

Silviculture

3 Credits

11:216:471

Spring 2020

Instructors: Jason Grabosky, Pamela Zipse

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848-932-0050

Meets: Discussion/lecture Tuesdays: 9:15-10:35
Field/project time To be Determined

Text: Silviculture: Concepts and Applications 3rd Ed. Ralph Nyland in collaboration with Laura S. Kenefic, Kimberly K. Bohn, and Susan L. Stout

Recommended Downloads of public documents for context and project work:

- USDA FS Agriculture Handbook 654 Burns R M. and Honkala B H. *Technical Coordinators Silvics of North America*
- USDA FS NA-TP-10-01 Perkey A W. and Wilkins B L. *Crop Tree Field Guide: Selecting and Managing Crop Trees in the Central Appalachians*

Silviculture is the Art and Science of controlling the establishment, growth, composition, health and quality of forests and woodlands to meet the diverse needs and values of landowners and society on a sustainable basis.

The Dictionary of Forestry; Helms 1998

Learning Goals:

- Develop awareness and understanding of the practices of silviculture and their application in managing forest stands to sustain ecosystem values and serve the interests of landowners
- Develop an ability to identify, assess and apply examples of different silvicultural methods as applied in an operational settings and for different purposes
- To practice techniques for stand assessment and prescription making

This course provides a detailed introduction to the concepts and practices which underpin the care and management of forested ecosystems toward defined values, products and services.

The course stresses field activities, case studies/data sets/ and day-long trips to working forest systems to underscore concepts in the text and class discussions.

Students will learn about the development of silvicultural prescriptions for sustained yield of identified products, services or ecological functions with discussion of the complications of such work within a multiple use, multiple stakeholder land use pattern.

Class assessment and grading will be centered on discussion of assigned reading, written responses to determine understanding of concepts, and performance on two projects.

Grading:

	% Final Grade	Grading Assignment:
Project I	25	A = 100- 90%
Project II	25	B+ = 87.0-89.9%
Peer reviewed participation	25	B = 80.0% - 86.9%
Written responses	25	C+ = 77.0- 79.9%
		C = 70.0- 76.9%
		D = 69.9- 60%

Project plan (subject to modification)

Project 1: In our first project, you will be placed into a team of peers. As a team you will be assigned a small wooded stand on campus. You will have to conduct a brief site analysis and species inventory/survey/delineation. From there, you will be asked to provide responses based on varied readings and other activities.

Project 2: In this project you will be provided a data set from NJ DEP Forestry. You will use this data to establish and rationally defend a silvicultural prescription for the site. Once formulated, you will import the data into a software interface and “grow” the system over a period of decades to evaluate your choice and the simulated forest community growth response.

Written responses: You will be covering 2 chapters per week in the class. Our discussions will frame the chapters but draw from other texts and resources rather than rehash what you read. We instead will be framing written responses to the reading to serve as reading checks and to assure that you understand the content in its application to your professional development.

Class Trips/Case Studies: We fully hope that all can join for the two full day trips that we are planning. We are currently developing those logistics and guest appearances. Toward that end, while the field trips are meant to be required. That stated, as this class is getting into place rather late in process from student advocacy, we understand some may have difficulty getting release time from other classes. We will discuss the specific days to explore other times or days of week for final scheduling of the field trips. Their use as field example is fundamental to getting the most out of the class.

The Topic Parade: This is our targeted plan for content coverage. We will likely move off the topics from time to time to follow our collective discussion, but the Bolded reading is assigned and the written responses for grade will not deviate from the script listed below.

1/21 Introductions, Definitions, Backgrounds
Philosophy of Silviculture
Read Nyland chapter 1 & 2

1/28 Silvicultural Systems
Uneven Aged Management
Even Aged Management

Urban Context
Read Nyland chapter 3 & 4
Assign Project 1, Midterm Project

2/04 Field Trip – Introduction to Silviculture Practice
Brendan Byrne State Forest
Whiting Wildlife Management Area
Double Trouble State Park
Read Nyland chapter 5 & 6

2/11 Goals of Silviculture
Commodity Production
Harvesting
Other Management Goals (wildlife, etc.)
Environmental Services
Urban Context...
Read Nyland chapter 7 & 8

2/18 Regeneration
Concepts
Harvesting
Site Preparation
Nursery and Planting Operations
Read Nyland chapter 9 & 10

2/25 Regeneration
Methods in terms of Silvicultural Systems
Urban Context...
Read Nyland chapter 11 & 12

3/03 Regeneration
Methods in terms of Silvicultural Systems
Urban Context...
Read Nyland chapter 13 & 14

3/10 Mid Term Project 1 Due
Field Trip – FRAC Jackson observing forest growth response from several differing silvicultural treatments as demonstration on a single stand.
Assigned Written response
Read Nyland chapter 15 & 16

3/17 SPRING BREAK

3/24 Stocking / Relative Density Index
Interpretation & Goals
Urban Context...
Read Nyland chapter 17 & 18

- 3/31 Thinning and Release Treatments
Uneven Aged Management
Urban Context...
Models
Read Nyland chapter 19 & 20
Assign Project 2
- 4/14 Thinning and Release Treatments
Even Aged Management
Urban Context...
Models
Read Nyland chapter 21 & 22
- 4/21 Guest author, Rosa Yoo
Managing for Quality
Forest Health
Improvement / Salvage / Sanitation Cutting
Fire
Exploitation and Rehabilitation
Read Nyland chapter 23 & 24
- 4/28 Helyar Woods Guest Don Donnelly
Stand Rehabilitation
Read Nyland chapter 25 & 26
Project 2 Due

Missed classes

A significant part of instruction revolves around class activities and simulations, which cannot be made up if missed. It is therefore important (for your learning and your grade) to attend every class. Your grade reflects the importance of your attendance and engagement. If you know ahead of time that you will be absent, please notify me. Rutgers uses an online reporting system for illnesses. Please use this to report if you are ill, and follow up with an email once you are able.

Technology use

Occasionally I will ask you to bring a laptop computer to class if you are able. In such situations, computers are to be used for the given activity only. Unless expressly stated, all computers and cell phones are to be turned off (no dinging, beeping, buzzing, or chirping!) and put away during class. We will take a break midway through the class period. During this time you are welcome to use your phones and computers as you wish.

Other resources

Please be aware that there are numerous resources and services available to you as students.

CAPS – Counseling, ADAP, and Psychiatric Services

<http://rhscaps.rutgers.edu/>

Office of Disability Services

<https://ods.rutgers.edu/>

Rutgers Learning Centers

<https://rlc.rutgers.edu/>

Rutgers Libraries

<http://www.libraries.rutgers.edu/>