices and many share experiences within the classroom that broaden student's perspective, including the instructor's. This class was picked because it is required of all students in the LAT program, the subject matter has a direct impact on environmental and sustainable issues, and the project contains individual and team work, a variety of communication skills, and critical thinking. While this is usually taken at the middle of their first year, it is a good introduction to all the skills needed for them to be effective landscape professionals.

3. Provide information about the results (i.e., what did you learn about how well students are meeting the outcomes)?
   - If scored (e.g., if a rubric or other scaled tool is used), please report the data, and relate to any appropriate benchmarks.
   - Results should be broken down in a way that is meaningful and useful for making improvements to teaching/learning. Please show those specific results.
   - See attached project descriptions, rubrics and results.

4. Identify any changes that should, as a result of this assessment, be implemented to help improve students' attainment of outcomes. (These may include, but are not limited to, changes in curriculum, content, materials, instruction, pedagogy etc).

Specific changes that will be made are noted below, by class and project:

Grounds Maintenance Calendar Project – Spring 2013

1) In preparing to grade this year's project, it was felt that students needed to have an alternate experience offered other than the current academic project for the course. Since so many of our students are hands-on learners and we have a great need in both the Learning Garden and LAT grounds for maintenance help, a service learning project as an alternative would be appropriate. We will be looking into that option for next year's class. The students will also be surveyed to approximate the hours spent on the project. This will help me to gauge the appropriate hours needed for service learning. A check-off sheet for hours worked, with space for evaluation by the supervisor will be developed for assessment.
2) Once the students are judged to be competent with the machinery, they can be let loose in lab to work on maintenance projects. Their enthusiasm is good for about an hour, many hands make light work, and they do seem eager to work on the grounds. The practice really enforces their skills.
3) The number of competencies will be limited to just the ones needed for them to be familiar with the equipment. Taking the number from 14 to 10 competencies, freeing up class time for more instruction and hands-on experience.

Soils and Plant Nutrition Group Project – Winter 2013

1) Group work suffered greater this year than in the past, although the reasons are not known. The class changed from 3 credits to 4 credits this year, and therefore many students were not from the program and perhaps had less interest in working as a group. This resulted in some students not contributing their part of the presentation and written report, and a few not showing up for the final presentation. Students left hanging were understandably upset. The students that didn't participate were graded down, but the student who does work hard is unfairly given the heavy workload. Going back to group testing and

individual reports will remedy this problem. This creates more accountability for the student (although more work for the instructor).

2) The detailed rubric was given to students, but it didn't seem to help students to do any better overall. Next year the wording will be simplified and easier to apply and use for both student and teacher alike.

   a) Define "Description of Site Information" better and collapse both "Description" and "Rationale" into one category (as they tend to do anyway), and separate "Maps" portion out into separate category, with appropriate points.

   b) All students understand "Physical Properties" and "Chemical Properties" and conversions and manage to do well here. Sometimes they forget all the information needed to be recorded. A handout is provided to them for recording information, and posted online for using in written report. This has been successful as a reminder to them and in grading for me. In the future, this will be handed out earlier in the process for recording results.

   c) Divide "Recommendations for Soil Fertilization and Amendments" into two parts; "Interpretation of Results" and "Recommendations". They are usually reasonably good at interpretation, but it needs more weight and emphasis. They are not as good at the calculations. These take time to understand (although the information is reviewed and handouts are given on the process), only the brightest understand them. Calculations will be taught with more examples and earlier in the course.

   d) Get rid of "Conclusion" area of report. Students either rehash what they already stated in "Recommendations" or leave out altogether (due to time?). Getting "best Management Practices" right is important. Therefore, let them focus on the BMP's for each SMU.

   e) Lastly, move to just written report without presentation. Presentations are valuable for students to see other sites and information, but students focused on them to the exclusion of the written report this year (even though only 10% of grade). The instructor did put together a handout on presentation tips, which a few groups utilized to their advantage. It proved to be helpful to those that read and applied it.

3) As for student's environmental and sustainable awareness…many are very aware of sustainable issues and are quite concerned with care of the earth. The instructor introduced a few fun activities on sustainability and they were welcomed in the classroom. Although the students are aware of sustainability, their ability to think through and apply information is less developed nor balanced with the reality of the landscape industry.

<u>Introduction to Landscape Design Project Spring 2013</u>

The Introduction to Landscape Design project involves the students going to the site of a real client's house, taking measurements and doing a site analysis, and drawing up a scaled map of the site, then drawing a design—one of which is selected by the client and installed by the class. The project is a very challenging one

for a new designer. Because the project is real, the client is real, and one of the designs will actually be installed, the students take it very seriously and work very hard on what is essentially about 6 weeks of work.

This year we implemented an entirely new rubric to evaluate the designs. As a result of the norming process and discussions between the two instructors, changes to the rubric, and to the class, will be made for next year. The changes include:

1) The rubric items under "design areas" are too vague to be useful. In addition, these are "site-specific" and did not necessarily apply to this site. In the future we will change this part of the rubric to reflect the site itself, and it will therefore be different from year to year.

2) The "neatness" category in the rubric will be increased from 10 points to 30 points.

3) There has not been a required text for this class because we have not found a suitable text that is not too simplistic nor too advanced. It is necessary to find one and make a required text so that all students will have a resource that will be consistent. The instructors will begin researching options for a required text.

4) It was decided that students need an extra week to work on the project. Therefore, the lecture on design elements will be moved to week 5, the site visit will occur week 3 rather than week 4, and the students will have one more week to work on the project.

5) The site visit day and the installation days are integral to the class, and without them students are missing a significant learning experience. Some students did not show up to the installation day, and the syllabus only awarded/deducted five percentage points. It was decided to make each lab day worth 10% of their grade, so that missing one of those days would incur more of a penalty and encourage participation.

5. Reflect on the effectiveness of this assessment tool and assessment process. Please describe any changes to assessment methodology that would lead to more meaningful results if this assessment were to be repeated (or adapted to another outcome). Is there a different kind of assessment tool or process that the SAC would like to use for this outcome in the future? If the assessment tool and processes does not need to be revised, please indicate this.

The process of norming has been a meaningful one and one which encourages discussion and debate and a healthy review of the program. One of the best things about the process is that fact that as faculty, we designate a time to sit down and have a discussion—too often we are rushed between preparing for classes and discussing budget and other housekeeping issues at LAT meetings, and we don't have an opportunity to really share ideas and opinions. This process in the end leads to a more meaningful curriculum and ultimately to better outcomes for students.

The four projects that we have selected for assessment represent a broad range of topics in the program and cover the three main areas of the Landscape Technology program: Design, Construction and Maintenance. By assessing these four projects in four different classes we effectively sample a wide

student population as well as a wide range of topics. We are happy with the assessment tool and process and do not need to change it at this time.

Appendix

Soils and Plant Nutrition Project Rubric	**Excellent**		**Satisfactory**	**Benchmark**
Report Title Page & Author	Contains report title, name, date, course, & instructor name.			
SMU - Description of Site conditions and Rationale for Separate SMU's (10 points)	Contains general site conditions: location, slope, aspect, and total square footage. Rationale noting the differences in topography, texture and plant materials for each SMU. Describes problems seen, such as: drainage, compaction, construction issues, etc. 3-5 SMU's included. (10)		Incomplete description of one to two SMU's, or rationales not noted, or two SMU's similar. 3-5 SMU's included. (7)	Three or more descriptions of SMU's incomplete, or rationales not noted, or less than 3 SMU's submitted. (4)
SMU - Maps (5 points)	Includes a color coded map(s) showing location of SMU's. Locations of off campus SMU's noted and mapped. (5)		Incomplete maps, or one of three maps are missing. (3)	All maps incomplete, or color coded maps not included. (1, 0)
SMU - Physical Properties of Soils Consistency, Color, Texture **(9 points)**	Complete description of consistency using terms discussed in class. Munsell chart designations included. Texture listed with %'s of sand, silt, and clay with textural classification correct for each SMU. (9)		Descriptions unclear or untypical terms used for consistency, or lacking Munsell chart designations, or texture %'s and textural classification wrong for each SMU. (6)	Descriptions unclear or untypical terms used for consistency, or lacking Munsell chart designations, or texture %'s and textural classification wrong for each SMU. (3)
SMU - Chemical Properties of Soils Humus, pH, N, P, K, Ca, and Mg **(21 points)**	Complete table of test results including: humus #; pH #; N-P-K (lbs/a & ppm); Ca-Mg (ppm & meq) for each SMU. (21)		Incomplete table of test results missing one to two entries or miscalculated conversions for each SMU. (14)	Incomplete table of test results missing three or more entries or miscalculated conversions for each SMU. (7)
SMU – Interpretation of Results and Recommendations (12 points)	Complete and accurate interpretation of results and recommendations for application of lime and fertilizers. (4 / SMU)		Incomplete or inaccurate interpretations and recommendations for each SMU. (2 / SMU)	Incomplete and inaccurate interpretation and recommendation for each SMU. (1)
SMU – Calculations for Soil Amendments and Fertilization (18 points)	Complete and accurate calculations for type of lime/fertilizer, fertilizer ratio needed, lime/ fertilization rate (pounds / 1000 square foot), frequency per year and when to apply, actual pounds of lime/fertilizer per area in each SMU. (6 / SMU)		Incomplete or inaccurate calculations for each SMU. (4 / SMU)	Incomplete and inaccurate calculations for each SMU. (2 / SMU)
SMU - Recommendations for Soil BMP's (15 points)	Describes in detail sustainable or best management practices (BMP's) to employ for protection, correction, and improvement of soils and management for each SMU included. (5 / SMU)		Complete recommendations for each SMU included as discussed in class. (3 / SMU)	Incomplete recommendations for each SMU. (1 / SMU)

Quality and Clarity of Report ` **(10 points)**	Clear (spelling and grammar) and concise information delivered in a logical, coherent manner for best understanding by client. (10)	Written material difficult to read (spelling and grammar) or find information resulting in incomplete understanding by client. (8)	Written material difficult to read and find information resulting in incomplete understanding by client. (6)

Grounds Maintenance Calendar

Points/100	Benchmark	Unsatisfactory	Satisfactory	Good	Excellent	Score
Title Page and Folder (5)	One of five requirements are there, or missing all requirements. (1/0)	Two of five requirements are there. (2)	Three of five requirements are there. (3)	Four of five requirements are there. (4)	Project is in a folder with title page: including title, client name(s), author and date. (5)	
Letter of Intent (10)	Incomplete and poorly written letter of intent, not directed toward client. (1)	Incomplete and poorly written letter of intent directed toward client. (2)	Fairly complete and somewhat well written letter directed toward client. (3)	Somewhat complete and well written letter of intent directed toward client. (4)	Complete and well written letter of intent directed toward client, one page. (5)	
	Project meets none of the aims outlined in the letter of intent, or lacks letter. (1/0)	Project minimally meets the aims outlined in the letter of intent. (2)	Project meets some aims outlined in the letter of intent. (3)	Project meets most aims outlined in the letter of intent. (4)	Project meets aims outlined in the letter of intent. (5)	
Site Inspection Report (25)	Minimal sections of inspection report complete or missing report. (2/0)	Few sections of inspection report complete and thorough. (4)	Some sections of inspection report complete and thorough. (6)	Most sections of inspection report complete and thorough. (8)	All sections of inspection report complete and thorough. (10)	
	Minimal plant list entries; or missing plant list. (1/0)	Few of plant list entries complete and thorough. (2)	Some of plant list entries complete and thorough. (3)	Most of plant list entries complete and thorough. (4)	Plant list entries complete and thorough with common and/or botanical names, sizes and ages listed. (5)	
	Project contains none of the site requirements, or lacking clear information about site. (2)	Project contains few of the site requirements. (4)	Project contains some of the site requirements. (6)	Project contains most of the site requirements. (8)	Project contains a 5000sf lot (minimum), 1000sf lawn, and a mix of trees, shrubs, perennials and groundcovers in beds. (10)	
Map and Photos (10)	Aerial map (or sketch) and photos included with minimal features shown; or no aerial map/photos. (2/0)	Aerial map (or sketch) and photos included with few features shown. (4)	Aerial map (or sketch) and photos included with some features shown. (6)	Aerial map (or sketch) and photos included with most features shown. (8)	Aerial map (or sketch) and photos included with all features shown. (10)	
Calendar Pages (40)	Project contains a minimal amount of the tasks and information given in class. (4)	Project contains few of the tasks and information given in class. (8)	Project contains some of the tasks and information given in class. (12)	Project contains most of the tasks and information given in class. (16)	Project contains all of the calendar tasks and general information given in class.(20)	
	Project does not contain any maintenance tasks specific to the plant palette; doesn't include any calculations. (2)	Project contains a few maintenance tasks specific to their plant palette; includes minimal calculations. (4)	Project contains some maintenance tasks specific to their plant palette; includes some calculations, most correct. (6)	Project contains many maintenance tasks specific to their plant palette; includes all calculations, most correct. (8)	Project contains most maintenance tasks specific to their plant palette and correctly addresses pruning, fertilizing or soil health, IPM, bed and turf areas; includes all calculations, all correct. (10)	

	The plan could not be implemented successfully in the landscape. (2)	The plan could be implemented in the landscape and be minimally successful. (4)	The plan could be implemented in the landscape and be somewhat successful. (6)	The plan could be implemented the landscape and be largely successful. (8)	The plan could be implemented successfully in the landscape. (10)	
Presentation (10)	Project is not neat, well organized and professional. (2)	Project is minimally neat, well organized and professional. (4)	Project is fairly neat, well organized and professional. (6)	Project is somewhat neat, well organized and professional. (8)	Project is neat, well organized and professional, with correct spelling and grammar. (10)	

Landscape Construction I Portfolio Assessment

Distribution of portfolio assessment scores achieved from 2 sections of LAT 111, Landscape Construction Practices I for Fall 2012. A total of 28 student portfolios were evaluated. Refer to the rubric below for specific category details.

	Does not meet category requirements	**Meets few category requirements**	**Meets some category requirements**	**Meets most category requirements**	**Meets category requirements**	Score
Completeness (30)	3	1		4	20	
Organization, formatting and professionalism (10)	1		5	15		
Techniques (10)	1			7	20	
Tools (10)	2		2	12	12	
Equipment (10)	2		2	12	12	
Materials (10)	3		1	13	11	
Reflection (20)	1		2	13	12	
					TOTAL	

Grading Rubric for Landscape Construction Portfolios
(Numbers in parentheses represent the maximum potential point value per box.)

	Does not meet category requirements	**Meets few category requirements**	**Meets some category requirements**	**Meets most category requirements**	**Meets category requirements**	Score
Completeness (30)	* 10 or fewer entries (10)	11 entries (15)	12 entries (20)	13 entries (25)	14 entries (30)	
Organization, formatting and professionalism (10)	Not organized, formatted and neat (2)	Minimally organized, formatted and neat (4)	Partially organized, formatted and neat (6)	Mostly organized, formatted and neat (8)	Organized, formatted and neat (10)	
Techniques (10)	Does not demonstrate understanding of the techniques included (2)	Demonstrates minimal understanding of the techniques included (4)	Demonstrates some understanding of the techniques included (6)	Demonstrates significant understanding of the techniques included (8)	Demonstrates thorough understanding of the techniques included (10)	
Tools (10)	Does not demonstrate understanding of the tools included (2)	Demonstrates minimal understanding of the tools included (4)	Demonstrates some understanding of the tools included (6)	Demonstrates significant understanding of the tools included (8)	Demonstrates thorough understanding of the tools included (10)	
Equipment (10)	Does not demonstrate understanding of the equipment included (2)	Demonstrates minimal understanding of the equipment included (4)	Demonstrates some understanding of the equipment included (6)	Demonstrates significant understanding of the equipment included (8)	Demonstrates thorough understanding of the equipment included (10)	
Materials (10)	Does not demonstrate understanding of the materials included (2)	Demonstrates minimal understanding of the materials included (4)	Demonstrates some understanding of the materials included (6)	Demonstrates significant understanding of the materials included (8)	Demonstrates thorough understanding of the materials included (10)	
Reflection (20)	Reflection is not thoughtful and relevant (4)	Reflection is minimally thoughtful and relevant (8)	Reflection is somewhat thoughtful and relevant (12)	Reflection is mostly thoughtful and relevant (16)	Reflection is thoughtful and relevant (20)	
					TOTAL	

Landscape Design Grade Sheet (Revised—used Spring 2013)

Landscape Design Item:	Points Possible:	Points Earned:
Drafting Skills:		
House is square	5	
Hardscape labeled correctly	5	
House and borders drawn in	5	
Title Block—contains client name, address, designer name, date, sheet number, graphic scale, north arrow	10	
Exact scale throughout design	5	
Lettering and labeling complete & neat	5	
Lines are dark, smooth, & consistent. Some variety in line weight as appropriate.	5	
Overall neatness throughout design	10	
Plant list contains scientific names, sizes, quantities	10	
Drafting Skills Subtotal:	**60**	
Principles and Elements:		
Variety in plants and textures	5	
Interconnection created using repetition of shape, form or line	5	
Focal points in front & rear garden	5	
Overall design of property balanced	5	
Foliage mass appears balanced	5	
Plants appear massed	5	
Plants repeated throughout design	5	
Odd numbers of plants used except in symmetry	5	

Principles & Elements Subtotal:	**40**	
Landscape Design Item:	**Points Possible:**	**Points Earned:**
Design Areas:		
Circulation provides ease in Movement	10	
Areas well defined and organized	10	
Is the design functional?	10	
Does the design fit the client's budget? (long term phasing is fine)	10	
Does the design address the client's needs and wants?	10	
Design Areas Subtotal:	**50**	
Low Maintenance Design:		
Avoid acute angles, form 90 degree angles when lines or forms intersect	5	
Bedlines clearly delineated	5	
Plant selection—plant cultural requirements are appropriate for the space (right plant, right place)	5	
Plant selection fits client's taste	5	
Design will be easy to maintain	5	
Low-maintenance Subtotal:	**25**	
Written rationale expresses the intent of the design	**25**	

DESIGN TOTAL:	**200**	
Late 10%/day	-	
DESIGN TOTAL:		

Landscape Construction Practices I – Portfolio

General description: To document and assess what you learn in the lab portion of Landscape Construction Practices I, each student will create a portfolio of their work. If done appropriately, your portfolio will be a valuable document you can use to demonstrate your experience, knowledge and skills to potential employers or clients.

Formatting your portfolio: The portfolio must be created and submitted electronically (Word document or PDF). Pages are to be typed, 12-point font, single spaced and have no greater than 1-inch margins. The narrative portions of the document are to be written in complete sentences. Spelling and grammar do count. Each section needs to be introduced by a divider page. For example, after the "Core Projects" section you need to insert a page that simply says "Tools" that lets the reader know it is the beginning of a new section. See the example at the end of this document.

Your portfolio must follow the outline below:

1. *Title page* (your name, title of the project, date, course)
2. *Core projects (techniques)*: For this portion of the portfolio, the student will choose any 3 of the 5 core projects we do in the class (e.g. installing pavers, installing gravel paths, installing precast block walls, wood construction, forming and pouring concrete). For each of the three selections, the student will create a chronological record of how the project was accomplished from start to finish. Each entry must include at least 3 high quality photos or diagrams that are referenced in and enhance the text. Each entry is not to exceed 3 pages.
3. *Tools (hand tools or electrical power tools)*: For this portion of the portfolio, the student will choose any 6 tools (2 must be electric power tools) we use during our projects that are relatively new to them (e.g. spade, rubber mallet, circular saw, speed square, laser level, wheel barrow, drill,). Each page (one page per tool) should include:
   a. one or two photographs or diagrams demonstrating how the tool is used
   b. a description of the tool and how it is used
   c. safety precautions associated with use of the tool
4. *Equipment (gas powered)*: For this portion of the portfolio, the student will choose any 2 pieces of equipment we use during our projects (e.g. compact utility loader, skid steer loader, tractor, wet saw, plate compactor). Each page (one page per piece of equipment) should include:
   a. one or two photographs or diagrams demonstrating how the equipment is used
   b. a description of the equipment and how it is used
   c. safety precautions associated with use of the equipment

LAT 110 – Grounds Maintenance
Course Project 2012

Final Grounds Maintenance Calendar

General description: For this project you will be developing a landscape maintenance calendar for a residential or commercial property. It is a guideline, in list format, to remind you of the routine and regular care for a site.
Options for case-studies include:
An existing maintenance account that you might have
A garden that you are designing
Your own personal garden
A prototype garden that you hope to develop maintenance services. Some examples of possible scenarios:
Residential Sustainable Landscape Maintenance - You are to maintain the site in a well groomed condition but are to follow sustainability practices where practical. You can find a guide to sustainable landscape practices at the following website (though you may use any resource that you like): http://www.sustland.umn.edu/ . Your crew visits the site weekly during the mowing season.
Commercial landscape maintenance - You are to maintain the site in a well groomed condition. Cost-effective and efficient practices are the key operating philosophies. Your crew visits the site weekly during the mowing season.
Estate gardener - You are to maintain the site in a well groomed condition. You are the sole maintenance person and you have a limited operating budget. Appearance and color are important to your employer. You are there every day (except Christmas and Thanksgiving).

Minimum requirements:
Minimum 20 different types of plants to include a minimum of 3 trees species to include 1 conifer, 5 shrub species and 5 different annuals/perennials.
Minimum 1000 sq ft lawn, lawn alternative or vegetable garden.

Parameters: This project is to be a well-organized, professional and thoughtful document. The calendar is to be presented as if it were an annual report to the client/employer of what you will be doing in the coming year. It may be compiled in a notebook or binder or submitted electronically. The document must be typed, 12 point font (minimum) and have page numbers. Use this
course requirement as an opportunity to develop a document that you could utilize for your own property or proudly hand over to potential clients, crew members or industry professionals.
Include the following items in the order presented:
1. Title Page: title, project/client name, location, your name, date
2. Letter of Intent or Summary of the scope of the project and the philosophy behind your maintenance approach (mission statement, guiding principles or stated aims, frequency of visits)
3. Table of contents
4. Detailed Inspection Report to included full list of plants (botanical and common names)
5. Arial map or sketch of property to include utilities, hardscapes, trees, shrubs and flower beds. Can be divided into zones.
6. Month by month calendar: Use a separate page for every month and break activities down
For each Calendar Month:

- One page minimum – have the tasks listed in an outline format under headings such as Turf, Planting, Pruning, Weed Control, etc.
- Indicate how often the task will be performed –

Special Activities (things that are done only a couple times per year)
Monthly (things that are done on a once or twice per month basis)
Weekly (done on a weekly basis)
Daily or Per Visit (done on a daily or a per visit basis)

- **Include pruning, fertilization and other care requirements for your specific landscape materials** (when to prune and how much, when to fertilize and how much, monitoring for specific pest, etc)
- Have specific information on types of chemicals/chemical alternatives used (pre-emergent vs. post-emergent, selective vs non-selective, granular vs spray, or specify chemical alternatives), recommended application rates, and placement for fertilizers and chemicals. (You can find suggested rates online and actual label instructions).
- If brief instructions are needed for crews, include them. Presumably they will have been trained, but not necessarily.
- Include all general maintenance tasks for your landscape.

CSS 200 - SOILS and PLANT NUTRITION - PROJECT GUIDELINES

Each of you will be given a site plan for a site here on campus. You will also be given (or will have to measure) square footages of areas from the site plan. As a group of 5-6 students, you will gather samples and produce data for each **Soil Management Unit** determined by your group. Data from each group will be analyzed, calculations made and written into a report. Each group will make a 15-20 minute presentation of their findings to the classroom on the due date.

As a group you are to prepare a Soil Management and Fertilization Report as if for a client. That report will be typed and follow the format below:

Report Title & Authors
Description of Site – (where site is located, the topography of the site, orientation, drainage, construction issues, etc.)
Soil Management Units – [using your site plan, outline soil management areas, list by Roman numeral with a brief description and **rationale** for creating as a unit (listing differences in topography, texture or plant material), **minimum of three units for report.]**
For each Soil Management Unit:
1. **Description of Soil** - (A description of physical properties of the first 6" of soil - i.e., consistency and color)
2. **Soil Test Results** - (texture, humus, pH, N, P, K, Ca, and Mg)
3. **Recommendations for Fertilization** (specific type of fertilizer or amendment, fertilizer ratio, fertilization rate (pounds / 1000 square foot), frequency per year and when to apply, actual pounds of fertilizer / application for area in soil management unit)
4. **Recommendations for Soil Management** (soil organisms, mulch, avoiding compaction, mowing, etc.)

Summary of your findings – (describe patterns seen and general BMP's for management overall)
Alternatively, your group could substitute 1-2 SMU's above for your own landscape soil sample(s) For this option, a full description of the site (location of the site, topography, etc.), and photos of the site must be included. If you select this option, you are responsible for all the measuring of areas and sampling required for making a full report for your own SMU. **This option does not allow the student to opt out of field and lab testing for the group soil sampling above.**