

FO 8213
Advanced Silviculture

Overview

The course is designed to present advanced topics and in-depth information on selected silvicultural activities which would not be available in undergraduate silviculture practices courses. Course content emphasizes current technology and methodology with attention to the potential spectrum of possibilities and the restrictions of cost-efficacy evaluations. The exact content of the course may vary depending on recent developments in products, equipment, genetics, and/or research findings.

In addition to classroom activities, students will have opportunity to apply lecture material in field settings through project assignments and/or field trips to review operational applications. Students will also complete literature reviews with associated class presentations on assigned research papers as appropriate to subject matter coverage.

Organization

Three hours lecture per week with intermittent substitution of field activity for lecture times.

Grading

Grades will be based on the university scale of A = 90%, B = 80%, C = 70%, D = 60%, F = less than 60%. Students will be assessed on project reports (oral and written), class presentations, class participation, and/or written examinations. Total possible points may vary from year to year based on potential for projects and associated reports.

Textbook

No required textbook. Assigned readings from research symposia proceedings and journals will be decided by the instructor.

Prerequisites

No formal course prerequisites, but a basic understanding of silvicultural practices is recommended.

Course Content

I. Hardwood Management

- Stand Evaluation Techniques
 1. Species – site relationships
 - Flood tolerance
 - Shade tolerance
 - Upland and bottomland
 2. Site evaluation
 - Soils
 - Drainage
 - Baker/Broadfoot evaluation
 - SiteQual computer program
- Systems and Methods (Management Options)
 1. Even – aged
 - Clearcut
 - Seed tree
 - Shelterwood
 - Coppice
 2. Uneven – aged
 - Single tree selection
 - Group selection
 3. Commercially important species of the South
 - Response to choice of methods/systems
 4. Stand evaluation
 - Crown classification
 - Log grading
 - Tree grades
 - Species desirability consideration
 5. Decision making process
 - Site evaluation
 - Stand evaluation
 - HARDWOOD computer program

- Intermediate Stand Management
 - Thinning
 - T.S.I.
- Natural Regeneration
 - Sources of regeneration
 - Timing of operations
 - Light availability
 - Competition control
- Artificial Regeneration
 - Overview of use (historical, current, and projected)
 - Species choice/seedling availability
 - Seedling quality
 - Planting quality
 - Competition control
- Stand Development Patterns
 - “Pure” stands
 - Mixed stands

II. Advanced Topics in Vegetation Management

- Herbicide Technology
 - Product development
 - Registration process
 - Economics of product registration
 - Importance of genetic manipulation
- Site Preparation
 - Pine vs. hardwood
 - Current products
 - New developments
 - Single products vs. tank mixtures
 - Cost–efficacy decisions
 - Regional considerations (South, Northeast, West)
 - Prescription process
- Herbaceous Weed Control
 - Pine vs. hardwood
 - Current products
 - New developments
 - Single products, premixes, and tank mixtures
 - Application techniques
 - Cost–efficacy

- Timber Stand Improvement
 - Pine vs. hardwood
 - Mid-rotation brush control
 - Injection
 - Historical use vs. new developments

III. Topics in Intensive Management

- Fertilization
 1. Pines vs. hardwoods
 2. Soils classifications
 3. Timing of operations
 - planting
 - mid rotation
 4. Growth response
 - time required
 - duration
 5. Products/rates
 - DAP
 - Urea
 - Ammonium nitrate
 - Micronutrients
 6. Cost-efficacy
- Pruning
 1. Pine vs. hardwood
 2. Product
 3. Timing of operations
 4. Cost-efficacy
 5. Operational use
 - Southeastern U.S.
 - Western U.S.
 - New Zealand, Chile

IV. Certification Programs

- Overview and History
- Sustainable Forestry Initiative (SFI)
 1. Current standards
 2. Industry perspective
 3. Process
- Forest Stewardship Council
 1. Origin/Influence
 2. Current standards
 3. Industry perspective
 4. Process

