



Please Note: This *Course Outline* is an important step in updating the format of our distance courses. If for any reason the *Course Outline* does not match the print *Course Guide* or online course information, the *Course Outline* shall be taken as correct.

COURSE SYLLABUS

COURSE TITLE: Soils for Horticulture
COURSE CODE: SLSC 14.6 **TERM:** Term 3
COURSE CREDITS: 6 **DELIVERY:** PHC
COURSE SECTION: 2012-13 W03/W07

Course Description

This course will provide an introduction to the Soil Science concepts most important to the study of Horticulture.

Course Objectives

By the end of this course, students should be able to:

- understand some basic concepts
- understand and rationally plan soil management for your own Horticultural projects
- know how to reference the course material for future use.

Course Overview

As with any subject, it is better to learn the basic definitions and concepts of Soil Science before trying to understand more complex issues. The course will begin with learning about the principles of Soil Science, then look at how these principles affect plants growing in either soil or potting media. The focus will be on understanding how the conditions of the rooting environment affect the growth of plants, and how to improve these conditions.

Remember this is an introductory course and it will not provide detailed information for any one of the many branches of Horticultural Science. For example, there will not be a detailed description on how to fertilize or prepare a potting mixture for tomatoes grown in a greenhouse, nor will there be a list of the strict soil management guidelines for turfgrass maintenance.

Your Instructor

Lyle Cowell

Contact Information

You will communicate with your instructor through the Blackboard Learning System, Messages (Course Mail) on all matters. You can expect a reply, from the messages (course mail) tool, within 48 hours. Instructors will not be using your personal email for communication. If you do need to speak with the instructor directly, a contact number is listed below.

Please watch the messages (course mail) and announcements for information from the instructor and the PHC office

Phone: 306.863.2391

Profile

Lyle Cowell, the instructor for Soils for Horticulture, wrote this course while employed by the Dept. of Soil Science at the University of Saskatchewan in soil fertility and remediation research. He is now living on the family farm in NE Saskatchewan, in the regional mix of Thick Black Chernozemic and Luvisolic soils. During the day, he works as a regional agronomist with conventional agriculture, but much of his free time is spent in horticultural hobbies including houseplants, gardening, landscaping and fruit and berry trees. He shares this interest with his wife, who has a degree in Horticulture. He enjoys horticulture, despite the challenges it faces in our climate.

This is an introductory extension course, and your instructor recognizes that there are challenges to each of you outside just the course material. His goal is not to 'pass or fail' you, nor to expect you to have a full understanding of Soil Science. He hopes you will gain an appreciation and new understanding of soil properties that you can use on a day to day basis to improve your horticultural hobbies and business. He does not expect you to 'memorize' the course, but to understand basic concepts. He hopes that you will also be willing to contact him when you have course questions of any type, by course email or telephone.

Additional Resources

Readings/Textbooks

There is not a required textbook for this class, but you may want to borrow a Soil Science text from a library from time to time. There is a multitude of useful texts. The following are examples of good references for general Soil Science information. One or more of these texts should be available from a University or College library.

Brady, N.C. 1996. *The Nature and Properties of Soils*. 11th ed. Macmillan Publishing Company. New York. 621 pp.

California Fertilizer Association. 1990. *Western Fertilizer Handbook*. Horticulture Edition. Interstate Publishers, Inc. Danville, Illinois. 279 pp.

Mengel, K. and Kirkby, E.A. 2001. *Principles of Plant Nutrition*. 5th ed. International Potash Institute. Worblaufe-Bern, Switzerland. 687 pp.

Tisdale, S.L., Nelson, W.C., Beaton, J.D., and Havlin, J.L. 1993. *Soil Fertility and Fertilizers*. 5th ed. Macmillan Publishing Company. New York. 634 pp.

Textbooks are available from the University of Saskatchewan Bookstore:

www.usask.ca/consumer_services/bookstore/textbooks

Course Schedule

| Week | Module | Evaluation Due Date |
|------|---|---|
| 0 | | Start of Term: Mar.25 Assignment 1A- Part 1 Due: Mar. 25-29 th , 2013 |
| 1 | Module 1 – Soil Development and Composition | |
| 2 | Module 2 – Soil Chemical Properties | |
| 3 | Module 3 – Soil Physical Properties | |
| | Midterm Examination | Complete: April 15-19, 2013 |
| 4 | Module 4 – Water: An Essential Nutrient | |
| 5 | Module 5 – Soil Fertility | |
| 6 | Module 6 – Synthetic Fertilizers | Assignment 3 – Suggested Activity Due: April 29-May3, 2013 |
| 7 | Module 7 – Synthetic Fertilizer Application | |
| 8 | Module 8 – Natural Soil Amendments | |
| 9 | Module 9 – Potting Culture | Assignment 1B - Part 2 Due: May 27,2013 Assignment 2 Due: May20-24, 2013 |

| | | |
|----|--|--------------|
| 10 | Module 10 – Measurement and Calculation of Nutrient Requirements | |
| | FINAL EXAM | June 1, 2013 |

Please note that the above schedule is just a rough estimate of how you should balance your time. Feel free to work as fast or slow as you want as long as the assignments are completed and emailed on time.

Note: If for any reason the Course Syllabus Reading List does not match the Module Reading List, the Course Syllabus shall be taken as correct.

Grading Scheme

| | |
|---|------|
| Assignment 1 A (2%) and B (3%): Reflection on Course Goals | 5% |
| Assignment 2: Major Project | 30% |
| Assignment 3: An Activity | 15% |
| Mid-Term Exam | 15% |
| Final Exam | 35% |
| Total | 100% |

Information on literal descriptors for grading at the University of Saskatchewan can be found at: <http://students.usask.ca/current/academics/grades/grading-system.php>

Please note: There are different literal descriptors for undergraduate and graduate students.

More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at: http://www.usask.ca/university_secretary/council/academiccourses.php

The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: http://www.usask.ca/university_secretary/LearningCharter.pdf

Evaluation Components

Assignment 1: Reflection on Course Goals (located under Assignments in the course menu)

Value: 5% of final grade

Due Date: Mar. 25-29th, 2013 - **Part 1** - Complete this assignment before you begin Module 1 and submit to instructor no later than one week after the beginning of the term.

May 27, 2013 - **Part 2** – Complete part 2 at the end of the term. You may also turn it in with your final exam.

Purpose: To get you to think about and articulate your course goals.

Description: Please complete **Part 1** and **Part 2**.

Part 1

Before you begin your study of this course, answer the following questions:

a. Why is knowledge of Soil Science important to your Horticultural interests?

In answering this question, you will want to answer for yourself, “what is soil science?” and then reflect on how soil science applies to your horticultural interest.

b. What do you want to learn or accomplish in this course?

In answering this question, you are actually setting some objectives for yourself. You will want to think about how you will apply what you expect to learn in your day-to-day operation. An ability to apply what you learn is one measure of whether you have reached your objective.

This is not a test of your prior knowledge. Rather, it is a way for you to build a framework for your learning and help you integrate what you are learning (or hope to learn) in your day-to-day work experience. It is also means for us to see if this course is answering the questions you want answered.

You do not need to write a lengthy response to these questions—no more than one page in total. Complete this assignment before you begin Module 1 and mail one copy to your instructor and keep one copy for yourself.

Part 2

At the end of the course, answer these same questions again, except answer 'b' as “what did you learn from this course and how can you apply what you learned to your horticultural operations?” In writing your answer this time, review what you wrote at the beginning of the year. In addition to identifying any new knowledge that you can apply to your work, you may also want to reflect on how well this course met the needs you outlined at the beginning of the year. Again, your answer should be about one page in length.

Remember to submit at the end of the term. You may also turn it in with your final exam.

Suggestion: As you complete each module, make notes, or even keep a journal, answering these questions for each module. You'll find that completing this assignment at the end of the term, then, is a “piece of cake.”

Assignment 2: Major Project (located under Assignments in the course menu)

Value: 30% of final grade

Due Date: May 20-24, 2013 Complete and send in the assignment before you begin studying the last module.

Purpose: Soil Science for Horticulture is an introductory course, and will not provide you with detailed information about your own Horticultural interests. This project is your opportunity to investigate Soil Science issues for your specialty (greenhouse bedding plants, golf course management, potato production, houseplant care, orchard production...).

Description: In a short report, provide the details that someone would need to manage the soil or potting media of your specialty. Write the report so that anyone could understand the information and put it to use. Include the “how? when? why? where?” information. Consider all aspects of the rooting environment covered in this course: soil texture, soil physical and chemical properties, water use, soil fertility needs, the need for, or benefits of using synthetic fertilizers and soil amendments. However, be concise, and include only important details.

The following is a general guide;

- pick a fairly narrow topic on a subject that most interests you.
- write a short report of no more than 5 typed pages.
- Don't restrict yourself to the information in this course. Read published information, talk to experienced Horticulturists, visit your library and local government extension office, talk to local University or College instructors, and draw on your experience.
- Use diagrams and pictures if possible. If special equipment is required, provide details on its best use and function. Where is it purchased? What is the cost?
- You may want to provide some simple analyses that you have conducted yourself. For example, if your paper described methods of preparing a potting mixture, you may want to include the water holding capacity or pH of the mixture.

Begin thinking about and finding information for your project immediately. By the end of completing the first module, prepare an outline of your paper. If you have any questions about this assignment, be sure to contact your instructor. Once you've drafted your outline, phone your instructor so that you can discuss the outline for your project.

Assignment 3: Suggested Activity (located under Assignments in the course menu)

Value: 15% of final grade

Due Date: April 29-May3, 2013. Complete and submit your written activity report as soon as possible, to avoid too much work near the end of the class. At a minimum, send your report before beginning Module 10.

Purpose: To draw on material in all modules for your answer.

Description: For this assignment, do only one of these:

- choose one of the at-home activities listed below in “Suggested Activity”) and write a report;

or

- write a detailed answer to one of the designated study questions on the next page.

Suggested Activity

A number of suggested activities are included as part of the course content. You are expected to attempt all of these activities at home. For this assignment, you are required to submit at least a **one-page** report of **one** of these activities for marking. If you choose one of the activities, which require you to grow and observe a plant under specific conditions, you will want to begin your activity immediately. Submit a report of **one** of these activities:

- Module 3: the effect of compaction on plant growth
- Module 3: the effect of temperature on germination
- Module 4: measuring moisture constants of soil or potting media
- Module 5: Nitrogen Fixation by Legumes
- Module 7: drawing a root system in soil, media, or hydroponics in both seedling and mature stages
- Module 8: design a compost system.
- Use your imagination! Design and complete a “hands-on” project to answer a question of your own. Be sure to contact your instructor before you begin this option.

In the case of the activities that require a small project, give a description of what you observed and learned in the activity. (The instructions included with the at-home activity guide you.) You may want to include a picture or diagram to help explain your observations.

Check your table of contents for the page number for these activities. The at-home activities for Assignment 3 are listed in the table of contents under a separate heading “At-Home Activities for Assignment 3. You will find this list after the module contents and before the list of figures.

Study Questions

- Module 4: Question 6 **or** 7
- Module 5 Question 1 **or** 13
- Module 7 Question 2
- Module 8 Question 4
- Module 9 Question 3

Mid-Term Examination (located under Assignments in the course menu)

Value: 15% of final grade

Due Date: April 15-19, 2013

You are encouraged to look through this examination before you start work on the course and keep notes as you go along. You will have only 1 try at this exam.

Length: 1.5 hours

Purpose: The exam will consist of multiple choice, true/false and definitions, and short answer questions similar to those in the study guide.

Description: Online exam

Final Exam

Value: 35% of final grade

Final Exam Date: June 1, 2013 (deadline to apply for final April 15th)

Length: 3 hours Closed book

Description: If you have completed all of the study questions and projects, reviewed the new terms in your glossary, and are confident in simple fertilizer calculations, you should have no problem with the final exam. The final examination will test your knowledge of the material in each and every module.

Submitting Assignments

To obtain your best mark, you should complete all assignments and attempt all questions in each assignment in the course. If you know only part of the answer, put it down and you may receive partial marks. Remember, instructors find it very easy to mark a question that has not been attempted.

You are expected to submit assignments by the due dates indicated in your Course Syllabus. The instructor has the discretion to penalize late submissions or not. Assignments submitted beyond the final exam date may or may not be accepted by the instructor. If you experience legitimate problems such as accident or family illness, discuss it with your instructor so that some suitable arrangement can be worked out.

Before submitting any assignment, ensure to save a backup copy of it in case the original is lost.

All of the assignments are located under assignments in the course menu .

Please submit all assignments online, using the Assignments tool in Blackboard.

Assignments Tool in Blackboard:

1. From the Course Home Page, on the left menu click Assignments.
2. On the Assignments page, click the Assignment you want to submit and download any attached files.
3. In the Upload Assignment area, key in the Assignment Materials text box or attach your file. Note the file naming rules.
4. Add any Comments for your instructor.
5. Click Submit to submit the assignment.

6. Review Submission History that appears after you Submit. Click OK if you need to go back and revise.

For Further Information about Using the Blackboard Assignments Tool:

1. From inside Blackboard, click on the Help tab to see U of S Course Tools/BBLearn 9.
2. On the tool bar under Course Tools, click the Students' Help tab and then click one of the following options:
 - Videos and then click Working with Assignments (2 min 59 sec video).
 - Course Tools Help Documents and click Working with Assignments (a pdf document)
 - FAQs

Faxed Assignments:

Be sure to indicate the course name, your section number and the assignment number on the cover page with your name and address. The instructor will put your grade and comments under My Grades in the course menu

Checking Your Assignment Grades

1. From the Course Home Page, on the left menu click My Grades.
2. To see the grade for the specific assignment, click on the assignment grade.
3. View the details of your grade and any instructor comments.

The following criteria are considered in grading assignments and the final examination:

- Demonstrated analytical/critical insight ability
- Evidence of appropriate level of understanding of course content
- Breadth/depth of coverage of the question/s
- Assignment organization
- Syntax, technical errors, clarity of expression

Integrity Defined

Integrity is expected of all students in their academic work – class participation, examinations, assignments, research, practica – and in their non-academic interactions and activities as well.

What academic integrity means for students

- Perform your own work unless specifically instructed otherwise. Check with your instructor about whether collaboration or assistance from others is permitted.
- Use your own work to complete assignments and exams.
- Cite the source when quoting or paraphrasing someone else's work. Discuss with your professor if you have any questions about whether sources require citation.
- Follow examination rules.
- Discuss with your professor if you are using the same material for assignments in two different courses.
- Be truthful on all university forms.
- Use the same standard of honesty with fellow students, lab instructors, teaching assistants, sessional instructors and administrative staff as you do with faculty.

Integrity in non-academic activities

Misconduct that disrupts the activities of the university or harms the legitimate interests of the university community could be the cause for non-academic disciplinary action.

Guiding Principles

The university documents that lay out our rules and procedures are the **Student Academic Misconduct Regulations** (University Council) and the **Standard of Student Conduct in Non-Academic Matters** (University Senate). Both documents are based on the same Guiding Principles:

- Freedom of Expression
- Mutual Respect and Diversity
- Commitment to Non-violence
- Commitment to Justice and Fairness
- Security and Safety
- Integrity

Academic Misconduct Procedures

“Academic Misconduct” is the term the University uses to describe cheating. Types of cheating are listed in the Student Academic Misconduct Regulations of University Council. There is an onus on every student to become informed about academic misconduct.

When an instructor believes a student is guilty of academic misconduct, the following procedures are used:

Informal procedure:

Sometimes misconduct is the result of carelessness, misunderstanding of the rules, or miscommunication. In such cases, the instructor may discuss the matter with the student informally.

If the student concedes the misconduct, the instructor has the authority to impose one or more of the following penalties:

- reduce the grade on the assignment or exam, to as low as zero
- require the student to rewrite the assignment or exam.

A penalty imposed by an instructor is not reported to the student's college and does not become part of the student's record.

A student who disagrees with the allegation of cheating or with the penalty imposed may request a formal hearing.

Formal procedure:

For more serious misconduct, or in cases where the student disputes the allegation or the penalty, a college hearing board will hear the matter. Procedures for hearings are described in the Regulations.

The hearing board has the authority to impose one or more of the following penalties:

- reprimand or censure the student
- reduce the grade on the assignment, exam, or entire course, to as low as zero
- require the student to rewrite the assignment or exam
- require the student to submit an essay or a presentation on academic misconduct
- suspend or expel the student
- postpone, deny or revoke the student degree, diploma or certificate

A penalty imposed by a Hearing Board is reported to the student's college and to the university, and becomes part of the student's record. A finding of misconduct in research funded by an external agency is reported to that agency.

Further appeal of a hearing board decision or penalty is permitted only on grounds of unfair procedure or new evidence.

For More Information

Integrity and Student Conduct website:

http://www.usask.ca/university_secretary/honesty/

Date: Effective January 1, 2010

Academic Misconduct Defined

The following constitute academic misconduct that may be the subject-matter of an allegation under the Student Academic Misconduct Regulations:

- (a) Providing false or misleading information or documentation to gain admission to the university or any university program;
- (b) Theft of lecture notes, research work, computer files, or other academic or research materials prepared by another student or an instructor or staff member;

- (c) Using work done in one course in fulfillment of any requirement of another course unless approval is obtained from the instructor by whom the material is being evaluated;
- (d) Presenting the work of someone else as one's own;
- (e) The supply of materials prepared by the student to another student for use by that student as the work or materials of that student;
- (f) Alteration or falsification of records, computer files, or any document relating to a student's academic performance;
- (g) Violation of the university's policy on misconduct in scholarly work as outlined at www.usask.ca/university_secretary/policies/research/8_25.php
- (h) Fabrication or invention of sources;
- (i) Failure to observe any stated rule with regard to the procedure used in an examination (or an activity undertaken for academic credit) where such a failure could result in the student gaining relatively greater credit;
- (j) Altering answers on a returned examination;
- (k) When prohibited, removing an examination from the examination room;
- (l) Seeking to acquire or acquiring prior knowledge of the contents of any examination question or paper with the intention of gaining an unfair advantage;
- (m) Possessing or using notes or other sources of information or devices not permitted by the course instructor in an examination;
- (n) Consulting or seeking the assistance of others when writing a "take home" examination unless permitted by the course instructor;
- (o) Providing false or misleading information with the intent to avoid or delay writing an examination or fulfilling any other academic requirement;
- (p) Failing to observe the terms of any agreement not to disclose the contents of an examination;
- (q) Misrepresenting or conspiring with another person to misrepresent the identity of a student writing an examination or engaging in any other form of assessment;
- (r) Knowingly doing anything designed to interfere with the opportunities of another person to have his or her contribution fully recognized or to participate in the academic program;
- (s) Preventing others from fair and equal access to University facilities or resources, including library resources ;
- (t) Using or attempting to use personal relationships, bribes, threats or other illegal conduct to gain unearned grades or academic advantages;
- (u) Knowingly assisting another person engaged in actions that amount to academic misconduct;
- (v) Plagiarism: the presentation of the work or idea of another in such a way as to give others the impression that it is the work or idea of the presenter.

Adequate attribution is required. What is essential is that another person have no doubt which words or research results are the student's and which are drawn from other sources. Full explicit acknowledgement of the source of the material is required.

Examples of plagiarism are:

- I. The use of material received or purchased from another person or prepared by any person other than the individual claiming to be the author. [It is not plagiarism to use work developed in the context of a group exercise (and described as such in the text) if the mode and extent of the use does not deviate from that which is specifically authorized].
 - II. The verbatim use of oral or written material without adequate attribution.
 - III. The paraphrasing of oral or written material of other persons without adequate attribution
- (w) Unprofessional conduct or behaviours that occur in academic or clinical settings or other work placements, or that are related to the student's area of professional practice.

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