**Silviculture**
3 Credits
11:216:471
Spring 2022
Instructor: Jason Grabosky
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**Meetings**:
*This course will be in-person after Feb 1, 2022 per Rutgers announcement Jan 4, 2022*
Tuesdays:  8:30-9:50
Waller Hall 108, or upstairs for greater space

When in digital space, we will meet at the appointed time online in the canvas class frame

This class has been placed into a shortened meeting profile.  This will be made up by field work in small teams as a project basis, complimented by guided reading with weekly written responses.

There will be several on-site visits to forest stands around the Rutgers campuses, Sparta mountain and the Pinelands (Times to be Announced as host logistics are confirmed).

**Text**:  Silviculture:  Concepts and Applications 3$^{rd}$ 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 setting and for different purposes based on owner values and ecological demands
•	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 traditionally stresses field activities. There will be a brief field exercise to develop some plot data. We will deploy larger data sets for consideration as provided by actual forest inventory in NJ forests to underscore concepts in the text and class discussions. We will examine 2-4 management examples and visit others to link process to ground observation.

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 three projects.

**Grading:**

| | % Final Grade | Grading Assignment: |
|---|---|---|
| Project 1 | 20 | A = 100- 90% |
| Project 2 | 20 | B+ = 87.0-89.9% |
| Project 3 | 25 | B = 80.0% - 86.9% |
| Written responses | 25 | C+ = 77.0- 79.9% |
| Discussion Group | 10 | C = 70.0- 76.9% |
| | | D = 69.9- 60% |

Project plan (subject to modification)

**Project 1:** 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. In field work and on-line work/collation will be a team effort to distribute efforts for a common product shared by the team to the class.

**Project 2:** In this project you will be provided a data set from NJ DEP Forestry. You will use this data to individually establish and rationally defend a silvicultural prescription for the site.

**Project 3:** In this project, teams will be assigned to work on one of 3 campus forested stands. The outputs will be individual reports, based on the team findings to frame a silvicultural recommendation/plan

**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. In some cases, you'll be asked to develop brief PowerPoints as partial summations to then present to your peers in the class

**Discussion Group:** There will be a class discussion group established in canvas. Responses will be assigned and there will also be a response to other folks responses within that grading rubric. The purpose is to build conversations, thoughts and practice in using silvicultural terms. While not onerous, it is meant to build teams and collegiality with peers.

**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. *Bolded reading is assigned and the written responses for grade will not deviate from the script listed below.* **The first week is key**: The best result as a class will be a situation where you all are PREREADING for class to have a better discussion. For the reading response discussion in class cycle, your challenge is to have chapters 1-4 read by Jan 25th and then the rhythm of 2 chapters per week can work, *so that our discussions in class can add to your written responses or presentations*.

I say it is targeted since we are inviting several practicing professionals into the class to provide perspectives and we also are planning trips during class periods (on campus) or extended time (Sparta and Double-Trouble) to:

- Sparta Mountain (with host)
- Double-Trouble state Park (With NJ DEP Host)
- HMF (with HMF Host and project 3 site)
- Livingston Eco-preserve TBD  Forestry consultant guest (Project 3 site)
- Helyar woods (Project 3 site)

We also will have some quest speakers in during class time. As we are still scheduling best dates for the speakers, some topics may move around to accommodate speakers.

When we have time in field, there will be every attempt made to have some complimentary content posted to the Canvas class site to assist with interpretation of the readings.

1/18   *DIGITAL*          Introductions, Definitions, Backgrounds Philosophy of Silviculture
- Introduction to the Discussion thread
- **Read Nyland chapter  1 & 2** *(and pre-read 3,4)*

1/25   *DIGITAL*          Silvicultural Systems
Uneven Aged Management
Even Aged Management
Urban Context
- Discussion thread reminder
- **Reading response due (Chapt 1,2)**
- Read Nyland chapter  3 & 4 *already pre-read  then hit 5,6 for next week*
- *ALSO READ:  Module on field measures in prep for our guests and your field work next Tuesday*

2/01   Guest team:  NJDEP  Field data collection:  *Helyar woods*   Introduction to Silviculture Practice (*Plan to be outside*)
measurement tools review, organization for class project data collection.
- **Reading response due (Chapt 3,4)**
- **Assign Project 1** (Due Feb 15th  in 2 weeks)
- Read Nyland chapter  5 & 6

2/08   Guest Speaker:  Bernard Isaacson:  NJ DEP Forestry
                Goals of Silviculture
                Commodity Production
                Harvesting
                Other Management Goals (wildlife, etc.)
                Environmental Services
                Urban Context…
- **Reading response due (Chapt 4,5,6)**
- Read Nyland chapter  7 & 8

2/15   Regeneration Concepts
                Harvesting
                Site Preparation
                Nursery and Planting Operations
- **Reading response (Take a breath, no response)**
- **Project 1 Due**
- Read Nyland chapter  9 & 10

2/22   Regeneration Methods in terms of Silvicultural Systems
- **Reading response due (Chapt 9,10)**
- **Assign Project 3** (Due April 19th  in 7 weeks)
- Read Nyland chapter  11 & 12

3/01    Regeneration Methods in terms of Silvicultural Systems
- **Reading response due (Chapt 11,12)**
- Read Nyland chapter  13 & 14

3/08   Catch up and review,  shelterwood seed-tree and clearcutting methods
- **Reading response due (Chapt 13,14)**
- Read Nyland chapter  15 & 16

**3/15   SPRING BREAK**

3/22   SPARTA MOUNTAIN Stocking / Relative Density Index
                Interpretation & Goals
- **Reading response due (Chapt 15,16)**
- Read Nyland chapter  17 & 18
- **Assign Project 2** (Due April 5th in 2 weeks)

3/29   Thinning and Release Treatments
                Uneven Aged Management
- **Reading response (Take a breath no response work on Project 2)**
- Read Nyland chapter  19 & 20

4/05            Catch up

- **Reading response due (Chapt 17,18, 19)**
- **Project 2 Due**


4/12   Thinning and Release Treatments
               Even Aged Management
               Models
- **Read Nyland chapter  21 & 22**

4/19   Quest Speaker Rosa Yoo Forester,  NJDEP Forestry:  Managing for Quality
               Forest Health
               Improvement / Salvage / Sanitation Cutting
               Fire
               Exploitation and Rehabilitation
- **Reading response due (Chapt 20,21,22)**
- **Project 3 Due**
- Read Nyland chapter  23 & 24

4/26         Stand Rehabilitation

- **Reading response due (Chapt 24)**


## 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.


## 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/](http://www.libraries.rutgers.edu/)