

FOR 491 – Forest soils

Course Syllabus – Spring 2018

Course Description

The course will evaluate how forest soils form in the natural environment, but also their relations to forest management and sustainability. Coursework includes soil physical, chemical, and biological properties, and also special topics such as soil fertility, soil formation, soil taxonomy and classification, soil organic matter management, and soil C and N cycles. There are many factors that contribute to forest soils differing from traditional cultivated soils. These factors will be explored in addition the variation in management styles for forest soils. The goal of this course is to gain an understanding of the basic properties and processes of forest soils as well as evaluate the role of these soils in sustainable forest management.

Learning Outcomes

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

1. Identify available soils maps to utilize information for forest management goals and objectives.
2. Conduct basic field descriptions of forest soils.
3. Describe how soil water and nutrients can be managed for availability in a forested system
4. Describe how soil-forming factors affect soil function and major soil groups.

Course Meetings (required)

Lecture: Mondays/Wednesdays 9:35-10:25 am

Location: 3032 Biltmore

Lab: Fridays 9:35am-12:20pm – **TWO SATURDAY LABS REQUIRED**

Location: 2102 Biltmore

Instructors

Dr. Zakiya H. Leggett - Instructor

Email: zakiya_leggett@ncsu.edu (preferred)

Phone: (919) 515-8679

Office Location: 3124 Jordan I

Office Hours: TuW 10:40am-12pm and by appointment

Dr. Rachel Cook– Instructor

Email: rlcook@ncsu.edu (preferred)

Phone: (919) 515-5979

Office location: 3108B Jordan I

Office Hours: WF 2:45-3:30pm and by appointment

Textbook and tools (required)

Ecology and Management of Forest Soils, R.F. Fisher and D. Binkley (eBook can be found in course reserves)

Supplemental required readings will be assigned for students to find online or in library, posted on the website, or provided in the form of handouts.

Requisites and Restrictions

CH 101 & CH 102 and PB 200 or BIO 181 are pre-requisites OR permission from instructor

Grading

*Quizzes may be given at the discretion of the instructors

	Total Points	% of Total
Exams (2 at 100 pts each)	200	33%
Lab Assignments (7 at 15 points each)	105	17%
Oral Presentations (2 at 50 points each)	100	17%
Final Exam	200	33%
TOTAL	605	100%

Letter Grades

This course uses standard NCSU Letter Grading:

97.00 ≤ A+ ≤ 100.00

93.00 ≤ A < 96.99

90.00 ≤ A- < 92.99

87.00 ≤ B+ < 89.99

83.00 ≤ B < 86.99

80.00 ≤ B- < 82.99

77.00 ≤ C+ < 79.99

73.00 ≤ C < 76.99

70.00	≤	C-	<	72.99
67.00	≤	D+	<	69.99
63.00	≤	D	<	66.99
60.00	≤	D-	<	62.99
0	≤	F	<	59.99

Requirements for Credit-Only (S/U) Grading

In order to receive a grade of S, students are required to take all exams and quizzes, complete all assignments, and earn a grade of C- or better. Conversion from letter grading to credit only (S/U) grading is subject to university deadlines. Refer to the Registration and Records calendar for deadlines related to grading. For more details refer to <http://policies.ncsu.edu/regulation/reg-02-20-15>.

Requirements for Auditors (AU)

Information about and requirements for auditing a course can be found at <http://policies.ncsu.edu/regulation/reg-02-20-04>.

Attendance Policy

For complete attendance and excused absence policies, please see <http://policies.ncsu.edu/regulation/reg-02-20-03>

Policies on Incomplete Grades

If an extended deadline is not authorized by the instructor or department, an unfinished incomplete grade will automatically change to an F after either (a) the end of the next regular semester in which the student is enrolled (not including summer sessions), or (b) the end of 12 months if the student is not enrolled, whichever is shorter. Incompletes that change to F will count as an attempted course on transcripts. The burden of fulfilling an incomplete grade is the responsibility of the student. The university policy on incomplete grades is located at <http://policies.ncsu.edu/regulation/reg-02-50-3>.

Academic Integrity and Academic Honesty

Students are required to comply with the university policy on academic integrity found in the Code of Student Conduct found at <http://policies.ncsu.edu/policy/pol-11-35-01>

See <http://policies.ncsu.edu/policy/pol-11-35-01> for a detailed explanation of academic honesty.

Accommodations for Disabilities

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with the Disability Services Office at Suite 2221, Student Health Center, Campus Box 7509, 919-515-7653. For more information on NC State's policy on working with students with

disabilities, please see the Academic Accommodations for Students with Disabilities Regulation (REG02.20.01) (<https://policies.ncsu.edu/regulation/reg-02-20-01/>).

Non-Discrimination Policy

NC State University provides equality of opportunity in education and employment for all students and employees. Accordingly, NC State affirms its commitment to maintain a work environment for all employees and an academic environment for all students that is free from all forms of discrimination. Discrimination based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation is a violation of state and federal law and/or NC State University policy and will not be tolerated. Harassment of any person (either in the form of quid pro quo or creation of a hostile environment) based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation also is a violation of state and federal law and/or NC State University policy and will not be tolerated. Retaliation against any person who complains about discrimination is also prohibited. NC State's policies and regulations covering discrimination, harassment, and retaliation may be accessed at <http://policies.ncsu.edu/policy/pol-04-25-05> or http://www.ncsu.edu/equal_op/. Any person who feels that he or she has been the subject of prohibited discrimination, harassment, or retaliation should contact the Office for Equal Opportunity (OEO) at 919-515-3148.

Lecture Schedule for Forest Soils
Spring 2018

Lecture	Date	Topic	Reading
Week 1	Jan 8,10	Course Overview and History of Forest Soils	Chapters 1 and 2
Week 2	Jan 15 MLK day No Class Jan 17	Snow Day	
Week 3	Jan 22, 24	Soil Formation and Soil Taxonomy Soil Organic Matter	Chapter 3 Chapter 4
Week 4	Jan 29, 31	Soil Physical Properties	Chapter 5
Week 5	Feb 5, 7	Forest Soil Biology	Chapter 6
Week 6	Feb 12, 14	Soil Chemistry and Nutrient Uptake Friday, Feb 16th EXAM 1	Chapter 8
Week 7	Feb 19, 21	Forest Biogeochemistry	Chapter 7
Week 8	Feb 26, 28	Soil sampling	Chapter 9
Week 9	Mar 5-9	SPRING BREAK	
Week 10	Mar 12, 14	Measuring soils	Chapter 10
Week 11	Mar 19,21	Influence of tree species Friday, March 23 EXAM 2	Chapter 11
Week 12	Mar 26, 28	Soil Management – Site Preparation	Chapter 12
Week 13	Apr 2, 4	Fire Influences	Chapter 13
Week 14	Apr 9, 11	Forest Soil Nutrient Management	Chapter 14
Week 15	Apr 16, 18	Forest Soil Carbon Sequestration	Chapter 15
Week 16	Apr 23, 24	Review	
		FINAL EXAM April 30th, 8-11am	

Lab Schedule for Forest Soils - Handouts will be given for each lab
Spring 2018

Lab	Date	Topic
Week 1	Jan 12	Lab 1: Intro to Soil Sampling and Description
Week 2	Jan 19	Snow Day Lab 1 Assignment Due (15 pts)
Week 3	Jan 26	Lab 2: Soil Taxonomy & Soil Physical Prop.- Clayton soil pits (structure, saprolite, parent material)
Week 4	Feb 2	Lab 2: Forest Soils Vegetation and Development - Duke Forest – soil genesis (Dan Richter) Lab 2 Assignment Due (15 pts)
Week 5	Feb 9	Student Oral Presentations Lab 3 Trip Report Due (15 pts)
Week 6	Feb 16	EXAM 1
Week 7	Feb 24 SAT LAB	Lab 4: Forest Biogeochemistry - Bladen lakes, Carolina bays & Spodosols & Coastal Geology
Week 8	Mar 2	Lab 5: Soil Erosion lab Lab 4 Trip Report Due (15 pts)
Week 9	Mar 9	SPRING BREAK
Week 10	Mar 17 SAT LAB	Lab 6: Soil Nutrient Management/Limitations - Histosols, Pocosins, Hofmann Forest Lab 5 Assignment Due (15 pts)
Week 11	Mar 23	EXAM 2
Week 12	Mar 30	No lab, prep for presentations on your own Lab 6 Trip Report Due (15 pts); Topics Due for oral presentations
Week 13	Apr 6	Lab 7: Soil Nutrient Management – Geology (Lee Allen)
Week 14	Apr 13	Student Oral Presentations
Week 15	Apr 20	No lab Lab 7 Trip Report Due (15 pts)
Week 16	Apr 27	Review

