

**MERCER COUNTY COMMUNITY COLLEGE**  
**Science and Health Professions Division**  
**OHT 108 – Soil and Plant Nutrition**  
**SPRING 2008**

**Credits:** 4  
**Lecture Hours:** 3  
**Laboratory Hours:** 3

**Lecture Instructor:** Amy Isenecker, Assistant Professor  
**Office Number:** MS 124  
**Phone Number:** (609)570-3372  
**E-Mail:** [isenekea@mccc.edu](mailto:isenekea@mccc.edu)

**Lab Instructor:** Marie Wszolek  
**Office Number:** Greenhouse  
**Phone Number:** (609)570-3512  
**E-Mail:** [wszolekm@mccc.edu](mailto:wszolekm@mccc.edu)

**Course Description:**

Origins, composition, and physical and chemical properties of soils including ion exchange and pH effects; organic matter; soil-water relationships; nutrient deficiencies; and fertilizers. Lab work involves a number of representative soils to illustrate basic soil behavior.

**Prerequisites:** CHE 100 or equivalent

**Textbook:** Required  
Title: Elements of the Nature and Properties of Soils, 2<sup>nd</sup> Edition  
Author: Brady and Weil  
Publisher: Pearson/Prentice Hall

**Lab Manual:** Required  
Title: Soil Science  
Author: Dingus  
Publisher: Prentice Hall

**Study Guide:** Optional  
Title: Soil Science Simplified  
Author: Helmut Kohnke & D.P. Franzmeier  
Publisher: Waveland Press

**Grading:**

Grades will be based on the following point system.

Midterm Exam	100 points
Final Exam	100 points
Lab Reports	280 points
Quizzes	<u>220 points</u>
Total Points	<u>700 points</u>

**Explanation of Point System:**

**Exams** - Exams will be based on both lecture and laboratory material. The midterm exam will be based on the first half of the course. The final exam is based primarily on the second half of the course. The date of the final exam is to be announced. I reserve the right to re-test you if a grade received is not consistent with your normal performance. You must show up on time to take your exams. If you are late to class to take an exam, and one of your classmates has already finished the exam and left the room, you will not be allowed to take it. In case of an emergency, you must call within 24 hours of the exam in order to do a make-up. You are also responsible for obtaining all missed notes, etc. required for exams and quizzes if you are absent from class. I would suggest you pair up with a classmate so you have access to missed material.

**Quizzes** - Quizzes will be given in lecture each Tuesday and will cover the material from the previous week. Each quiz is worth 20 points and will be given at the beginning of lecture. The lowest quiz grade will be dropped at the end of the semester. You will not be given extra time to complete the quiz if you show up late to lecture and no make-up quizzes will be given.

**Lab Reports** - Lab reports are due before you leave lab each week. Each lab report is worth 20 points with the lowest grade being dropped at the end of the semester. If you show up late to lab, you will receive an immediate 5 point deduction.

**Lab Dress Code:**

You must wear sturdy, closed toe shoes to lab. This means no sandals, flip-flops, open toed shoes, etc.

**Make-Up Policy:**

The instructor must be notified within 24 hours of an exam if it is going to be missed for an excused reason. (Excused absences include illness, death and transportation problems etc.....) If this is done, the student will be able to make up the exam at the convenience of the instructor as long as proper documentation is provided. Otherwise, no make-up will be offered. Make-up quizzes and lab assignments will not be allowed for any reason, however, students are held responsible for missed lecture and lab material.

**Cell Phone Policy:**

According to college policy, the ringer on all cell phones must be turned off during lab and lecture.

**Statement of Academic Integrity:**

“Any student who a) knowingly represents the work of others as his/her own, b) uses or obtains unauthorized assistance in the execution of any academic work, or c) gives fraudulent assistance to another student is guilty of cheating. Violators will be penalized in accordance with established college policies and procedures.” (If you are caught cheating, you will receive a zero for the assignment/test, and you will be turned into the Academic Integrity Committee.)

**Behavior Statement:** I encourage participation in my course. I enjoy you asking questions and sharing your experiences. I, however, will not tolerate any of the following behaviors in my course. These behaviors will result in your dismissal from class for the day.

- Physical or Verbal Threatening Behavior or Derogatory Remarks Towards the Instructor and/or Fellow Classmates
- Using Cell Phones During Class (including text messaging)
- Carrying on Side Conversations

**Statement from the Office of Special Services:**

Any student in this class who has special needs because of a disability is entitled to receive accommodations. Eligible students at Mercer County Community College are assured services under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973.

If you believe you are eligible for services, please contact Arlene Stinson, the Director of Academic Support Services. Ms. Stinson’s office is LB 221, and she can be reached at 609-570-3525.

**Mercer’s Grading System:**

A	93 – 100
A-	90 – 92
B+	87 – 89
B	83 – 86
B-	80 – 82
C+	77 – 79
C	70 – 76
D	60 – 69
F	0 – 59

**Course Objective:**

This course is intended to provide you with a working knowledge of soil science in order to help you understand the practices used in the management of field and greenhouse soils.

The basic chemistry and physics of soil will be considered in sufficient scope and depth to facilitate the study of those areas in soil science which are most relevant to horticulture and plant science. Included in this will be a consideration of the relationship of soil structure to water storage and to plant growth, the role of soil and soil materials in plant nutrition, and the principles involved in soil liming and fertilization.

The laboratory portion of this course will illustrate and reinforce concepts presented during the lectures and will introduce the student to the basic techniques used in testing and altering the physical and chemical characteristics of soils.

### **Semester Schedule:**

Week #1 Lab #1	Course Introductions; An Introduction to Soil Problem Set #1; Determining Soil Texture Using The Feel Method (Lab Assignment 1 and 2)
Readings	Chapter 1; Lab Manual pgs.12-16, 60-63, and 68-71
Week #2 Lab #2	Quiz 1; The Physical Properties of Soil Including Particle Size and Arrangement Particle Size Distribution Using The Bouyoucos Hydrometer (Lab Assignment #3)
Readings	Chapters 4, 7 and 8; Lab Manual pgs.65-67
Week #3 Lab #3	Quiz 2; Soil Formation Minerals, Rocks, and Weathering (Lab Assignment #4)
Readings	Chapter 2; Lab Manual pgs.31-55
Week #4 Lab #4	Quiz 3; Water Movement in Soil; Video - How Water Moves Through Soil Water Movement Lab (Lab Assignment #5)
Readings	Chapter 5; Lab Manual pgs. 73-80
Week #5 Lab #5	Quiz 4; Water Management in Soil; Video - Water and Plant Growth Designing Your Own Watershed (Lab Assignment #6)
Readings	Chapter 6
Week #6 Lab #6	Quiz 5; Organisms Found in Soil; Video - Organic Matter Designing Your Own Watershed (Lab Assignment #6)
Readings	Chapter 10

Week #7	Quiz 6; Organic Matter; Decomposition and Biodegradation; Carbon and Nitrogen Cycling
Lab #7	Review Session For Midterm (Lab Assignment #7)
Readings	Chapter 11; Lab Manual pgs. 131 - 137
Week #8	Midterm Exam
Lab #8	Nutrient Deficiency Lab Set-up (Lab Assignment #8)
Readings	None
Week #9	Midterm Exam Results; Nutrients in Soil
Lab #9	Nutrient Deficiency Lab Evaluation; Soil Testing for Nutrients (Lab Assignment #9)
Readings	Chapters 12 and 13; Lab Manual pgs. 151-158
Week #10	Quiz 7; Fertilizers; Video – Managing Nutrients with Fertilizers
Lab #10	Nutrient Deficiency Lab Evaluation; Fertilizer Application; Outside Lab Work (Lab Assignment #10)
Readings	Chapter 14
Week #11	Quiz 8; Soil pH Including Acidity, Alkalinity and Salinity; Video - Amending Soil
Lab #11	Nutrient Deficiency Lab Evaluation; Determining Soil pH; Amending Soil; Outside Lab Work (Lab Assignment #11)
Readings	Chapter 9
Week #12	Quiz 9; Soil Maps and Surveys
Lab #12	Nutrient Deficiency Experiment Evaluation; Using Soil Maps (Lab Assignment #12)
Readings	Chapter 3
Week #13	Quiz 10; Soil Taxonomy and Land Classification
Lab #13	Site Evaluation (Lab Assignment #13)
Readings	Chapter 3
Week #14	Quiz 11; Soil Erosion
Lab #14	Plants and Ways to Prevent Soil Erosion (Lab Assignment #14)
Readings	Chapter 15
Week #15	Quiz 12; Uses for Soil; Catch-Up Lecture
Lab #15	Final Exam Review Session; Student Soil Testing (Lab Assignment #15)
Readings	None
Final Exam – TBA	