

**Forestry 452
Spring 05**

COURSE TITLE: Forest Soils

CLASS LOCATION AND MEETING TIME: 168 Agriculture Bid, T R 1:00 – 1:50

INSTRUCTOR: Dr. Karl W. J. Williard

194B Agriculture Bid

Office Tel.: 453-7478

Office Hours: T R 2:00 – 5:00

Email: williard@siu.edu

A. Catalog Description:

Characterization and fundamental concepts of forest soils and their relationships to forest communities and forest management practices. Emphasis is on the chemical, biological, and physical properties of forest soils as related to forests and forest management.

B. Prerequisite:

PLSS 240 (Soil Science) or consent of instructor.

C. Objectives:

To develop an understanding of the chemical, biological, and physical properties of forest soils in relation to forest growth and forest resource management.

D. Topic Outline:

- A. Introduction to forest soils. (Ch. 1)
- B. Forest soils and vegetation development. (Ch.2)
- C. Physical properties of forest soils (water flow). (Ch. 4)
- D. Roots. (Ch. 8)
- E. Mycorrhizae. (Ch. 8)
- F. Soil organic matter. (Ch. 7)
- G. Soil chemistry and nutrient uptake. (Ch. 5)
- H. Plant and soil water relations. (Dr. James Fralish)
- I. Nitrogen cycling. (Ch. 9)
- J. Phosphorus cycling. (Ch. 9)
- K. Sulfur cycling. (Ch.9)
- L. Biology of forest soils. (Ch. 6)
- M. Fire effects on soils. (Ch. 10)
- N. Soil compaction.
- O. Prairie soils. (Dr. Sara Baer)
- P. Nutrient limitations and fertilization. (Ch. 12,13)
- Q. Long-term soil productivity and management. (Ch. 16)
- R. Atmospheric deposition impacts on forest soils.

S. Field laboratory at Bell Smith Springs Natural Area – soil/vegetation relationships (Saturday, April 16?)

E. Required Text:
 Fisher, R.F. and D. Binkley. 2000. *Ecology and Management of Forest Soils*. third edition. John Wiley and Sons, New York. 512 pp.

F. Additional Reference:
 Paul, E.A., and F.E. Clark. 1996. *Soil Microbiology and Biochemistry*. second edition. Academic Press, San Diego. 340 pp.

G. Grading:
 2 hourly exams at 100 pts. each (Feb. 22 and April 7)
 1 comprehensive final at 150 pts. (May 10 5:50 – 7:50 p.m.)
 2 quizzes at 25 pts. each (Feb. 1 and March 10)
 1 field laboratory report at 50 pts. (due April 26?)
 Total Points Available = 450

- Late assignments will be penalized 20% per day and will not be accepted once graded
- assignments are returned.
- No make-up exams or quizzes – without prior consent of instructor.

H. Academic Honesty Policy:
 The academic honesty policy will follow the Student Conduct Code, section II, article A.

I. ADA Special Accommodations:
 In keeping with the goal of the implementation of the Americans with Disabilities Act (ADA), all students for whom the act applies should notify the instructor no later than the second session of the course so that arrangements can be made for accommodations to meet your educational needs and maximize learning.

Grading scale:
 A = 90 - 100%
 B = 80 - 89.49%
 C = 70 - 79.49%
 D = 60 - 69.49%
 F > 59.50%