SUNY ESF Ranger School
Forest Technology
Accreditation Report
Appendix

Presented to the

Society of American Foresters

2011

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APPENDIX A
Documentation for Standard I
Program Objectives

Appendix A-1

Assessment of Learning Outcomes
Forest Technology Program

Outcomes

1. **A forest technician is competent in making observations, measurements, and collecting information**

   Curriculum Elements: Surveying, Geographic Information Technology, Natural Resources Measurements, Water measurements, Forest Inventory Practicum, Silviculture

   Assessment Methods:

   1. Using tape and pacing to measure distances
   2. Measure angles with a hand compass, staff compass, transit, and total station
   3. Conduct a field traverse using total station equipment
   4. Make basic surveying calculations and computations using a calculator and computer
   5. Use surveying computer programs, including coordinate geometry and mapping software
   6. Use leveling methods and instruments
   7. Measure tree diameters and heights accurately
   8. Estimate the volume of wood contained in individual trees, logs, and pieces of lumber
   9. Establish and measure fixed-area and variable-radius forest resources inventory plots
   10. Use a topographic map to determine the distances and bearing between points and the elevation of points
   11. Determine the spatial relationships between aerial photos, maps, and ground features they represent
   12. Use stereo images to find and measure vertical distances on photos
   13. Read the radial displacement on photos and modify the displacement for determining true map positions
   14. Calculate ground areas from photographs or maps using a planimeter or other area-measuring devices
   15. Recognize and classify stand conditions
   16. Estimate cull deduction due to wood decay based on visible symptoms
   17. Make ocular estimates of basal area, stems per acre, and stock conditions.
   18. Have a working knowledge of proper surveying note-keeping procedures

2. A forest technician has competent communication skills.

Curriculum Elements: Dendrology, Timber Transportation and Utilization, Leadership and Forest Technology, Natural Resources Management, Surveying, Geographic Information Technology, Natural Resources Measurements, Forest Inventory Practicum, Water measurements

Assessment Methods:

1. Draft maps using a variety of techniques and methods
2. Summarize forest resource inventory data to the plot, stand, and forest level
3. Conduct an elementary statistical analysis of forest resources inventory data
4. Professionally present the results of a forest resources inventory in a written technical report
5. Draw a profile from a topographic map and locate a route survey on the top using the grad contour method
6. Use several software programs for forestry and surveying applications and share information across a local network and on the internet
7. Use freehand, mechanical, drafting, or dry transfer lettering to prepare maps, charts, and graphs
8. Measure stream flow quantity and quality and express the data graphically for analysis
9. Develop a forest type map using such resources as surveying base maps, aerial photographs, and field data
10. Identify on-the-ground problems and solutions in planning, organizing and operating a logging job
11. Administer a harvesting or road contract and develop a timber appraisal
12. Deliver thoughtful, coherent speeches and prepare coherent, informative, grammatically correct papers
13. Produce a timber sale prospectus based on information collected from a forest property
14. Acquire data from various sources (paper maps, GIS, air photos, and field observation) and compile thematic maps using standard GIS software
15. Explain the basic techniques of identifying woody plants from leaves, twigs, bark, and ecological conditions
16. Describe a plant sample using technically descriptive terms of its foliage, twig, and bark conditions.
17. Explain the techniques of contour mapping and preparing topographic maps
18. State the procedures and techniques of a deed search
19. Explain the basics of the U.S. Public Land Survey System
20. Professionally present the results of a forest resources inventory in a written technical report

21. Present the results of a forest resource inventory into a technical report
22. Deliver thoughtful, coherent speeches and prepare coherent, informative, grammatically correct papers

3. A forest technician is skilled with a variety of common forestry tools to complete assigned tasks

Curriculum Elements: Surveying, Geographic Information Technology, Natural Resources Measurements, Forest Inventory Practicum, Leadership and Forest Technology, Wildland Firefighting and Ecology, Timber Harvesting

Assessment Methods:

1. Properly handle and care for common surveying tools and equipment
2. Use GPS equipment
3. Use several software programs for forestry and surveying applications and share information across a local network and on the internet
4. Use and maintain basic forestry hand tools, chainsaws and brush saws
5. Summarize and analyze forest resources inventory data by hand and by computer
6. Use hand tools to safely and effectively fight an active wildfire as a member of a firefighting crew
7. Evaluate various forest inventory methods and explain how they are used in forest property management
8. Explain the value of a geographic information system (GIS) in analyzing and displaying spatial information that is integral in the management of a forest property

4. A forest technician understands timber as a renewable resource, and the place of forest management within the economic realms of wood products industries and societal needs

Curriculum Elements: Silviculture, Dendrology, Timber Transportation and Utilization, Dendrology, Natural Resources Measurements, Forest Inventory Practicum

Assessment Methods:

1. Describe the uses of the commercially important tree species
2. Plan, organize, and implement a timber-focused inventory
3. Describe the role of silviculture in forestry
4. Define and recognize even-aged and uneven-aged silvicultural treatments and mark stands accordingly

5. Explain the role of tree removal in silviculture
6. Recognize and classify stand conditions
7. Plan and apply soil and water best management practices to reduce and control degradation of forested watersheds
8. Explain the relationship between harvesting and other forest uses
9. Explain in general terms how paper, lumber, veneer, plywood, and particle-based panels are manufactured
10. Recognize strategies and methods for organizing a forest property to meet the objectives of owners
11. Describe the basic policies of forest land management of various federal, state, and private landowners
12. Present a brief history of the development of forestry in the United States with emphasis on New York and the Northeast
13. Use stocking guides for maintaining optimum stand densities
14. Plan and apply silvicultural tending activities, such as pruning, cleaning, timber stand improvement, and thinning
15. Describe the basic principles and methods used in harvesting, with emphasis on operations in the Northeast
16. Identify on-the-ground problems and solutions in planning, organizing, and operating a logging job
17. Administer a harvesting or road contract and develop a timber appraisal
18. Locate a forest road for a particular forest use by developing forest road plans and profiles and specifying required drainage structures
19. Plan and apply silvicultural tending activities, such as pruning, cleaning, timber stand improvement, and thinning
20. Identify the wood of approximately 25 commercial tree species of the United States using a 10 x hand lens and the senses of touch and smell
21. Describe the formation, structure, and function of wood and the several types of cells it comprises

5. A forest technician understands the complexity of the forest ecosystem, and can identify the more common components of forest ecosystems, including trees, other plants, wildlife, fungi and insects

Curriculum Elements: Dendrology, Wildlife Conservation, Forest Ecology, Forest Insects and Disease

Assessment Methods:

1. Identify major tree, shrub, herb and fern species common to forest communities in the Northeast, using scientific or common names, and by understanding family and generic characteristics, identify similar species in other parts of the country
2. Recognize, quantify and interpret plant communities found in the Northeast and relate the presence and absence of individual species to a site's physical characteristics

3. Identify important forest insect pest groups and their common or economically important pest species and describe insect survey, management and control techniques
4. Identify actual or potential tree disease problems by their symptoms and apply appropriate control or preventative measures in a forest management scheme
5. Identify actual or potential tree disease problems by their symptoms and apply appropriate control or preventative measures in a forest management scheme
6. Recognize, quantify, and interpret local topography, temperature, humidity, solar radiation, and soil physical and chemical properties, and explain how these physical features interact and change both temporally and spatially
7. Recognize the major botanical and silvic characteristics of a selected group of ecologically and economically important forest trees species in North America
8. Apply ecological principles to silvicultural prescriptions
9. Describe the beneficial roles and economic impacts that insects have in forest ecosystems
10. State the fundamentals of insect classification, structure, and development, including the major differences among nine insect orders
11. Identify important forest insect pest groups and their common or economically important pest species and describe insect survey, management, and control techniques.
12. Recognize, quantify, and interpret plant communities found in the Northeast and relate the presence and absence of individual species to a site's physical characteristics
13. Explain how plant communities change both temporally and spatially
14. Identify, by sound alone, 15 birds and 5 amphibians common to the forest of the eastern United States

6. A forest technician understands the biological, economical, and cultural importance of other natural forest resources, including wildlife, water, soil, recreation and wilderness

Curriculum Elements: Forest ecology, silviculture, Introduction to Forest Recreation, Wildlife Conservation

Assessment Methods:

1. Describe the hydrologic cycle in terms of the water balance and measure the components to determine runoff
2. Inventory the recreational resources on a large forested area
3. Describe the relationship between wildlife management and forest management, and between recreation management and forest management

4. Describe both the value of wildlife and recreational resources as critical components of a forest and their negative impacts on forest ecosystems and on each other
5. Name milestones in the history of wildlife and recreation management in the United States, understand the causes and effects of major legislation regarding wildlife and recreation, and describe some current and continuing controversies concerning wildlife and recreation management
6. Use the basic terminology of wildlife ecology and management and recreation management
7. Know the planning, labor, tools, and logistics required to build and maintain recreational resources, such as trails, lean-tos, nature trails, and campgrounds

7. A forest technician has a positive work ethic, and is capable of working independently with minimum supervision, as a member of a crew, or as a supervisor of a crew

Curriculum Elements: Surveying, Leadership and Forest Technology, Geographic Information Technology, Natural Resources Measurements, Forest Inventory Practicum,

Assessment Methods:

1. State personnel management principles and practices for the surveying and forestry workplace
2. Compose a resume and cover letter and know the job search and interview process
3. Define the roles and functions of first-line supervisors in organizations
4. Explain the importance of professional ethics in the workplace
5. Lead teams in doing all of the tasks covered in this course
6. Use hand tools to safely and effectively fight an active wildfire as a member of a fire-fighting crew

8. A forest technician is confident working in the forest environment, is aware of the dangers and understands the importance of working safely

Curriculum Elements: Forest Safety, Introduction to Surveying, Leadership and Forest Technology, Forest Inventory Practicum, Timber Harvesting, Wildland Firefighting and Ecology

Assessment Methods:

1. Use and maintain basic forestry hand tools, chainsaws, and brush saws
2. Maintain and operate a typical skidder

3. Perform basic first aid and CPR procedures and recognize the need for continual training for logging-related accidents
4. Use the National Fire Danger Rating System to assess forest fire danger
5. Anticipate fire behavior and describe the relationship between weather, topography, and fuel types
6. Help plan and safely apply prescribed burns
7. Locate a forest road for a particular forest use by developing forest road plans and profiles and specifying required drainage structures

APPENDIX B
Documentation for Standard II
Curriculum

Appendix B-1

Scheduled Lecture and Laboratory Hours
Forest Technology Courses at ESF Ranger School.

Course	Credit Hours	Faculty	Lecture Hours	Lab Hours
FTC 200 Dendrology	3	Bridgen	38	40
FTC 202 Introduction to Surveying	3	Webb	50	80
FTC 204 Introduction to Natural Resources Measurements	4	Savage	60	45
FTC 206 Forest Ecology	4	Johnston	51	56
FTC 207 Forest Safety	1	Webb	10	22
FTC 208 Geographic Information Technology	3	Johnston Bridgen Webb	34	49
FTC 210 Leadership and Forest Technology	3	Westbrook	32	36
FTC 211 Silviculture	4	Bridgen	45	60
FTC 213 Forest Inventory Practicum	2	Savage	6	64
FTC 215 Timber Harvesting	2	Bridgen	15	45
FTC 217 Wildland Firefighting and Ecology	2	Johnston	25	16
FTC 219 Intro to Forest Recreation	1	Savage	14	20
FTC 221 Natural Resources Management	3	Johnston	35	30
FTC 223 Water Measurements	1	Westbrook	10	16
FTC 225 Timber Transportation and Utilization	3	Webb Bridgen	43	43
FTC 234 Wildlife Conservation	3	Savage	38	20
FTC 238 Forest Insects and Disease	3	Johnston	35	26

Appendix B-2

Detailed Course Descriptions

COURSE: FTC 200 – Dendrology
3 Credit Hours – Fall Semester
38 Hours Lecture
40 Hours Field Instruction
Prerequisite(s): none

SCOPE:

1. *Level of Instruction:*
    a. FTC 200 is an introductory course for all students pursuing an A.A.S. degree at the Ranger School (Wanakena Campus).
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. FTC 200 is required of all students enrolled at the Ranger School.
    b. It is a co-requisite for FTC 204 Introduction to Natural Resources Measurements, and FTC 206 Forest Ecology. It is a prerequisite for FTC 211 Silviculture, FTC 213 Forest Inventory Practicum, FTC 217 Forest Health and Protection, and FTC 221 Natural Resources Management.
    c. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Recognize the major botanical and silvical characteristics of a selected group of ecologically and economically important forest tree species of North America.
2. Explain the basic techniques of identifying woody plants from leaves, twigs, bark, and ecological conditions.
3. Describe a plant sample using technically descriptive terms for its foliage, twigs, and bark characteristics.
4. Identify the major tree, shrub, herb, and fern species common to forest communities in the northeast, using scientific or common names, and by applying family and generic characteristics, identify similar species in other parts of the country.

MAJOR CONCEPTS OR METHODOLOGIES:

Dendrology, the study of trees, may address a wide range of subject matter, depending on the institution and the instructor. At the Ranger School, the course is oriented to students who have had little or no previous exposure to forest tree species. It is required for all A.A.S. programs offered during the fall semester. Its goals include introducing students to the basic principles of plant classification,

identification, and variation. The primary skill that students develop is the ability to quickly identify plant species in the field. Students will also learn the influences of environmental variability on natural species selection.

CATALOG DESCRIPTION

FTC 200. Dendrology (3)

Thirty eight hours of lecture, and forty hours of field laboratory. Characteristics, distribution, and uses of tree species in North America. Identifying plant species using common and scientific names, from leaf, twig, fruit, or bark samples. Habitats, species associates, and succession of plants, including some invasive species. Fall.

Prerequisite(s): none

COURSE HISTORY:

On January 26, 1972, a new two-year curriculum in Forest Technology was approved by the College of Forestry Faculty. F. Tech 200 was approved as part of the package and was taught at the Wanakena campus starting in fall 1973. The F. Tech abbreviation was re-designated FTC in August 1973 as part of the computerization of college records. A revised description of FTC 200 was approved on March 23, 1978. Minor revisions were made in 1981 and 1995. The course was increased to 3 credit hours as part of the new 48-credit hour Forest Technology curriculum in 2000. Only minor changes in the catalog description are made in this revision.

Last approved: January 27, 2000.

Revised Draft: December 7, 2009

COURSE: FTC 202 – Introduction to Surveying
3 Credit Hours – Fall Semester
Lecture and lab hours vary weekly – 130 hours total Prerequisite(s): none

SCOPE:

1. *Level of Instruction:*
    a. FTC 202 is an introductory course designed for sophomores and is required for all students pursuing an A.A.S. degree at the Ranger School (Wanakena Campus).
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. The concepts, procedures and skills learned in this course serve as a foundation for several concurrent and subsequent FTC courses.
    b. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Properly handle and care for common surveying tools and instruments.
2. Use proper taping techniques to measure horizontal and slope distances and to reduce slope distances to horizontal distances.
3. Demonstrate a working knowledge of proper surveying note keeping procedures.
4. Measure horizontal angles with the use of the hand compass and total station.
5. Conduct a field traverse using a total station.
6. Explain the techniques of contour mapping and preparing topographic maps.
7. Make basic surveying calculations and computations using a calculator and computer.
8. Use surveying computer programs, including coordinate geometry and mapping software; this is limited to making a Sub-Compartment map.
9. Draft maps using a variety of techniques and methods.
10. Use leveling methods and instruments.
11. Explain the theory of GPS and use handheld GPS.
12. State the procedures for deed search.
13. Explain the basics of the U.S. Public Land Survey System.
14. Prepare traverse calculations with only a calculator.
15. Pace field distances to a 1:50 precision.
16. Set up an optical or laser plummet instrument with an adjustable leg tripod over a point at grade in less than 5 minutes time.
17. Convert magnetic bearings to true and vice versa.

MAJOR CONCEPTS OR METHODOLOGIES:

Lectures for this course cover theory of measurements and errors of measurements, methods for recording field measurements, mathematics for plane surveying including basic coordinate geometry and computations, techniques for making various linear and angular measurements in both the horizontal and the vertical planes, introduction to field exercises that complement lecture, introduction to map use and preparation, and introduction to surveying and mapping software. Students are introduced to land tenure systems, the Public Land Survey System and basic steps of conducting a property survey. There is a discussion of the land surveying profession, licensing, and employment opportunities.

CATALOG DESCRIPTION

FTC 202. Introduction to Surveying (3)

Fifty hours of lecture and 80 hour of laboratory and field exercises. The course is an introduction to the theory and practice of plane surveying. Emphasis is on developing individual skills and techniques through small crew projects where it is necessary to handle typical surveying equipment in actual field situations. Lecture topics include the theory of measurements and errors, field record keeping procedures, mathematics for plane surveying, introduction to field problems, introduction to map use and preparation, concepts of land tenure systems and basics computer aided drafting. Student's tour the various offices found at the County courthouse and participate in a research exercise. Field projects include traversing using common foresters and surveyor's tools and instruments, mapping including field and office procedures, and proficiency projects in handling various surveying instruments. Fall.

Prerequisite(s): none

COURSE HISTORY:

On 1/26/72 a new two-year curriculum in Forest Technology was approved by the College of Forestry faculty. F. Tech 202 was approved at that time as part of the curriculum package, and the course was offered at the Wanakena campus beginning Fall 1973. The F. Tech. abbreviation was designated FTC in August 1973 as part of the computerization of the college records. The detailed description was updated in November 1977. A revised description of FTC 202 was approved on 3/23/78. Minor changes to the catalog description were approved in March 1989. The course description was reviewed and updated by the instructor in November 1989. The course description was changed to include material being taught in FTC 203–Surveying II and the credit hours were increased to 5 to reflect the increased material. Those changes reflected implementation of the Ranger School core curriculum concept and were approved by the college faculty on 4/18/91. The course was renamed, the course description revised, and credit hours reduced to 4 as part of a new 48-credit hour, Forest Technology curriculum in 2000. This course is revised as part of new 45 credit hour Forest Technology and Land Surveying

curricula in 2010.

Last approved: September 25, 2001.

Revised Draft: November 30, 2009

COURSE: FTC 204 – Introduction to Natural Resources Measurements
4 Credit Hours – Fall Semester
60 hours lecture
45 hours laboratory
Prerequisite(s): none

SCOPE:

1. *Level of Instruction:*
    a. FTC 204 is an introductory course intended for students seeking an A.A.S. degree at the Ranger School (Wanakena Campus),
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. FTC 204 is required of all students enrolled in all Ranger School academic programs.
    b. It serves as a pre-requisite for FTC 213 Forest Inventory Practicum, FTC 211 Silviculture, FTC 217 Forest Health and Protection, and FTC 221 Natural Resources Management.
    c. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Measure tree diameters and heights accurately.
2. Estimate the volume of wood contained in individual trees, logs, and pieces of lumber.
3. Understand the basic elements and methods of tree, log and lumber grading.
4. Estimate the amount of biomass and/or carbon stocks on specific forest areas.
5. Estimate the abundance and/or quality of certain wildlife habitat features.
6. Understand common measures of recreation use and impact.
7. Establish and measure fixed-area and variable-radius forest inventory plots.
8. Summarize forest inventory data to the plot, stand, and forest level.
9. Conduct an elementary statistical analysis of forest inventory data.
10. Professionally present the results of a forest inventory in a written technical report.

MAJOR CONCEPTS OR METHODOLOGIES:

This course covers basic measurement techniques and sampling systems commonly used to estimate and/or measure wildlife habitat, recreation resources, native and invasive plants, timber, biomass and primary wood products. Students are introduced to the concepts, methods, and instruments used to estimate standing-tree and log volume; to measure and grade standing trees, logs, bolts, stacked pulpwood and firewood, and lumber; and to conduct natural resource inventories

for timber, biomass, carbon stocks, plant diversity and/or wildlife habitat. Students learn to summarize, analyze, and present forest resources inventory data for multiple purposes. Concepts and skills are reinforced through several field-oriented, hands-on exercises.

CATALOG DESCRIPTION

FTC 204. Introduction to Natural Resources Measurements (4)

Sixty hours of lecture and forty five hours of field/laboratory. A study of the tools and techniques used to measure primary forest products and inventory natural resources, such as timber, biomass, carbon stocks, wildlife habitat, recreation use and impact, and plant diversity. Professional presentation of forest inventory data in the form of technical reports. Basic forest sampling methods are used and compared, and associated statistical methods are learned and applied. Fall.

Prerequisite(s): none

COURSE HISTORY:

On 1/26/72 a new two-year curriculum in Forest Technology was approved by the College of Forestry Faculty. F. Tech. 204 was approved at that time as part of the package and taught at the Wanakena Campus starting in Fall 1973. The F. Tech. abbreviation was re-designated FTC in August 1973, as part of the computerization of the college records. A revised description of FTC 204 was approved on 3/23/78. Minor changes to the catalog description were approved in March 1989. The course description was reviewed by the instructor in October 1989. The course was renamed and revised, and credit hours increased to 4 as part of a new, 48-credit hour Forest Technology curriculum in 2000. The course is reviewed, renamed, and revised as part of new 45-credit hour Forest Technology and Land Surveying curricula in 2010.

Last approved: January 27, 2000.

Revised Draft: December 7, 2009

COURSE: FTC 206 – Forest Ecology
4 Credit Hours – Fall Semester
51 Hours Lecture, 56 Hours
Laboratory/Field Prerequisite(s): none

SCOPE:

1. *Level of Instruction:*
    a. FTC 206 is an introductory course intended for students pursuing an A.A.S. degree at the Ranger School (Wanakena Campus).
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. FTC 206 is required of all students enrolled in ESF Ranger School academic programs.
    b. It requires FTC 200 Dendrology as a co-requisite. It serves as a prerequisite for FTC 211 Silviculture, FTC 217 Forest Health and Protection, and FTC 221 Natural Resources Management.
    c. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Describe how sunlight, water, nutrients, temperature, carbon dioxide, and oxygen are utilized by forest vegetation.
2. Identify major soil horizons in a soil profile and quantify soil physical and chemical properties.
3. Evaluate growth, vigor and competitive status of forest trees based on observed growth form, crown characteristics and growing space.
4. Create a map delineating forest stands based on current vegetation (cover type), size class, and density.
5. Demonstrate understanding of ecological concepts by measuring and recording pertinent field observations, interpreting and analyzing collected data, and conveying results and insights in written technical report format.
6. Demonstrate critical thinking skills by analyzing and presenting a current environmental issue to an audience of peers.

MAJOR CONCEPTS OR METHODOLOGIES:

Definition and historical context of forest ecology and ecosystem concepts. Competition, mutualism, niche, growing space and major growth-limiting factors. Carbon, energy and water balances and the soil-plant-atmosphere continuum. Soil chemical and physical properties, biotic and abiotic function and soil-forming factors. Climate patterns and role in vegetation classification systems. Weather and wind as factors affecting forest growth and structure. Tree architecture, including primary and secondary vegetative growth, canopy dynamics, crown shape, height

growth and stem development patterns. Stand development and differentiation as a function of genetics, spacing, site, disturbance, and time. Disturbance ecology including historic range of variability, classification of magnitude and intensity, and natural vs. human - causes. Definition and mapping of forest stands, and discussion of landscape patterns. Carbon cycling, climate change and other current environmental issues.

CATALOG DESCRIPTION

FTC 206. Forest Ecology (4)

Fifty-one hours of lecture and fifty-six hours of laboratory and field. Study of interactions between forest vegetation and the environment. Considers how sunlight, moisture, soils and climate impact species presence, composition and growth. Critical thinking and evaluation of environmental issues. Fall.

Prerequisite(s): none

COURSE HISTORY:

On 1/26/72 a new two-year curriculum in Forest Technology was approved by the College of Forestry faculty. F. Tech 206 was approved at that time as part of the package and was taught at the ESF Ranger School campus beginning in fall 1973. The F.Tech. abbreviation was re-designated FTC in August 1973 as part of the computerization of college records. On 4/22/75 the original FTC 206 (a 1.5-credit hour course) was combined with FTC 210 Silviculture (also 1.5 credit hours) and a revised description of FTC 206 Forest Ecology, with 3 credit hours, was approved. Revised descriptions were approved on 3/23/78, 1/26/84, and in April 1989. The course was revised again as part of a new, 48-credit hour Forest Technology curriculum in 2000. The course is reviewed and revised in 2010 as part of new 45-credit hour curricula in Forest Technology and Land Surveying. FTC 200 Dendrology is added as a co-requisite at this time.

Last approved: 2000.

Revised Draft: December 8, 2009

COURSE: FTC 207 – Forest Safety

1 Credit Hour – Fall Semester
10 Hours Lecture
22 Hours Laboratory
Prerequisite(s): none
Co-requisite(s): none

SCOPE:

1. *Level of Instruction:*
    a. FTC 207 is an introductory course intended for students seeking an A.A.S. degree at the Ranger School (Wanakena Campus).
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. FTC 207 is required of all students enrolled in the Ranger School's Forest Technology, Land Surveying, and Environmental and Natural Resources Conservation curricula.
    b. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Use and maintain basic forestry hand tools, chainsaws, and brush saws.
2. Perform basic first aid and CPR procedures and recognize the need for continual training for logging/forestry/surveying related accidents.
3. Lead teams in conducting the tasks covered in this course.

MAJOR CONCEPTS OR METHODOLOGIES:

Students receive hands-on training in operating forestry tools and equipment so that they can handle them with proficiency in the field. Students become proficient in first aid and experienced in handling injuries under field conditions. Students come to understand the importance of communication skills and leadership in the work place.

CATALOG DESCRIPTION

FTC 207 – Forest Safety (1)

Ten hours lecture and twenty-two hours laboratory provides students with technical competence and decision-making abilities. Students receive training on the proper use and maintenance of forest hand tools and chainsaws. First Aid and CPR/AED are covered. Safety hazards, and prevention, classification, and reporting of accidents are covered. Fall

Prerequisite(s): none

COURSE HISTORY:

This is a new course, created as part of a new 45-credit hour *Environmental and Natural Resources Conservation* curriculum in 2010.

COURSE: FTC 208 – Geographic Information Technology
3 Credit Hours – Fall Semester
34 Hours Lecture/Discussion,
49 Hours Lab/Field
Prerequisite(s): none

SCOPE:

1. *Level of Instruction:*
    a. FTC 208 is an introductory course intended for students pursuing an A.A.S. degree at the Ranger School (Wanakena Campus).
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. FTC 208 is required of all students enrolled in ESF Ranger School academic programs.
    b. This course is a co-requisite for FTC 204 Introduction to Natural Resources Measurements, and is a prerequisite for FTC 211 Silviculture, FTC 213 Forest Inventory Practicum, FTC 215 Timber Harvesting, Transportation and Utilization, and FTC 221 Natural Resources Management.
    c. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Use a topographic map to determine the distances and azimuths between points and the elevation of points.
2. Determine the spatial relationships between aerial photos, maps and the ground features they represent.
3. Read, interpret and orient aerial photographs.
4. Measure horizontal distances and azimuths on aerial photographs.
5. Calculate ground areas from photographs or maps.
6. Use Reinhardt-style freehand lettering to prepare field notes and maps.
7. Draw a profile from a topographic map and locate a route survey on the topographic map using the grade contour method.
8. Produce correctly scaled, oriented and annotated hand-drawn field maps, including all necessary map elements.
9. Demonstrate basic proficiency in geographic information system software, including acquisition and interpretation of base data from a variety of sources, creation of new feature layers, simple geoprocessing, creation and editing of feature attributes, production of thematic maps, and map layout.

MAJOR CONCEPTS OR METHODOLOGIES:

Theory and practical application of analyzing, interpreting, recording, reporting, and presenting physical data. Students become proficient in reading maps, understanding the stereoscopic features of aerial photographs, orienting and interpreting photographs, and integrating maps, photo, and digital information in applied formats. Traditional and modern methods of data acquisition, storage, manipulation and presentation. Students learn how to extract geographic information from photographs and maps and interpret these data both manually and by computerized overlay techniques (geographic information system). Convert and present data in graphs, maps, and other common output formats.

CATALOG DESCRIPTION

FTC 208. Geographic Information Technology (3)

Thirty-four hours of lecture and forty-nine hours of laboratory. An introduction to geographic theory and applications. Use and interpretation of topographic and other paper maps, aerial photographs, and digital imagery. Proficiency in hand-lettering and creation of scaled field maps including required map elements. Transfer mapping skills to computer using geographic information system software. Fall.

Prerequisite(s): None

COURSE HISTORY:

On 1/26/72 a new two-year curriculum in Forest Technology was approved by the College of Forestry faculty. FTC 207 Aerial Photogrammetry was approved at that time and taught at the Ranger School beginning in fall 1973. The F. Tech abbreviation was designated to FTC in August 1973 as part of the computerization of the college records. Minor changes were made 4/24/74. A revised description of FTC 207 was approved 3/3/78. By faculty action on 4/20/78 this course was moved from the spring to the fall semester. Minor changes to the catalog description were approved in March 1989. The course was reviewed and updated by the class instructor in 1989, 1994, and 1995. Allied Technologies was introduced as Forest Installations during the 1972 curriculum changes. It was revised in 1978, when telephone and radio communications were replaced by computers, first aid, and CPR training. In 1991 personal computers was removed from Allied Technologies and the course reduced to 2 credits; a separate 1-credit course, FTC 210 Computers, was established. Light wood frame construction was also dropped. FTC 223 Graphics was initially approved by the Forestry faculty on 4/24/74 and revised on 3/23/78 and again in April 1990. Those separate courses were combined into a new 5-credit course as part of the 48-credit hour Forest Technology program curriculum in 2000. Digital mapping technology was introduced into the course and approved by the FNRM faculty in September 2005. The course is reviewed, renamed and revised in 2010 as part of new 45-credit hour curricula in Forest Technology and Land Surveying. The course is renamed to Geographic Information Technology, and reduced from 5 to 3 credit hours by dropping basic communications software (word

processing, spreadsheet, presentation graphics) and some hand-drafting components.

Last approved: 2005.

Revised Draft: December 8, 2009

COURSE: FTC 210 Leadership and Forest Technology
3 Credit Hours – Fall Semester
32 Hours Lecture
36 Hours Field Instruction
Prerequisite(s): none

SCOPE:

1. *Level of Instruction:*
    a. FTC 210 is an introductory course for students pursuing an A.A.S. degree in *Forest Technology* or *Land Surveying* at the Ranger School (Wanakena Campus).
2. Relation to curriculum or to other ESF or Syracuse University courses:
    a. FTC 210 in required of all students enrolled in the Ranger School's *Forest Technology* and *Land Surveying* programs.
    b. This is a prerequisite course for FTC 215, FTC 217 and FTC 225.
    c. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Maintain and operate a typical skidder.
2. State personnel management principles and practices for the surveying and forestry workplace.
3. Compose a resume and cover letter and know the job search and interview process.
4. Define the roles and functions of first-line supervisors in organizations.
5. Explain the importance of professional ethics in the workplace.
6. Lead teams in conducting the tasks covered in this course.

MAJOR CONCEPTS OR METHODOLOGIES:

Students receive hands-on training in operating forestry tools and equipment so that they can handle them with proficiency in the field. Students become proficient in first aid and experienced in handling injuries under field conditions. Personnel management situations are covered through discussion and role playing. Students come to understand the importance of communication skills and leadership in the work place and have opportunity to improve their written and oral communication skills. They also explore and develop professional ethics.

CATALOG DESCRIPTION

FTC 210 Leadership and Forest Technology (3)

Thirty-two hours of lecture and thirty-six hours of laboratory time. Provides

students with technical competence and decision-making abilities. Students receive training in the proper design and maintenance of forest hand tools, chainsaws, and skidding equipment. Maps, route surveys, and trail development are covered. Students learn about company and agency organization; the selection, placement, training, and evaluation of workers; managing crews and the techniques of foremanship; and human relations in the workplace, with emphasis on the special personnel problems of the forest and surveying industry. Fall.

Prerequisite(s): none

COURSE HISTORY: On 1/26/72 a new 2-year curriculum in forest Technology was approved by the College of Forestry faculty. The Allied Technologies course was introduced in 1972 as Forest Installations and a revised description was approved on 3/23/78. The course was revised to included computers, first aid, and CPR training, which replaced telephone and radio communications. The remaining topics were deemphasized to accommodate the new subject material. In 1991 personal computers was removed from Allied Technologies and became a separate 1-credit course, and light wood frame construction was dropped. The course was reduced from 3 to 2 credit hours. Radio communication was reintroduced in a new format in 1995.

F. Tech Personnel Management was approved in 192 as part of the new package and taught at the Wanakena campus beginning in fall 1973. The F. Tech abbreviation was designated to FTC in August 1973 as part of the computerization of the college records. Minor changes were made 4/24/74. A revised description of FTC was approved on 3/23/78. Minor changes to the catalog description were approved in March 1989. The description was reviewed and updated by the instructor in November 1989.

The two courses were combined into a new 4 credit course as part of a new 48-credit hour Forest Technology program curriculum in 2000. The course was reviewed and revised as part of a new 45-credit hour Forest Technology and Land Surveying curricula in 2010.

Last approved: January 27, 2000.

Revised Draft: November 21, 2009

COURSE: FTC 211 – Silviculture

4 Credit Hours – Spring Semester
45 Hours Lecture Per Semester
60 Hours field laboratory per semester
Prerequisite(s): FTC 200 Dendrology, FTC 204 Introduction to Natural Resources Measurements, FTC 206 Forest Ecology

SCOPE:

1. *Level of Instruction:*
    a. FTC 211 is an introductory course presented to students pursuing an A.A.S. degree at the Ranger School (Wanakena Campus).
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. FTC 211 is required of all students enrolled in the Ranger School's *Forest Technology* curriculum.
    b. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Describe the role of silviculture in forestry.
2. Define and recognize even-aged and uneven-aged silvicultural treatments and mark stands accordingly.
3. Explain the role of tree removal in silviculture.
4. Recognize and classify stand conditions.
5. Apply ecological principles to silvicultural prescriptions.
6. Plan and apply silvicultural tending activities, such as pruning, cleaning, timber stand improvement, and thinning.
7. Use stocking guides for maintaining optimum stand densities.

MAJOR CONCEPTS OR METHODOLOGIES:

An introduction to silviculture, the regeneration and tending of stands of trees. This course instructs students in standard silviculture methods. Silvicultural systems used in the major forest types of the United States are introduced. Students learn the terminology of this science. Controlling stand density to maximize individual tree and stand productivity is emphasized. Field exercises include artificial and natural regeneration techniques and tending activities, including pruning, cleaning, pre-commercial thinning, stand evaluation, evaluating regeneration success, even-aged and uneven-aged management, and restoration forestry. Maintaining biodiversity through various silviculture techniques is discussed.

CATALOG DESCRIPTION

FTC 211. Silviculture (4)

Forty five hours lecture and sixty hours field lab. Regeneration and tending of forest stands. Physical and chemical treatments used for growing forests in the northeastern states. Introduction to silviculture in the southern and western states. Methods for quantifying and predicting forest growth. Marking timber stands for harvesting. Establishing new stands. Spring.

Prerequisites: FTC 200, FTC 204, and FTC 206

COURSE HISTORY:

On January 26, 1972, a new two-year curriculum in Forest Technology was approved by the College of Forestry Faculty. F. Tech 211 was approved as part of the package and was taught at the Wanakena campus starting in fall 1973. A revised course description was approved by the faculty on 3/28/73. The F. Tech abbreviation was re-designated FTC in August 1973 as part of the computerization of college records. Revised course descriptions were approved on 3/23/78 and in April 1989. Minor course changes were made from 1992 to 1996.

FTC 229, Silviculture II, was approved by the ESF faculty as the first option offered in the proposed Forest Technology-Survey Technology two-track program in January 1979. It was reviewed and updated by the instructor in December 1989, and numerous minor changes to the course were made between 1992 and 1996.

FTC 221 Water Resource Management was a 1.5-credit course offered in the spring semester. It was first approved by the ESF faculty on 4/22/75 and revised on 8/23/78. It was again revised and approved by the faculty on 2/16/84. Minor changes to the catalog description were approved in March 1989, and the course description was updated in November 1989.

The three separate courses (Silviculture, Silviculture II, and Water Resource Management) were combined into a new 5-credit course as part of the new 48-credit hour Forest Technology program curriculum in 2000.

This current revision removes the water resource management unit, reducing it to a single silviculture course of 4-credits.

Last approved: January 27, 2000.

Revised Draft: December 7, 2009

COURSE: FTC 213 – Forest Inventory Practicum
2 Credit Hours – Spring Semester
6 hours lecture
64 hours laboratory
Prerequisite(s): FTC 200, FTC 202, FTC 204, and FTC 208

SCOPE:

1. *Level of Instruction:*
    a. FTC 213 is an introductory course intended for students seeking an A.A.S. degree in *Forest Technology* at the Ranger School (Wanakena Campus).
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. FTC 213 is required of all students enrolled in the Ranger School's *Forest Technology* curriculum.
    b. It serves as a direct follow-up course to FTC 204 Introduction to Natural Resources Measurements.
    c. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Plan, organize, and implement a timber-focused inventory of a multi-stand forested area.
2. Use GPS technology and ArcGIS software to develop a forest type map based on surveying base maps, digital aerial photographs, and field data.
3. Summarize and analyze forest inventory data by hand and by computer.
4. Present the results of a forest inventory in a professional technical report.

MAJOR CONCEPTS OR METHODOLOGIES:

This course reviews the concepts, methods, and instruments used to conduct forest inventories and the basic statistical procedures used to analyze the resulting data. Students plan, organize, and complete a timber-focused forest inventory of approximately 200 acres using the point sampling—or variable-radius plot—method. With the aid of GPS technology, aerial photographs and an accurate survey map, they develop a digital forest type map and summarize and analyze forest inventory data by stand and for entire tract. They then present the data in a technical report.

CATALOG DESCRIPTION

FTC 213. Forest Inventory Practicum (2)

Six hours of lecture and sixty four hours of field/laboratory. A practical field

problem requiring students to use professional methods of collecting, analyzing, and presenting forest inventory data. Inventory of the timber/biomass resource and the development of a forest type map are emphasized. Spring.

Prerequisites: FTC 200, FTC 202, FTC 204, and FTC 208

COURSE HISTORY:

On 1/26/72, a new two-year curriculum in Forest Technology was approved by the College of Forestry Faculty. F. Tech. 205 was approved at that time as part of the package and was taught at the Wanakena campus starting in Fall 1973. The F. Tech. abbreviation was re-designated FTC in August 1973 as part of the computerization of the college records. A revised description of FTC 205 was approved on 3/23/78. Minor changes to the catalog description were approved in March 1989. The course was renamed and revised as part of a new, 48 -credit hour Forest Technology curriculum in 2000. The course is reviewed and updated as part of a new 45-credit hour Forest Technology curriculum, 2010.

Last approved: January 27, 2000.

Revised Draft: December 7, 2009

COURSE: FTC 215 Timber Harvesting

2 Credit Hours – Spring Semester
15 Hours Lecture
45 Hours Laboratory/Field Instruction
Prerequisite(s): FTC 208 Geographic Information technology, FTC 210 Leadership and Forest Technology,
Co-requisite(s): FTC 259 Introduction to Computer Aided Drafting and Design

SCOPE:

1. *Level of Instruction:*
    a. FTC215 is designed for sophomores. This course is required for all students seeking an A.A.S. degree in *Forest Technology* at the Ranger School (Wanakena Campus).
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. The content of this course relates to FTC 208 Geographic Information technology and FTC 210 Leadership and Forest Technology, as well as to general biology and botany courses. This course also supplements the information presented in FTC 204 Introduction to Natural Resource Measurements, FTC 211 Silviculture, FTC 217 Forest Protection, and FTC 221 Natural Resource Management.
    b. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Explain the relationship between harvesting and other forest uses.
2. Describe the basic principles and methods used in harvesting, with emphasis on operations in the Northeast.
3. Identify on-the-ground problems and solutions in planning, organizing, and operating a logging job.
4. Administer a harvesting or road contract and develop a timber appraisal.

MAJOR CONCEPTS OR METHODOLOGIES:

This course is comprised of lectures, laboratories for discussion, demonstrations, and field experience. The harvesting is composed of timber felling and bucking into merchantable forest products, location of timber skid trails and forest roads, timber appraisal and sales, logging planning and organization, and timber contract administration, including best management practices.

CATALOG DESCRIPTION:

FTC 215. Timber Harvesting (2)

Student learns basic harvesting methods with Northeast emphasis and its relationship to other forest uses. A technical competence in timber sale contract administration and basic timber appraisal is gained. Spring.

Prerequisites: FTC 208 and FTC 210

Co-requisite: FTC 259

COURSE HISTORY:

On 1/26/72 a new two-year curriculum in Forest Technology was approved by the College of Forestry faculty. F. Tech 209 was approved at that time as part of the package and was taught at the Wanakena Campus beginning in fall 1973. The F. Tech abbreviation was designated to FTC in August 1973 as part of the computerization of the college records. Minor changes were made on 4/24/74. A revised description of FTC 209 was approved on 3/23/78. By faculty action on 4/20/78 this course was moved from fall to spring. Minor changes to the catalog description were approved in March 1989. The description was reviewed by the instructor in December 1989. Revisions were made to the project manual during 1998–99 by the instructor. Minor changes were made by the instructor from 1995 to 1999. The three courses were combined into a new 5-credit course as part of a new 48-credit hour Forest Technology program curriculum in January 2000. The above specified revisions reflecting new technologies/methodologies occurred in November 2009. The transportation and utilization elements of the original course have been reconstructed in a new course – FTC 228 *Timber Transportation and Utilization.*

Revised Draft: November 10, 2009

COURSE: FTC 217 – Wildland Firefighting and Ecology
2 Credit Hours – Spring Semester
25 Hours Lecture/Discussion, 16 Hours Lab/Field
Prerequisite(s): FTC 200 Dendrology, FTC 204 Introduction to Natural Resources Measurements, FTC 206 Forest Ecology, FTC 210 Leadership and Forest Technology

SCOPE:

1. *Level of Instruction:*
    a. FTC 217 is an introductory course intended for students pursuing an A.A.S. degree in *Forest Technology* at the Ranger School (Wanakena Campus).
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. FTC 217 is required of all students enrolled in the *Forest Technology* program at the ESF Ranger School. Students taking this course are required to have completed the prerequisite courses FTC 200 Dendrology, FTC 204 Introduction to Natural Resources Measurements, FTC 206 Forest Ecology, FTC 210 Leadership and Forest Technology.
    b. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Use the National Fire Danger Rating System to assess forest fire danger.
2. Predict fire behavior and describe the relationship between weather, topography, and fuel types.
3. Help plan and safely apply prescribed burns.
4. Use hand tools to safely and effectively fight an active wildfire as a member of a firefighting crew.

MAJOR CONCEPTS OR METHODOLOGIES:

Students learn to recognize potential threats to the forest due to fire. This course covers the short- and long-term ecological effects of fire. Students learn how active or potential wildfire can be affected by fuels, weather and topography, and learn the basic elements of effective prevention and preparation programs used by fire control organizations. Discuss the fire control planning process, including common challenges and various decision-making processes.

CATALOG DESCRIPTION

FTC 217. Forest Health and Protection (2)

Twenty- five hours of lecture and sixteen hours of laboratory and field. An introduction to fire science. Explore ecological roles. Learn basic principles of fire ecology, behavior, danger rating and control. Practical experience conducting a prescribed burn. Spring.

Prerequisite(s): FTC 200 Dendrology, FTC 204 Introduction to Natural Resources Measurements, FTC 206 Forest Ecology, FTC 210 Leadership and Forest Technology

COURSE HISTORY:

On 1/26/72 a new two-year curriculum in Forest Technology was approved by the College of Forestry faculty. F. Tech 213 was approved at that time as part of the package and was taught at the Wanakena campus beginning in fall1973. Minor corrections to the description were approved on 3/28/73. The F. Tech abbreviation was designated to FTC in August 1973 as part of the computerization of the college records. FTC 213 was restructured as two courses, FTC 213 and FTC 227, and described accordingly on 4/24/74. A revised description was approved on 3/23/78. The revised course description, restructuring FTC 213 into two courses, FTC 213 and FTC 226, was submitted in January 1991. This revised course description, reflecting minor revisions in course content and introducing fire-related computer applications, was submitted in January 1991. In spring 1995, members of the New York DEC were invited to team-teach the new Wildland Fire Training Program at the Ranger School. It fit the current course design and continues with slight modifications to the lecture material. The three courses were combined into a new 5-credit course as part of a new 48-credit hour Forest Technology program curriculum in 2000.

The course is reviewed, renamed and revised in 2010 as part of new 45-credit hour curricula in Forest Technology and Land Surveying. The name is changed from Forest Protection to Wildland Firefighting and Ecology. FTC 208 Spatial Analysis is dropped as a prerequisite for this course.

Last approved: 2000.

Revised Draft: December 8, 2009

COURSE: FTC 219 – Introduction to Forest Recreation
1 Credit Hour – Spring Semester
14 hours lecture
20 hours field and laboratory Prerequisite(s):
FTC 207

SCOPE:

1. *Level of Instruction:*
    a. FTC 219 is an introductory course intended for students seeking an A.A.S. degree in Forest Technology or Environmental and Natural Resources Conservation at the Ranger School (Wanakena Campus).
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. FTC 219 is required of all students enrolled in the Ranger School's Forest Technology and Environmental and Natural Resources Conservation curricula. It serves as a co-requisite for students enrolled in FTC 236 Recreation and Interpretive Techniques.
    b. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Identify the high points and approximate chronology of the history of recreation management in the United States.
2. Explain, and understand the causes and effects of key policies and legislation affecting forest-based recreation, both past and present.
3. Name the primary federal and state agencies that provide and/or manage recreational resources.
4. Know the amount and describe the types of public land available for outdoor recreation in the United States.
5. Define 'wilderness' and discuss the multiple values that wilderness areas provide.
6. Describe some relationships and/or connections between recreation management and forest management.
7. Describe and apply the seven principles of Leave No Trace.
8. Describe the qualifications, knowledge and experience necessary to act as a professional, licensed Outdoor Guide in New York State.
9. Better appreciate the planning, labor, tools and logistics required to build and/or maintain recreational resources such as trails, lean-tos, campgrounds, visitor centers, etc.

MAJOR CONCEPTS OR METHODOLOGIES:

This course serves as an introduction to the field of Forest Recreation. Students learn

about the economic and sociologic importance of recreation in today's society, the history of recreation management, and the development of recreational resources. Federal, state, and local agencies that develop and/or manage recreational resources are studied, as well as important laws and policies affecting forest- based recreation. The philosophy, values and management of wilderness are discussed, as are the design and construction details pertinent to trails, campgrounds, and visitor centers. The concepts and skills covered in the course are reinforced through field tours and/or field-oriented, hands-on exercises.

CATALOG DESCRIPTION

FTC 219. Introduction to Forest Recreation (1)

Fourteen hours of lecture and twenty hours field and laboratory time. A study of forest-recreation resources, their importance to humans, and of the basic history, laws and principles underlying forest-recreation management in the United States. The technical aspects of recreation management are emphasized, as is the study of public-land management, including Wilderness. Spring.

Pre-requisites: FTC 207

COURSE HISTORY:

On 1/26/72, a new two-year curriculum in Forest Technology was approved by the College of Forestry Faculty. F. Tech. 218 and 219 were approved at that time as part of the package and were taught at the Wanakena campus starting in Fall 1973. The F. Tech. abbreviation was re-designated FTC in August 1973 as part of the computerization of college records. Minor changes to FTC 218 were made on 4/24/74. Revised descriptions of FTC 218 and FTC 219 were approved on 3/23/78. A revised course description for FTC 218 was approved in March 1989. FTC 218 and FTC 219 were combined, renamed, and redefined with increased scope and content as part of a new, 48-credit hour Forest Technology curriculum in 2000. The course is renamed and redefined with decreased scope and content as part of a new, 45-credit hour Forest Technology curriculum in 2010.

Last approved: January 27, 2000.

Revised Draft: January 21, 2010

COURSE: FTC 221 – Natural Resources Management
3 Credit Hours – Spring Semester
35 Hours Lecture, 30 Hours Lab/Field
Prerequisite(s): FTC 204 Introduction to Natural Resources Measurements, FTC 206 Forest Ecology, FTC 208 Geographic Information Technology

SCOPE:

1. *Level of Instruction:*
    a. FTC 221 is an introductory course intended for students pursuing an A.A.S. degree in *Forest Technology* at the Ranger School (Wanakena Campus).
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. FTC 221 is required of all students enrolled in the *Forest Technology* program at the ESF Ranger School.
    b. Students taking this course are required to have completed the prerequisite courses FTC 204 Introduction to Natural Resources Measurements, FTC 206 Forest Ecology, and FTC 208 Geographic Information Technology.
    c. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Describe the history and basic land management policies of various federal and state agencies.
2. Identify landowner goals for a particular forest property, and recognize and evaluate incompatible goals.
3. Define, describe and evaluate various natural resources inventory and monitoring techniques.
4. Conduct a simple economic analysis of various management alternatives.
5. Produce competent written communications in letter, memo and technical report formats, demonstrating ability to adequately summarize field data and draw concise conclusions and recommendations based on fieldwork and observations.
6. Acquire data from various sources (paper maps, GPS, internet data sources, and field observation) and compile thematic maps using a standard GIS software package.
7. Analyze, summarize and utilize data collected from a specific forest property to produce a written natural resources management plan that addresses a given set of landowner objectives.
8. Summarize the major forest certification systems currently in use world-wide and locally, and describe how the process of certification works.

MAJOR CONCEPTS OR METHODOLOGIES:

Introduction to the planning process, including common challenges and various decision-making processes. History of natural resources management in the United States and Adirondack region. Valuation and characterization of natural resources for producing various goods and services. Techniques for establishing appropriate landowner goals and objectives. Organization and integration of multiple goals addressing such diverse uses as recreational opportunities, wildlife habitat, soil and water conservation, and forest products or other monetary goals. Strategic, tactical and operational planning and the role of the forest technician in the planning process. Incorporation of forest inventory data, regeneration surveys and other forest records into the planning process. Discussion of ecosystem management, sustainability, landowner rights and forest certification systems. A variety of guest lecturers and field trips complement topics discussed in class.

CATALOG DESCRIPTION

> FTC 221. Natural Resources Management (3) Thirty-five hours of lecture and thirty hours of laboratory and field. Addresses common issues in organizing a forest property to meet stakeholder goals. Techniques of growth and resource measurement, monitoring, and evaluation are emphasized. Examples and case studies of forest management and production activities are presented. A final project involves the application of knowledge accumulated at the ESF Ranger School in a management plan for an assigned forest property. Spring.
>
> Prerequisite(s): FTC 204, FTC 206, and FTC 208

COURSE HISTORY:

On 1/26/72 a new two-year curriculum in Forest Technology was approved by the College of Forestry faculty. F. Tech 217 was approved at that time as a part of the package and has been taught at the Ranger School campus since fall 1973. A revised detailed course description was approved by the faculty on 3/28/73. The F. Tech abbreviation was re-designated FTC in August, 1973 as part of the computerization of the college records. Minor changes were made on 4/24/74 and 4/22/75. A revised detailed course description was approved by the ESF Faculty on 12/14/77. A revised detailed course description for FTC 217 was approved on 3/23/78 and reflected a change in FTC 217 as a result of dropping General Forestry, FTC 212. Changes were approved in June 1984. The course was reviewed in December 1989. Further revisions were made as part of a new, 48-credit hour Forest Technology curriculum in 2000. The course is reviewed, renamed and revised in 2010 as part of new 45-credit hour curricula in Forest Technology and Land Surveying. The name is changed from Forest Resource Management to Natural Resources Management, and FTC 208 Geographic Information Technology is added as a prerequisite.

Last approved: 2000.

COURSE: FTC 223 – Water Measurements
1 Credit Hour – Spring Semester
10 Hours Lecture
16 Hours Field Instruction
Prerequisite(s): FTC 202 Introduction to Surveying

SCOPE:

1. *Level of Instruction:*
    a. FTC 223 is a mandatory course for students pursuing an A.A.S. degrees in *Forest Technology* or *Land Surveying* at the Ranger School (Wanakena Campus).
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. The principles discussed in this course build upon concepts and skills taught in other courses.
    b. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Describe the hydrologic cycle in terms of the water balance and measure the components to determine runoff.
2. Measure stream flow quantity and quality and express the data graphically for analysis.
3. Plan and apply soil and water best management practices to reduce and control degradation of watersheds.

MAJOR CONCEPTS OR METHODOLOGIES:

A study of water resources, beginning with a review of the hydrologic cycle. Students learn to quantify the cycle by measuring and analyzing the components of the water balance equation. The effect of management activities is stressed. Slope and channel runoff and erosion are measured and studied as a background for understanding management practices to reduce or control runoff, erosion, and sedimentation. The primary water quality characteristics of stream flow are introduced and measured.

CATALOG DESCRIPTION

FTC 223. Water Measurements (1)

Ten hours of lecture and sixteen hours of laboratory time. An introduction to water resources covering measurements taken at weather stations, snow courses, stream gauging stations, and other stream sample points. The hydrologic cycle, concept of flow, and the water balance equation are

studied in detail. Students learn the management practices used to control erosion and water quality. Spring.

Prerequisite: FTC 202.

COURSE HISTORY:

Introduction to Water Resources was a new course offered in the A.A.S. in Land Surveying Technology Degree Program at the Ranger School beginning with the 2005-06 Academic Year. This course was reviewed and revised as part of a new 45-credit hour Forest Technology and Land Surveying curricula in 2010.

Last approved: 2005.

Revised Draft: November 21, 2009

COURSE: FTC 225 Timber Transportation and Utilization
3 Credit Hours – Spring Semester
43 Hours Lecture
43 Hours Laboratory
Prerequisite(s); FTC 208 Geographic Information Technology.
Acceptable General Biology Course.
Co-requisite(s): FTC 259 Introduction to Computer Aided Drafting and Design.

SCOPE:

1. *Level of Instruction:*
    a. FTC 225 is designed for sophomores. This course is required for all Students pursuing an A.A.S. degrees in *Forest Technology* and *Land Surveying* at the Ranger School (Wanakena Campus).

2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. The content of this course relates to FTC 259 Introduction to Computer Aided Drafting Design, as well as to general biology and botany courses. This course also supplements the information presented in FTC 211 Silviculture, FTC 217 Forest Protection, and FTC 221 Natural Resource Management.
    b. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Administer a forest road contract.
2. Locate a forest road for a particular forest use by developing forest road plans and profiles and specifying required drainage structures.
3. Identify the wood of approximately 25 commercial tree species of the United States using a 10X hand lens and the senses of touch and smell.
4. Describe the formation, structure, and function of wood and the several types of cells it comprises.
5. Explain the utility and demand for wood by naming wood products made from various species.
6. Explain in general terms how paper, lumber, veneer, plywood, and particle-based panels are manufactured.

MAJOR CONCEPTS OR METHODOLOGIES:

The course subjects are presented in units and are comprised of lectures, laboratories for discussion, demonstrations, and field experience. In the transportation unit, students learn about financing and road construction costs,

contract specifications, road location (including curves and grades), road plans and profiles (including typical cut-and-fill road sections), road grade subsurface and surface materials, and the location and design of typical drainage structures, BMP use relating to forest road location and drainage structures. Utilization subjects include the growth and production of woody tissue in trees, including their cellular and chemical makeup and their physical and mechanical properties, and the identification of wood from selected commercial tree species by gross (macro) structure. Students also learn about the human uses of wood, the demand for wood products, and the wood products industry.

CATALOG DESCRIPTION:

FTC 225. Timber Transportation and Utilization (3)

Forty Three lecture hours and forty three laboratory hours. Students gain knowledge of graveled forest road administration, location, design, construction, and maintenance . Differences in wood structure of various tree species are studied in the laboratory observing how their tissue growth is affected by their environment. Spring.

Prerequisite(s): General biology, FTC 208, and FTC 210
Co-requisite(s): FTC 259

COURSE HISTORY:

1/26/72 a new two-year curriculum in Forest Technology was approved by the College of Forestry faculty. F. Tech 209 was approved at that time as part of the package and was taught at the Wanakena Campus beginning in fall 1973. The F. Tech abbreviation was re-designated FTC in August 1973 as part of the computerization of the college records. Minor changes were made on 4/24/74. A revised description of FTC 209 was approved on 3/23/78. By faculty action on 4/20/78 this course was moved from fall to spring. Minor changes to the catalog description were approved in March 1989. The description was reviewed by the instructor in December 1989. Revisions were made to the project manual during 1998–99 by the instructor. Minor changes were made by the instructor from 1995 to 1999. The three courses were combined into a new 5-credit course as part of a new 48 -credit hour Forest Technology program curriculum in January 2000. The current revision (November 2009) reflects changes in the AAS program for surveying students, who are no longer required to engage in logging exercises (see FTC 215).

Revised Draft: November 10, 2009

COURSE: FTC 234 – Wildlife Conservation
3 Credit Hours – Spring Semester
38 hours lecture
20 hours laboratory
Prerequisite(s): FTC 206

SCOPE:

1. *Level of Instruction:*
    a. FTC 234 is an introductory course intended for students seeking an A.A.S. degree in *Environmental and Natural Resources Conservation* at the Ranger School (Wanakena Campus).
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. FTC 234 is required of all students enrolled in the Ranger School's *Environmental and Natural Resources Conservation* curriculum.
    b. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Use the basic terminology of wildlife ecology and management, and conservation biology.
2. Describe some of the ecological concepts upon which modern wildlife management is based.
3. Name milestones and important people in the history of wildlife conservation and management in the United States.
4. Appreciate, describe and discuss the impact of forest management—especially timber management—on wildlife and biodiversity.
5. Describe the value—past and present—of wildlife to ecosystems and to Society.
6. Discuss the causes and effects of major legislation related to wildlife, including the Endangered Species Act.
7. Recognize and describe some current and continuing controversies related to wildlife.
8. Describe the components of wildlife habitat, and recognize key habitat features in the field.
9. Deliver thoughtful, coherent, fact-based speeches in a professional manner.
10. Incorporate the needs of wildlife—especially endangered and/or protected species—into forest management plans.

MAJOR CONCEPTS OR METHODOLOGIES:

This course serves as an introduction to the fields of wildlife biology, wildlife ecology,

wildlife management, and conservation biology. Students develop an appreciation for the wildlife resource, its intrinsic and anthropogenic value, and the need for its conservation and management. They survey the history of wildlife management, and study federal, state and local agencies that manage wildlife and/or habitat. Important laws and policies affecting the wildlife resource are discussed, with special emphasis on the Endangered Species Act. Students learn the basic terminology used by wildlife professionals, and are given the opportunity to improve their communication skills through the presentation of papers and speeches. Students study the effects of silviculture and other forest management practices on the wildlife resource, and learn to better incorporate the needs of wildlife into forest management plans

CATALOG DESCRIPTION

FTC 234. Wildlife Conservation (3)

Thirty-eight hours of lecture and twenty hours field and laboratory time. An introduction to the history and evolution of wildlife-related policies and laws, and to the biological, ecological, economical and sociological principles underlying wildlife management and conservation efforts in the United States. Terrestrial vertebrate animals serve as the basis of discussions and case studies. Students improve their communication skills by presenting papers and speeches on wildlife-related topics. Spring.

Prerequisite: FTC 206

COURSE HISTORY:

This is a new course, created as part of a new 45-credit hour *Environmental and Natural Resources Conservation* curriculum in 2010.

Revised Draft: January 12, 2010

COURSE: FTC 238 – Forest Insects and Disease
3 Credit Hours – Spring Semester
35 Hours Lecture
26 Hours Laboratory
Prerequisite(s): FTC 200, FTC 206

SCOPE:

1. *Level of Instruction:*
    a. FTC 238 is an introductory course intended for students pursuing an A.A.S. degree in *Environmental and Natural Resources Conservation* at the Ranger School (Wanakena Campus).
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
    a. FTC 238 is required of all students enrolled in the Ranger School's *Environmental and Natural Resources Conservation* program.
    b. Students taking this course are required to have completed the prerequisite courses FTC 200 Dendrology and FTC 206 Forest Ecology.
    c. Shared resource requirements: none, a graduate offering is not planned.

STUDENT LEARNING OUTCOMES:

After completing this course the student should be able to:

1. Describe the beneficial roles and economic impacts of insects and fungi in forest ecosystems.
2. State the fundamentals of insect classification, structure and development, including the major categories and characteristics of selected insect orders.
3. State the fundamentals of fungi classification, structure and development, including major categories and characteristics of selected phyla, genera and species.
4. Identify selected forest insects and fungi by common and scientific names.
5. Identify actual or potential insect, fungal or a biotic disease problems by their symptoms and recommend appropriate control or preventative measures in a forest management scheme.
6. Estimate cull deduction due to wood decay based on visible symptoms.

MAJOR CONCEPTS OR METHODOLOGIES:

Students learn to recognize signs and symptoms of forest insects and pathogens. Introductory identification and classification of insects and fungal organisms are presented, and the beneficial roles and economic impacts of insects and fungi in the forest ecosystem discussed. Life cycles, ecology and associated concepts and terminology are introduced. The interactions between insects, fungi, fire and abiotic agents of forest damage are discussed, as are disease and insect control methods

and integrated pest management. Discuss common challenges and various decision-making processes.

CATALOG DESCRIPTION

FTC 238. Forest Insects and Disease (3)

Thirty-five hours of lecture and twenty-six hours of laboratory and field. An introduction to forest insects and diseases. Explore ecological roles and identify selected insects and pathogens based on morphology, signs and symptoms. Discuss integrated pest management and other control measures. Spring.

Prerequisites: FTC 200, and FTC 206

COURSE HISTORY:

This is a new course, created as part of a new 45-credit hour *Environmental and Natural Resources Conservation* curriculum in 2010.

Last approved: n/a.

Revised Draft: January 12, 2010

Appendix B-3

Course Syllabi

Dendrology

FTC 200 - Dendrology A study of the distinguishing characteristics, growth features, distribution, site associations, commercial importance, and natural history of the major tree species of North America. Students will learn to identify forest species by both common and scientific names, from leaf, twig,
or bark samples. Students learn seasonal field identification skills and see the habitats, associates, and place in succession of the predominant forest tree, shrub and herbaceous species in the Adirondack region. A number of exotic species will also be introduced. 3 credits. Fall 2010.

Lecture hours: 40
Field lab hours: 38

Textbooks:
1) Farrar, John L. 1995. Trees of the Northern United States and Canada. Iowa State University Press. 502 p.
2) Dendro-Eco Field Manual. 2010. Ranger School faculty.

Course Objectives:

Dendrology is the study of trees. It includes tree identification, silvics, uses and natural histories, but it has also come to include shrubs, herbs, vines, ferns, and other small plants. The forest technician must be able to identify one tree species from another. You should also be able to identify shrubs in your working area, as well as other woody plants, ferns, and herbs.

Note the format of the course: it consists of two separate but related parts - lecture/discussion and field lab. The two parts have been integrated as much as possible. The course will concentrate on the most important (common and/or economical) trees in lecture, including species in all regions of the continent, not only the northeast. The field trips will concentrate on local species, but the generic characteristics of local plants are the same for similar genera throughout the United States or the world.

FIELD TRIPS:

Your instructors:

MICHAEL R. BRIDGEN
Professor, Forest Technology Program of the Forest and Natural Resources Management Department; B.S., Pennsylvania State University, 1975; Ph.D., Michigan State University, 1979; Chancellor's Award for Excellence in Teaching Service, 2003

email: bridgen@esf.edu

WAYNE ALLEN
Associate Professor, Forest Technology Program of the Forest and Natural Resources Management Department;
A.A.S., Ranger School
M.S.T. SUNY Potsdam, 1999

Field labs will be held as scheduled regardless of weather conditions, so dress appropriately (**hard hat, sturdy boots, long pants, and shirt**). Any changes in the schedule will be announced as soon as possible. Do not miss any field trip unless absolutely necessary. Notify your instructor in advance if you are going to miss a trip. <u>You are responsible for all species covered in the field even if you miss a trip</u>.

We will cover 6 to 8 new species on each trip. There will be a field quiz on each lab except the first trip. One-half of a 3x5" paper will be used for each quiz plant. When the instructor points out a quiz specimen, you will print your name on the answer sheet, then the common name of the specimen, then the family name of the specimen, and then the scientific names (genus and species) of the specimen. To save time at each quiz, print your name and C, F, G + S on ten or more quiz sheets before the field trip begins (see the following format:

Quiz slip format:

N. Firstname Lastname

C. Sugar maple

F. Aceraceae

G. *Acer*

S *saccharum*

Follow this format and print legibly! <u>**Printing is required!**</u> As is the use of a <u>pencil</u>. <u>**DO NOT WRITE YOUR ANSWERS IN INK!!**</u>
Hand in an answer sheet with your name on it even if you cannot identify the specimen.

Only three marks are assigned to these quizzes: 0, 0.7, or 1.0. In order to get 1.0, <u>the common name must be correct and correctly spelled</u>, <u>and the family, genus, and species names must be correct and correctly spelled</u>. If the common name is correct but misspelled, your grade will be 0. If the common name is correct, and correctly spelled, your grade will be 0.7. Correct identification is based on the common name; if the common name is wrong, but the scientific name right for a given quiz specimen, you will still receive a 0.

<u>**Scientific names MUST be underlined, to receive full spelling credit**</u>

<u>**If an answer is illegible**</u>**,** <u>**or written in ink**</u>**, a mark of 0 will be given.**

Your mark for the lab will be the sum of your marks on the individual quiz specimens, usually ten.

You may be quizzed on <u>**any species covered prior to any given field trip,**</u> <u>**including ecology labs**</u>**.**

Approximately 80 species will be covered in the field part of dendrology. As new species are covered, you should collect a sample leaf and twig. A good collection, properly labeled, will greatly assist you in learning to identify the species. Twigs are

best labeled with drafting tape. Leaves and small plants can be pressed between the pages of a magazine and then can be fastened to a sheet of paper for display.

Learn to identify each tree at all stages of growth (seedling to maturity). IT IS VERY IMPORTANT TO BE ABLE TO IDENTIFY EACH TREE AND SHRUB BY TWIG AND BARK CHARACTERISTICS ALONE. Remember that toward the end of the course (December) the field instructors will intentionally seek out deciduous quiz plants (i.e., no foliage!).

The dendrology field trips can be fun, but they are also serious. You cannot work effectively in forestry if you cannot identify trees and shrubs. Don't think you can't learn to identify 80 species in the allotted time, or that you can't learn the scientific names and their correct spelling (flash cards will help in learning the names). It will take some hard work, but many have done it before you and you can do it, too.

When you report for a field trip, take the following items with you:

1. Dendrology field manual
2. Hand lens
3. Pocket knife
4. #2 pencil - for legibility
5. 3 x 5" pad or papers (quiz slips)
6. Drafting tape (optional, to label specimens)
7. A magazine to hold leaves flat (optional, but not one from the library or lounge!)
8. Clear plastic bag (for writing in the rain or snow)

Here are some things to remember about field trips:

- No smoking during the labs
- No Ipods, mp3 players, cell phones, or other electrical devices
- No horseplay or excessive noise; maintain professional conduct.
- When the instructor is talking, everyone else should be quiet.
- Trips go regardless of weather - dress appropriately and be on time.
- As the trip moves along, stay behind the instructor, but do not lag.
- Observe, impress distinguishing characteristics in your mind right from the first field trip. You will not have to take notes, so listen closely.
- When working on a quiz, stay separate from your classmates. Hand in your answer sheet when you are finished and then move past the instructor. Do not return to the quiz specimen or area. Once handed in, the quiz is in. THERE WILL BE NO TALKING UNTIL ALL ANSWER SHEETS ARE TURNED IN!
- Some specimens require smelling or tasting for identification. On quizzes smell or taste with a straight face; do not make faces, smile, gag, etc.
- ASK QUESTIONS!!!!! BE SURE YOU KNOW WHAT IS GOING ON. The field trips are for your learning experience, so make the best of them.

GRADING FOR THE COURSE:

There will be two types of lecture tests given, as indicated above. Starting with the first lecture, a daily 5-minute quiz will be given for each lecture. It may come first thing in the lecture/discussion session. These quizzes help you to understand how well you are learning the material and give you added incentive to keep up with the fast-paced program. If you read the assignments and keep up with the lecture notes, these quizzes should be easy. The second type of test will be longer, less frequent (4 plus a final) and more comprehensive.

In addition to formal testing grades, students will be given a "professional behavior" grade. This grade will be based upon specific requirements as discussed by the course instructor in class.

Also, each student will produce "**Flash cards**". Each card will have the species' scientific names (Family, genus, and species) and the student's three initials (such as MRB), printed on one side of the card. On the reverse side, you will print the species' common name, and any useful information about the species. These cards will be collected periodically through the semester.

GRADING SYSTEM
Percent of Total Grade

	Quizzes and Exams	Projects
Individual Work	Daily Quizzes – 5% Exam 1 – 6% Exam 2 – 6% Exam 3 – 6% Exam 4 – 6% Field lab quizzes – 46% Final Exam – 10%	Professional Behavior – 5% Flash Cards – 5%
Team Work	Group Quizzes and Homework – 5%	

Letter Grade Range:

A 93.4-100	B 83.4-86.6	C 70.0-76.6	F 59.9 and below
A- 90.0-93.3	B- 80.0-83.3	C- 66.7-69.9	
B+ 86.7-89.9	C+ 76.7-79.9	D 60.0-66.6	

Intro to Surveying FTC 202 (4cr.)

A.A.S. in Forest Technology and Land Surveying Technology Curriculum
SUNY ESF Ranger School
Course Syllabus

Course Description

Intro to Surveying has 130 total contact hours divided into 50 class hours and 80 lab hours. The course is taught both in the Main Class Room at Ranger School and in the field in the James F. Dubuar Memorial Forest.

The course will begin with the basics of land surveying and the basics of measuring. The field exercises are designed to enforce the lectures and discussions in the classroom. The course generally follows the historical improvements in field surveying and culminates with the Sub-compartment Survey where students will use a total station to set up and traverse a 15 to 20 acre parcel in the Dubuar Forest. Students will learn how to properly record field data in a notebook and how the sketch this information.

The first exercise begins with the students using the rather simple instruments of a surveyor's rope (plastic tape), plumb bob and hand compass. They also have the opportunity to use pacing to measure linear distance. The students are graded on the quality of their pacing and taping skills. Emphasis is placed on field techniques throughout the course.

The next portion of the course deals with elevations and contours. The student will prepare a rudimentary contour map. The students will learn to use an auto level and differential leveling. They will also learn trigonometric leveling computations. The proficiency is a differential level run from the Ranger School campus to Wanakena.

Students will be introduced to bearing and angle computations, traverse computations, balancing a traverse, area computations and inversing. In the field, each student will use a transit and/or theodlite and a total station. In crews, the student will learn how to set up a control traverse, double and single horizontal angles and record in the field book. They are introduced to Carlson Survey 2007. This part of the course concludes with the Sub-compartment Survey with each student preparing a map using Carlson software.

The last section of the course involves a trip to the St. Lawrence County Clerk's Office. Here, the student learns what records are maintained in the Courthouse. The student is also introduced to the Real Property Tax Office. Students pair up and given a simple research problem to complete while at the Clerk's Office.

The last few classes involve lectures on horizontal and vertical curves. Student learns to use formulae to compute various parts of both types of curves.

The final exam is made of 100 multiple choice questions and 6 problems.

Textbook

Michael H. Webb, et al *Ranger School Basic Survey Manual 2007* New York Printed in house and *Elementary Surveying, An Introduction to Geomatics Eleventh Edition* New Jersey: Pearson – Prentice Hall 2006.

Grading System

There are daily quizzes (approximately 16) and four exams, including the Final. There are 14 Problem Sets as part of the Survey Manual and together with the quizzes and exams make up 45% of the final grade. Field notebook grades (from each field exercise), field proficiency grades (of which there are 4), mapping grades and the deed research exercise grades make up another 45% of the final grade. The remaining 10% is made of the field and classroom participation grade.

FTC 204 - INTRODUCTION TO NATURAL RESOURCES MEASUREMENTS

Fall 2010

4 Credit Hours

Instructor: R. Johnston

Pre- or Co-Requisites: FTC 200, FTC 202, and FTC 208

Course Description

This course consists of both classroom (56 hours) and field/lab study (46 hours) of the tools and techniques used to measure primary forest products and inventory forest resources. Timber and wildlife habitat measurements will be stressed. In addition, the professional presentation of forest inventory data in the form of technical reports will be emphasized. Various forest sampling and statistical methods will be used and compared. Understanding of concepts and skills will be strengthened through several hands-on exercises. Those same exercises will help to strengthen each student's dendrology and surveying skills. Students will be required to work in crews to complete most field exercises. Lastly, it is important to realize that this is an applied math course. In particular, you will need to draw on your mathematical skills from basic algebra, geometry, and trigonometry in order to solve the problems presented in the course.

Importance of the Course

Forestry is a profession based on science, and it is critical that we 1) have a detailed "plan of attack" before practicing forestry in a particular area, 2) document the activities and techniques used to practice forestry, and 3) monitor the results, both short- and long-term, of our forest practices. All three of these steps require careful observation and measurement. So in a very real sense, the understanding and skills that you gain from this course will serve as a foundation to your daily professional practice. For a forest technician, the ability to accurately and efficiently observe and measure forest resources is crucial. Interestingly, you will find that the ability to carefully observe and measure the forest is important not just to "forest technicians," but to other natural resource specialists as well, like wildlife biologists, forest rangers, foresters, forest recreation specialists, etc.

Recognize that this course is one of two "measurement" courses that you will take at the Ranger School. As such, what you learn in this course will be applied during the next. Furthermore, prospective employers will expect that you can:

1. Demonstrate professionalism in all aspects of your work
2. Efficiently collect data about forest ecosystems with confidence, accuracy, and desired precision
3. Choose efficiently appropriate tools for the problem at hand and learn confidently new tools when needed
4. Accomplish tasks and solve problems in teams

5. Choose appropriate sampling design/intensity based on management objectives and specific characteristics of problems that are confronted
6. Use and apply terminology and units common to the field of forest measurements
7. Organize and write quality technical reports

General Instructional Objectives - *In this course we will:*

1. Learn to choose and use the appropriate tools to measure pulpwood, logs, and trees
2. Learn about the development of, use of, differences in, and limitations of volume tables
3. Learn to estimate forest stand attributes, like volume and density, based on measurements of individual trees and/or groups of trees and the use of sampling methods
4. Learn to use and apply statistics to improve our estimates of forest stand attributes
5. Learn to properly collect and record data in and about the forest
6. Learn to summarize, analyze and present stand level data, using mostly manual techniques
7. Discuss and use various units to describe forest stands and forest products
8. Learn the vocabulary necessary to describe forest attributes and forest products, and communicate with other forest workers and statisticians
9. Discuss the benefits and limitations of commonly used forest sampling designs
10. Practice working in teams to accomplish tasks, complete projects, and solve problems
11. Learn standards for professional work

Expected Learning Outcomes - *After completing this course you should be able to:*

1. Use various forest measurement tools properly and efficiently
2. Apply theory and/or concepts behind the use of various measurement tools
3. Collect data on individual trees, plots or stands accurately, efficiently, and according to accepted standards
4. Accurately estimate the gross and net volume of individual logs and trees
5. Accurately calculate the volume and density of forested plots and stands using appropriate mathematical formulae
6. Effectively convert data into information
7. Professionally present data and information in the form of a technical report
8. Work effectively in teams
9. Apply the theory and concepts behind commonly used forest sampling designs
10. Appreciate the cost of data vis-à-vis the value of traditional forest products
11. Demonstrate professionalism throughout your daily efforts

Course Resources

- Forest Mensuration for the Forest Technician, 4th ed., by J.M. Savage & C.E. Martin
- Statistics and Forest Sampling: A Study Guide, by J.M. Savage
- Technical Report Writing: A Manual of Style, by J.M. Savage & RS Faculty
- FTC 204 Field and Laboratory Manual, by Savage
- Tables for Estimating Board-foot Volume of Timber, USDA Forest Service
- FTC 204 bulletin board
- "Measurements" website on Ranger School intranet or "Pages" folder

Assessment

Not all of the work that you complete during this course will be evaluated and count towards your final grade. Some of the work, especially the assigned problem sets and the first few lab exercises/reports, will be assessed. That is, I will not judge the work, but merely provide feedback on it to help you improve your performance. In particular, I will point out strengths in the work and provide you with some ideas on how to improve future "performance." During labs, I will conduct on-going, real-time assessments in order to help you grow and improve your performance in this course. Whether graded or not, all assigned work must be completed in order for you to pass the course.

Grading

Unit Exams	36%
Quizzes	12%
Problem Sets	4%
Lab Report #1 (tree measurements)	5%
Lab Report #2 (North Timber Tract cruise)	10%
Lab Report #3 (Miller Tract cruise)	10%
Field Final Exam	8%
Written Final Exam	10%
Professionalism/Conduct	5%

Final Grade Determination

A	92.0 +	**C+**	75.0 - 79.9
A-	89.0 - 91.9	**C**	70.0 - 74.9
B+	86.0 - 88.9	**C-**	66.0 - 69.9
B	83.0 - 85.9	**D**	60.0 - 65.9
B-	80.0 - 82.9	**F**	59.9-

Course Policies and Expectations

- Full participation is essential. Unexcused absences from lecture or lab will result in an incomplete for the course.

- No hats or hoods will be worn during indoor classes.

- No smoking or tobacco chewing will be allowed in class or lab, except during designated breaks.

- Portable audio/video devices, such as "Ipods" or other MP3 players, shall not be worn during lecture or lab time.

- Two-way radios and/or cell phones may be carried in lab, but used only in emergencies. "Chatting" is not permissible.

- Students are NOT free to come and go from the classroom during class time. Doing so will severely reduce your professionalism grade.

- Students will not sleep during class. Students with a persistent sleeping problem will be asked to leave class.

- Professionalism throughout: any student caught cheating in any way will receive no credit for the immediate assignment/lab and may receive an "F" for the course.

- All exams and quizzes are "closed book," except the written final exam.

- A student who maintains an *average* of 90.000 or better on exams may opt out of the written final exam. In such case, the student's average exam grade will count 46% towards their final grade in the course.

- Unless special arrangements have been made with the instructor, lab report grades will be reduced by 15% for each day the report is turned in past the due date (i.e., one day = 15%, two days = 30%, etc.)

- If you have an identified learning disability and will need accommodations, please see Director Westbrook as soon as possible. He and I will work with you to develop some approved accommodations. Accommodations will not be provided retroactively; they will be provided once any and all accommodations have been approved. If you have questions regarding disabilities, please see the Director or myself. All conversations will be confidential.

FTC 206 - FOREST ECOLOGY

Course Syllabus

Fall Semester, 2010

4 credit hours; 51 hours lecture, 56 hours lab time.

Major Concepts

Definition and historical context of forest ecology and ecosystem concepts. Competition, mutualism, niche, growing space and major growth-limiting factors. Carbon, energy and water balances and the soil-plant-atmosphere continuum. Soil chemical and physical properties, biotic and abiotic function and soil-forming factors. Climate patterns and role in vegetation classification systems. Weather and wind as factors affecting forest growth and structure. Tree architecture, including primary and secondary vegetative growth, canopy dynamics, crown shape, height growth and stem development patterns. Stand development and differentiation as a function of genetics, spacing, site, disturbance, and time. Disturbance ecology including historic range of variability, classification of magnitude and intensity, and natural vs. human-causes. Definition and mapping of forest stands, and discussion of landscape patterns. Carbon cycling, climate change and other current environmental issues.

Learning Outcomes: After completing this course the student should be able to:

1. Describe how sunlight, water, nutrients, temperature, carbon dioxide, and oxygen are utilized by forest vegetation.
2. Identify major soil horizons in a soil profile and quantify soil physical and chemical properties.
3. Evaluate growth, vigor and competitive status of forest trees based on observed growth form, crown characteristics and growing space.
4. Create a map delineating forest stands based on current vegetation (cover type), size class, and density.
5. Demonstrate understanding of ecological concepts by measuring and recording pertinent field observations, interpreting and analyzing collected data, and conveying results and insights in written technical report format.
6. Demonstrate critical thinking skills by analyzing and presenting a current environmental issue to an audience of peers.

Course Materials & Resources

- Books
    - Oliver, C. D. and B.C. Larson, 1996. **Forest Stand Dynamics**, *Update Edition*. John Wiley & Sons, Inc., New York, NY.
    - Dendro-Eco Field Manual, *A Guide to Plant Identification at The Ranger School* by Michael R. Bridgen
    - Forest Cover Types of the United States and Canada, Society of American Foresters, 1980.

- University Readers copyrighted course materials packet for FTC 206 Forest Ecology (ordered online; instructions provided with registration materials)
- Various Field Guides: wildflowers, ferns, weeds (optional)

▪ Field Gear
- Multi-pocket cruiser's vest
- "Rite in the Rain" field notebook
- Hand lens
- Hand compass
- Folding knife
- Biodegradable flagging

▪ Project Materials
- 6 botanical mounting sheets

Course Reference

▪ Bulletin Board in 2nd floor hallway (or occasionally, my door)
▪ My Forest Ecology Pages folder on the Z: drive
▪ Course material handed out in class
▪ Email

Lecture

Lecture time will be dedicated to covering topics as listed on the attached schedule. As often as possible, the labs will correspond with the current lecture topic; however, there will be times when a lab will be independent of the current lecture topic. All assigned reading is expected to be completed prior to class.

Lab

Lab time will be spent applying the concepts learned in lecture with a hands-on approach. We will be using a variety of tools and equipment for Forest Ecology labs throughout the semester and you will be responsible for said equipment. Some labs will be completed on an individual basis and some labs will require a team or crew approach. To maximize our lab time, instructions for each lab will be given ahead of time, either in class or posted on the Forest Ecology board. It is imperative that each of you arrive to lab on time, organized, and prepared to go to work.

Class Conduct

- You are expected to be quiet and attentive during lectures and labs.
- Please arrive to class on time and remain in class until dismissed. Tardiness will negatively impact your grade.
- If for some reason you must miss a class or lab or leave early, a yellow absenteeism slip must be filled out and signed by both the instructor and director prior to the absence.

- Inappropriate language, aggressive behavior, vulgarity, etc. will not be tolerated in class or in course work.
- Hats and hoods must be removed during lectures.
- Tobacco use of any kind (including chewing) is prohibited during class.

Grading

Your final grade for this class will be based on several different assessments including announced and unannounced quizzes (lecture and field), written exams, projects, lab assignments, a final cumulative exam, and professional conduct. Anything that is covered in class, lab, or in assigned reading is subject for assessment.

You will be permitted to make up missed lab sessions or classes if you have a valid permission form signed by the Director. Work missed due to unexcused absences will receive a zero and have the potential to cause you to fail this course.

All assignments must be submitted on time in order to pass *Forest Ecology*. Unless otherwise stated, the grade for any assignment turned in past the due date will be reduced by ***20% grade deduction for each day the assignment is late***.

The professional conduct portion of your grade will be based on faculty observations during lecture, lab and equipment handling. Actions such as sleeping in class, tardiness, inappropriate language, or other unprofessional conduct will negatively affect this portion of your grade. Academic dishonesty constitutes unprofessional behavior. See the ESF Academic Integrity handbook (http://www.esf.edu/students/handbook/integrity.pdf) if you are unclear about what actions constitute academic dishonesty. You are expected to comport yourself as a professional when working with classmates on team assignments. You will work with your assigned crew. Once crew assignments are posted, changes will generally not be made.

The following will be used to calculate your final grade for *Forest Ecology*.

- **Exams:** **25%**
  - **Assignments (lecture & lab):** **25%**
  - **Quizzes (lecture & field):** **20%**
  - **Final Exam (cumulative):** **10%**
  - **Stand Cover Typing Project:** **10%**
  - **Plant Collection Project:** **5%**
  - **Professionalism:** **5%**

FTC 208 Geographic Information Technology
Course Syllabus, GIS Component

Fall Semester, 2010

0.5 credit hours; 8 hours lecture, 12 hours lab time.

Major Concepts (FTC 208 Geographic Information Technology)

Theory and practical application of analyzing, interpreting, recording, reporting, and presenting physical data. Students become proficient in reading maps, understanding the stereoscopic features of aerial photographs, orienting and interpreting photographs, and integrating maps, photo, and digital information in applied formats. Traditional and modern methods of data acquisition, storage, manipulation and presentation. Students learn how to extract geographic information from photographs and maps and interpret these data both manually and by computerized overlay techniques (geographic information system). Convert and present data in graphs, maps, and other common output formats.

Learning Outcomes: The Geographic Information Systems (GIS) component of FTC 208 Geographic Information Technology is designed to meet the following course objective:

- Students will demonstrate basic proficiency in geographic information system software, including acquisition and interpretation of base data from a variety of sources, creation of new feature layers, simple geoprocessing, creation and editing of feature attributes, production of thematic maps, and map layout.

Course Resources

- There is no required textbook for this class. Your best resources are NOTES and PRACTICE. Notices will be posted on my faculty board located outside the faculty offices upstairs and sometimes distributed by email.
- Bulletin Board in 2nd floor hallway (or occasionally, my door)
- My GIS Pages folder on the Z: drive
- Course material handed out in class
- Email
- Software: We will use a software package developed by the Environmental Systems Research Institute (ESRI) entitled ArcGIS, Version 9.3.1. Students who wish to load this program onto personal computers may obtain a one-year trial version disk from the course instructor.
- Hardware: Laboratory sessions will be conducted in the Ranger School computer lab. Students may work on lab computers, or bring their own laptops into the lab room to participate in class. We have a black/white laser printer and color inkjet printer for printing out most projects, and a large-format color plotter for special map projects.

Scheduled Course Time

We will have 8 hours of lecture time and 12 hours of laboratory time to accomplish our learning outcomes. Students will also be required to spend time outside of class to practice, do homework, and generally improve GIS skills. Students will also be expected to apply these GIS skills during other courses at the Ranger School. Lecture hours will focus on geospatial theory, and how this theory applies in the ArcGIS environment. Laboratory will focus on developing your GIS skills, including learning how to operate in the ArcGIS environment to create, manipulate, view and edit geographic data. The 'capstone' project for Geographic Information Technology involves an independent project in which each student will produce a map of the Dubuar Forest, including geographic features (roads, streams, buildings) and thematic features (land classification). This final project will test each student's ability to access and manipulate publicly available data, create new data, work with attributes, and design and print a professional, custom map layout.

Computer Use Conduct:

- You are expected to follow, and will be held to the rules set forth for use of Ranger School computers and related equipment and use of Ranger School computer lab.
- You are expected to follow, and will be held to the SUNY ESF Policies and Procedures for Use of ESF Computing and Network Resources as well as the Ranger School Student Handbook.

Class Conduct:

- Please arrive to class on time and remain in class until dismissed. Tardiness will negatively impact your grade.
- Your professional demeanor is important – this includes your dress and conduct. You are expected to be quiet and attentive during lectures and labs.
- If for some reason you must miss a class or lab, a slip must be filled out and signed by both the instructor and director prior to the absence.
- Inappropriate language, aggressive behavior, vulgarity, etc. will not be tolerated in class or in course work.
- Hats, hoods and other head gear must be removed during lecture and lab time.
- Tobacco use of any kind (including chewing) is prohibited in the building.
- All policies as set forth in the Ranger School Student Handbook unless otherwise addressed are to be followed.
- Academic honesty as described in the ESF Academic Integrity Handbook is **absolutely** expected.

Failure to adhere to any of the above mentioned conduct rules will result in a direct loss of points from your final grade, and possible loss of computer privileges.

Grading

Your final grade for this class will be based on the criteria outlined below. Anything that is covered in class or in lab is subject to assessment.
You will be required to make up any missed lab session or class due to an excused absence. Any unexcused absence from lecture or lab will negatively affect your final grade up to and including failing this course.

All assignments must be completed and submitted in order to pass this component. Unless otherwise stated, the grade for any assignment turned in past the due date will be reduced by 20% for each day the assignment is late.

The professional conduct portion of your grade will be based on faculty observations during lecture, lab and equipment handling. Actions such as sleeping in class, tardiness, inappropriate language, or other unprofessional conduct will negatively affect this portion of your grade. Academic dishonesty and unprofessional group interaction are also included here.

The following breakdown will be used to calculate your final grade for the GIS component of GIT.

Lab Assignments	**40%**
Capstone Project	**25%**
Final Written Exam	**20%**
Quizzes, Homework	**10%**
Professionalism	**5%**

100%

Leadership and Forest Technology
Forest Technology 210
3 Credit Hours

Course Objectives:

The intent of this course is to prepare you to be able to:

1. Use and maintain basic forestry hand tools, chainsaws, and brush saws

2. Understand basic maintenance and operation of a skidder

3. Develop a current resume to be used during your upcoming job search.

4. Understand and prepare for the job interview process.

5. Understand the importance of writing skills in the work place and to improve your current writing skills.

6. Have the knowledge of personnel management principles and practices that will enable the student to function successfully in a forestry/industrial/surveying setting.

7. Understand the basic human relations involved in supervision and identify means to:
    a. win the cooperation of those supervised.
    b. improve the morale of those supervised.
    c. discipline those supervised.
    d. delegate responsibility to those supervised.
    e. give orders to those supervised.
    f. train those supervised.
    g. evaluate the performance of those supervised.
    h. simplify work methods

8. Identify and describe a technique of problem solving

9. Define and identify unsafe acts and unsafe conditions and be able to incorporate such knowledge into a program of accident control.

10. Begin to understand the role of professional ethics in the work place.

The Course:

The course will consist of 32 hours of lecture and 32 hours of lab exercises. It will deal with learning how to use basic forest tools, chainsaws, and skidders, basic first aid and CPR, resume writing skills, interviewing techniques, human relations, communication skills, personal growth, professional ethics, and other material

necessary to help develop your technical and supervisory skills. Improvement of writing skills will be stressed. Although a lot of the material in this course is common sense, it should be pointed out that putting these concepts to use within an organization is not always as simple as it may appear. Therefore, some lab time will be spent discussing case studies and working with simulation games.

Textbooks:

Loving Trees is not Enough by Brooks C. Mendell
Tilton's Chainsaw/Brushsaw pamphlets
Lightly on the Land, 2nd ed, The Student Conservation Association
Logger's Safety Field Guide, New York Logger Training Program

Grading System:

The final grade for the course will be based on the following:

Lab Projects	25%
Homework Assignments	10%
Exams	40%
Term Paper	15%
Class and Lab Participation	10%
Total	100%

Exams:

There will be a minimum of 3 exams given in this course. These examinations will include material from lectures, labs, guest lecturers, and assigned readings.

Term Paper:

A term paper will be assigned. This paper will require detailed writing. Be sure to allow ample time to complete this project.

Lab Projects:

There will be a number of lab projects assigned. All projects should be turned in on time. Failure to do so will result in a 10% per day reduction in your grade for that assignment.

Class and Lab Participation:

Many of the lab and field exercises will involve active student participation. Although there may be no assignment to be turned in at the end of the lab you will be evaluated on your performance and effort in the lab.

Leadership and Forest Technology
Forest Technology 2010

LECTURE SCHEDULE
(Subject to change)

Date	Time	Subject	Assignment
Tuesday August 31	10 a.m.	Intro to the course (WGA & CLW) Study Skills	
Wednesday August 31	11 a.m.	Time Management (CLW)	
Tuesday September 14	9 a.m.	Study Skills, Test taking, and stress management skills (CLW)	Read Lightly on the Land, p 75-108
Monday September 20	11 a.m.	Personnel Management (CLW)	
Tuesday September 21	11 a.m.	Trails (WGA)	Read Lightly on the Land, p 13-74, p 117-198, p 213-317
Wednesday September 22	11 a.m.	Trails (WGA)	Read Lightly on the Land, p 13-74, p 117-198, p 213-317
Monday September 27	10 a.m.	Trails (WGA)	Read Lightly on the Land, p 13-74, p 117-198, p 213-317
Tuesday September 28	10 a.m.	Trails (WGA)	Read Lightly on the Land, p 13-74, p 117-198, p 213-317
Tuesday September 28	11 a.m.	Trails (WGA)	Read Lightly on the Land, p 13-74, p 117-198, p 213-317
Thursday October 7	8 a.m.	Trails (WGA)	
Tuesday October 19	11 a.m.	Trails (WGA)	
Wednesday October 20	11 a.m.	Trails (WGA)	
Tuesday October 26	8 a.m.	Intro to Personnel Management (CLW)	
Wednesday October 26	10 a.m.	Trails (WGA)	
Thursday October 28	8 a.m.	Personnel Management (CLW)	
Wednesday November 17	8 a.m.	TBA (CLW)	
Thursday November 18	8 a.m.	Trails Exam (WGA)	Review all material.

Monday November 22	8 a.m.	Personnel Management (CLW)
Tuesday November 23	8 a.m.	Personnel Management (CLW)
Monday November 29	8 a.m.	Leadership (CLW)
Wednesday December 1	8 a.m.	Problem Solving and Decision Making (CLW)
Thursday December 2	8 a.m.	Planning (CLW)
Friday December 3	8 a.m.	Organizing (CLW)
Monday December 6	9 a.m.	Control of process and people (CLW)
Monday December 7	9 a.m.	Motivation (CLW)
Tuesday December 7	9 a.m.	Group Behavior (CLW)
Monday December 13	8 a.m.	Counseling (CLW)
Tuesday December 14	8 a.m.	Discipline (CLW)
Wednesday December 15	8 a.m.	Appraisal of Employee Performance (CLW)
Thursday December 16	9 a.m. & 10 a.m.	Safety (CLW)
Friday December 17	11 a.m.	FINAL EXAM

LAB SCHEDULE
(Subject to Change)

Day/Date	Time	Topic
Thursday September 9	Section 1: 1-3 p.m.	Introduction to forestry and surveying organizations and opportunities (CLW)
Thursday September 9	Section 2: 3-5 p.m.	Introduction to forestry and surveying organizations and opportunities (CLW)
Friday September 17	Section 2: 1-3 p.m. Section 1: 3- p.m.	Library Introduction (CLW)
Tuesday September 21	Section 1: 3-5 p.m. Section 2: 1-3 p.m.	Preparing Resumes (CLW)
Monday September 27	Section 1: 1-5 p.m.	Subsec A: Chainsaws (WGA, RF) Subsec B: Trail work (Staff)
Tuesday September 28	Section 2: 1-5 p.m.	Subsec C: Chainsaws (WGA, RF) Subsec D: Trail work (Staff)
Thursday September 30	Section 2: 1-5 p.m.	Subsec C: Trail work (Staff) Subsec D: Chainsaws (WGA, RF))
Friday October 1	Section 1: 1-5 p.m.	Subsec A: Trail work (Staff) Subsec B: Chainsaws (WGA)
Monday October 4	Section 1 & 2 1-5 p.m.	Forest Rangers (CLW) Interviewing Techniques (CLW)
Thursday October 7	Section 1: 1-5 p.m.	Cover Letters & Interviewing (CLW)
Friday October 8	Section 2: 1-5 p.m.	Cover Letters & Interviewing (CLW)
Friday November 19	Section 2: 1-3 p.m.	TBA (CLW)
Monday November 22	Section 1: 1-3 p.m.	TBA (CLW)
Wednesday December 1	Section 1: 1-3 p.m.	
Thursday December 2	Section 2: 1-3 p.m.	
Tuesday December 7	Section 2: 1-5 p.m.	Project Work Plan (CLW)
Wednesday December 8	Section 1: 1-5 p.m.	Project Work Plan (CLW)
Wednesday December 15	Section 1: 1-3 p.m. Section 2: 3-5 p.m.	Group Dynamics (CLW)

Silviculture - Forest Technology 211
Course Syllabus

Silviculture - the practice of controlling the establishment, growth, composition, health, and quality of stands of trees to meet diverse needs and values of the many landowners, societies and cultures. The name comes from the Latin *silvi-* (forest) + culture (as in growing).

Catalog Description:

FTC 211 Silviculture
Forty-five hours lecture and sixty hours field lab. Regeneration and tending of forest stands. Physical and chemical treatments used for growing forests in the northeastern states. Introduction to silviculture in the southern and western states. Methods for quantifying and predicting forest growth. Marking timber stands for harvesting. Establishing new stands. 4 credits. Spring 2011.
Prerequisites: FTC 200, FTC 204, and FTC 206.

Silviculture 2011 – Silviculture Unit

	In Class		Out-of-Class	
Individual Work **50%**	Final Exams Quizzes	15% 5%	Miscellany Homework Lab Reports Thinning Layout Professional Behavior Work Ethic Pruning Lab Cleaning Lab Tree Planting Language	20% 10%
Team Work **50%**	Midterm #1 Midterm #2 Quizzes	15% 15% 5%	Group Lab Reports	15%

The usual grade percentage distribution will be followed for letter grades:

A	**93.4 or greater**	**C+**	**76.7 – 7939**
A-	**9030 – 93.3**	**C**	**70.0 – 76.6**
B+	**86.7 – 89.9**	**C-**	**66.7 – 69.9**
B	**83.4 – 86.6**	**D**	**60.0 – 66.6**
B-	**80.0 – 83.3**	**F**	**59.9 or less**

Silviculture – Forest Technology 211
Spring 2011 Calendar
Assignments

		Day	Time	Text[1]	Definitions[2]	Field Laboratories Activity
	Week 1					
Jan	17	Monday	-----Martin Luther King Day-----			No Classes
	18	Tuesday	----------			-------
	19	Wednesday	10 – 12 Chapter 1 (Introduction to Silviculture)			-------
	20	Thursday	10 – 12 (2 hr)		Pages 1-2	Lab 1
	21	Friday	10 – 11 Chapter 2		Pages 3-4	--------
	Week 2					
	24	Monday	---			---
	25	Tuesday	11-12 Chapter 7 (Regeneration)			
	26	Wednesday	9-10			
	27	Thursday	--- SAF Meeting, all forestry students attend			---
	28	Friday	--- SAF Meeting, all forestry students attend			---
	Week 3					
Jan	31	Monday	---			---
Feb	1	Tuesday	10-12 Chapter 8 (Site Preparation) pgs 5-7			---
	2	Wednesday	11-12 Chapter 9 (Site Quality and tree improvement) pages 8-10			Lab 2-both sections **Pruning Softwoods**
	3	Thursday	10-12 Chapter 10 (Genetic/Artificial Regen)			
	4	Friday	---			---
	Week 4					
Feb	7	Monday	11-12	**EXAM 1 – Regeneration**		---
	8	Tuesday	9-10	Chapter 3	Pages 11-13	---
	9	Wednesday	---			---
	10	Thursday	---			---
	11	Friday	---			---
	Week 5					
Feb	14	Monday	---			---
	15	Tuesday	8-9 Red Pine Silviculture			---
	16	Wednesday	9-10 Chapter 4 (Thinning Methods) pg 14			---
	17	Thursday	8-9 Chapter 5 (Herbicides and Other Pesticides)			Lab 3 both sections **Cleaning Young Hardwoods**
	18	Friday	8-9			---
	Week 6					
Feb	21	Monday	9-10 Red Pine Silviculture			---
	22	Tuesday	**TIMBER CRUISE**			no silvi
	23	Wednesday	**TIMBER CRUISE**			no silvi
	24	Thursday	**TIMBER CRUISE**			no silvi
	25	Friday	**TIMBER CRUISE**			no silvi

[1] Smith, David M, Bruce C. Larson, Matthew J. Kelty, and P. Mark S. Ashton. 1997 The Practice of Silviculture. 9th Edition. John Wiley and Sons, Inc.
[2] Bridgen, Michael R. 2011. Silviculture Study Guide

Assignments

		Day	Time	Text[3]	Definitions[4]	Field Laboratories Activity
	Week 7					
Feb	28	Monday	**TIMBER CRUISE**			no silvi
Mar	1	Tuesday	10-11	Chapter 6 (Pesticide Safety)	pgs 15-19	---
	2	Wednesday	10-11			Lab 4 –Both sections **Stocking Charts in Hardwoods**
	3	Thursday	10-11			---
	4	Friday	---			---
	Week 8					
Mar	7	Monday	**---**			---
	8	Tuesday	**---**			---
	9	Wednesday	**---**			Lab 5-both sections **Softwood Silvics and Stocking Charts**
	10	Thursday	**---**			**---**
	11	Friday	**10-11 EXAM 2 – Intermediate Treatments**			---
	Week 9					
Mar	14	Monday	---			---
	15	Tuesday	---			---
	16	Wednesday	10-11	Chapter 11	Pages 20-22	---
	17	Thursday	---			---
	18	Friday	---			---
	Week 10					
Mar	21	Monday	---			---
	22	Tuesday	Day – Long Field Trip			---
	23	Wednesday	---			---
	24	Thursday	---			---
	25	Friday	---			---
	Week 11					
March 28 – April 1			**--- VACATION ---**			
	Week 12					
Apr	4	Monday	**--- VACATION ---**			---
	5	Tuesday	**---**			Both sections – Lab 6 **Silviculture Systems**
	6	Wednesday	Day-long field trip			
	7	Thursday	---			---
	8	Friday	---			---
	Week 13					
Apr	11	Monday	---			Lab 7-both sections **Evaluating Softwood Stands**
	12	Tuesday	9-10	Chapter 12 (Even-aged silviculture)		
	13	Wednesday	---			---
	14	Thursday	9-10	Chapter 14 (Even-aged silviculture)		
	15	Friday	9-10			---

[3] Smith, David M, Bruce C. Larson, Matthew J. Kelty, and P. Mark S. Ashton. 1997 The Practice of Silviculture. 9th Edition. John Wiley and Sons, Inc.
[4] Bridgen, Michael R. 2011. Silviculture Study Guide

						Section 1 –Lab 8 **Uneven Age Stand Structure**
			Assignments			
		Day	**Time**	**Text[5]**	**Definitions[6]**	**Field Laboratories Activity**
	Week 14					
Apr	18	Monday	9-10 Chapter 15 (Uneven-aged Silviculture)			Section2 – Lab 8
	19	Tuesday	---			**Uneven Age Stand Structure**
	20	Wednesday	---			Section 1 – Lab 9
	21	Thursday	8-10 1PM –Gypsy Moth			**Prescribing Thinning in Softwoods**
	22	Friday	---			---
						Section 2 – Lab 9 **Prescribing Thinning in Softwoods**

	Week 15					
Apr	25	Monday	---			Lab 10- Marking **Softwoods for Thinning**
	26	Tuesday	---			
			---	**LOGGING BEGINS**	**---**	
	27	Wednesday	10-12 (Bridgen)SECTION II ONLY Western Conifers			
	28	Thursday	---			
	29	Friday	8-10 (Bridgen SECTION II ONLY The Rotten Truth			Lab 11 – **Adv. Regen** Section 2 ONLY

	Week 16					
May	2	Monday	8-10 (Bridges) SECTION I ONLY Western Conifers			Lab 11 – **Adv. Regen** Section I ONLY
	3	Tuesday	---			
	4	Wednesday	10-12 (Bridgen) SECTION I ONLY The Rotten Truth			---
	5	Thursday	---			
	6	Friday				---
						---

[5] Smith, David M, Bruce C. Larson, Matthew J. Kelty, and P. Mark S. Ashton. 1997 The Practice of Silviculture. 9th Edition. John Wiley and Sons, Inc.
[6] Bridgen, Michael R. 2011. Silviculture Study Guide

				Section 2 –Lab 12**Planting**
				Section 1 Lab 12 **Planting**
	Week 17			
May	9	Monday	8-5 **Day long Field lab to local industry**	
	10	Tuesday	---	
	11	Wednesday	---	---
	12	Thursday	9-11 Chapter 16 (Stratified Forests)	---
	13	Friday	9-10 Biodiversity/Stratified Forests	Section1 Lab 14 **Free-To-Grow**
				Section 2 – Lab 14
	Week 18			
May	16	Monday	9-10 The last lecture?	---
	17	Tuesday	---	
	18	Wednesday	**8-9 Final Exam**	---
	19	Thursday	---	
	20	Friday	---	---
	21	Saturday	**Graduation**	---

FTC 213 – Forest Inventory Practicum
Spring 2011
2 Credit Hours
Instructor: J. M. Savage, CF

COURSE DESCRIPTION

FTC 213, also referred to as "The Timber Cruise," is primarily a lab course, with 64 hours of field/laboratory and 6 hours of lecture. Students will plan, organize and complete a timber-focused forest inventory of approximately 200 acres using the point sampling method. Following detailed analysis, students will present their data and results in a standardized technical report. The course is designed to allow you to bring together much of what has been learned in previous courses in the solution of a practical field problem of the type often encountered in forestry. Even so, the nature of the problem is such that it will present a learning experience: new problems will be encountered and you will be required to draw upon your knowledge and experience to arrive at solutions to those problems.

This project will require that you draw upon material previously covered in a number of courses, including Dendrology, Surveying, Natural Resources Measurements, Geographic Information Systems, Forest Ecology and Silviculture. Moreover, some of the data collected may used in the Natural Resources Management course.

FTC 213 basically consists of three parts: (1) the collection of field data, (2) the summarization and analysis of that data, and (3) the presentation of the results. Detailed instructions for implementing this project are provided in the manual titled The Timber Cruise: Background, Purpose and Procedure.

EXPECTED LEARNING OUTCOMES:

After completing this course you should be able to:

- Plan, organize, and implement a timber-focused inventory of a multi-stand forested area.
- Use GPS technology and ArcGIS software to develop a forest type map based on surveying base maps, digital aerial photographs, and field data.
- Summarize and analyze forest inventory data by hand and by computer.
- Present the results of a forest inventory in a professional technical report.

COURSE RESOURCES

- *Required Manual*: The Timber Cruise: Background, Purpose and Procedure, by JM Savage, 2011
- *Required Manual*: Technical Report Writing: A Manual of Style, by JM Savage & CE Martin, 2010

- *Required Textbook:* Forest Measurements for the Forest Technician*,* by JM Savage & CE Martin, 2005
- "Forest Inventory Practicum" folder within Savage "Pages" folder on RS intranet
- FTC 213 bulletin board on second floor, near "dry lab"
- *TwoDog* forest inventory software, by Fountains, Inc., in RS computer lab

ASSESSMENT

Not all of the work that you complete in this course will be evaluated and count towards your final grade. Some of your work will be assessed. That is, I will not judge the work, but merely provide feedback on it to help you improve your performance. I will point out strengths in the work and provide you with some ideas on how to improve future "performances." In fact, several different kinds of assessment will be used throughout the course to help you achieve the course objectives and grow as a professional. At times I may ask you to assess your own work and your own growth in the course. Alternatively, I may ask you to "peer-assess" one of your classmates work. And as your instructor, I will provide both on-going, "real-time" assessment (especially during labs) and written assessment of some of your work.

EVALUATION/GRADING

1.	Fieldwork & Daily Office Work	40%
2.	Forest Type Map	20%
3.	Volume Figures (Results)	15%
4.	Technical Report	25%
TOTAL		100%

****Please Note**:

There will be a 25% reduction per day (24-hour period) in your final grade for late work. It is crucial that you meet the deadlines for all phases of this project.

FINAL GRADE DETERMINATION

A	93.0 +
A-	89.0 - 92.9
B+	86.0 - 88.9
B	83.0 - 85.9
B-	80.0 - 82.9
C+	76.0 - 79.9
C	70.0 – 75.9
C-	65.0 - 69.9
D	60.0 - 64.9
F	59.9-

FTC 215 – Pt. 1 Timber Transportation and Utilization
Timber Transportation Unit Syllabus

Course Description: Forty three lecture hours and forty three laboratory hours, total (3credits). Students gain knowledge of forest road design and construction. Each student is given different road data from which to design a Class III forest road. Each student is required to prepare a P Line trail map, field notes, a plan and profile, cross sections, design notes slope stake notes, culvert cross sections, earthwork quantities and a cost estimate all in a digital report format using MS Excel and Carlson Survey software.

Event	Date	Subject	Prior to attending class Reading Assignment[7]
Lecture 1 & 2	Jan. 18	Horizontal Curves	Chapter 4
Lab 1	Jan 18	1-5pm – both sections P Line Field Notes and P Line Trial Map	
Lecture 3 & 4	Jan 24	Horizontal Curve Calculations	Chapter 4
Lab 2	Jan 24	1-5 pm both sections Plan	
Lecture 5 & 6	Jan 25	Vertical Curves	Quiz 1
Lab 3	Jan 25	1-5 pm both sections Plan an existing file profile	
Lab 4	Jan 26	1-5 pm – both sections Design Road Profile	
Lecture 7	Jan 27	Vertical Curve calculations	
Lecture 8 & 9	Jan 31	High-low Point calculations	Quiz 2

[7] All reading assignments are in "The Location of Forest Roads", by T. A. Walbridge, Jr. 1997. The Taunton Press. ***Identifying Wood*** by R. Bruce Hoadley ($23.67)

Lab 5	Jan 31	1-3 pm	Section 2 only Existing Grade X
Lab 5	Jan 31	3-5 pm	Section 1 only Existing Grade X
Lecture 10	Feb 4	P Line vs. L Line	Chapter 6
Lab 6	Feb 3	1-5 pm both sections Trial Offset, Design Form	
Lab 7	Feb 4	1-5 pm both sections L Line Design	
Lecture 11	Feb 7	Slope and Grade Stakes	
Lecture 12 & 13	Feb 9	Culvert location, skew and gradient	
Lab 8	Feb 9	Road Prisms 1-3 pm Section 1 only	
Lab 8	Feb 9	Road Prisms 3-5 section 2 only	
Lecture 14 & 15	Feb 10	Earthwork Quantity Worksheets	
Lab 9	Feb 10	More Cross Sections 1-5 pm both sections	
		Cross Sectional Area & Slope State Notes	
Lecture 16 &17	Feb 14	Staking a road centerline	
Lab 10	Feb 14	Culvert cross sections 1-5 pm both sections	
Lecture 18 & 19	Feb 15	Completing the Roads Project	
Lab 11	Feb 15	Cost Estimate	
Lecture 20	Feb 16	Review	
Final Exam	Feb 15	1-5 pm – both sections	

- Except for the first lecture, a quiz should be expected at the beginning of each lecture. The daily quiz will include material from the previous lecture, vocabulary words, AND reading material from the currently assigned chapter.

- All labs will be conducted in the Computer Room

How this Unit is Graded

Quizzes	15%
Problem Sets	15%
Roads Project	50%
Final Exam	20%

Timber Transportation represents about 2.25 credits of the entire 3 credit course.

FTC-215: Pt.2 TIMBER HARVESTING - 2010
COURSE DESIGN AND READING ASSIGNMENTS:

Course Objective: ♥

Many of you might work with timber harvesters (loggers) sometime in the course of your career. It is important for you to understand that all that you learn at the Ranger School relating to good forest management will come to nothing unless you have a good working relationship with the logger. They are the tools through which good forest management is practiced. A logger that you can trust and who trusts you, a logger who is knowledgeable about good forest practices or is willing to learn, and has field experience above your own is a powerful implement of your forest management objectives. They are also people who have families to take care of and bills to pay, so their objectives may not always mesh exactly with yours.

This component of Timber Harvesting, Transportation, and Utilization will acquaint you with the people and the equipment they use to successfully implement your forest management objectives. You will design a "logging plan" that will familiarize you with a process to assign a value to standing timber (stumpage) that would be used to negotiate payment with a land owner. This class will also give you a taste of a nearly typical logging job so that you might better appreciate the people and the work they do to make your forest management objectives a reality.

BOOKS USED FOR THE READING ASSIGNMENTS:

- LPP: Required: LOGGING AND PULPWOOD PRODUCTION, 9 copies for sign out from instrument room. (The readings will also be found under a "Logging" Folder made available by Mr. Allen; location: In "Share Folder" under "Logging Readings".)
- ETH: Required: HANDBOOK FOR EASTERN TIMBER HARVESTING 1 copy per 2 students available for sign out from instrument room.
- BMP: Optional: BEST MANAGEMENT PRACTICES (Reference will be made to various sections.)
- HSE: Required: HARVESTING SYSTEMS & EQUIPMENT IN BRITISH COLUMBIA

GRADE POINT VALUE:

- QUIZZES: 20% of grade
- LOGGING FINAL: 15% of grade
- LOGGING PLAN: 15% of grade
- STUDENT LOGGING EXERCISE: 20% of grade
- STUDENT LOGGING TIME STUDY: 15% of grade
- READING SUMMARY HAND-IN: 10% of grade

- PROFESSIONALISM: 5% of grade based on attendance, timeliness, participation, enthusiasm and determination during Student Logging.

SCHEDULE (INCLUDING READING ASSIGNMENTS/SPEAKERS):

MAR 2ND:INTRODUCTION, LOGGING HISTORY FILM/s

LAB. #1: 1-5 PM, LOGGING PROJECT Part #1, WHOLE CLASS Main classroom.

MAR 3RD: LPP Chap. 1 pp. 8-30; Timber Acquisition, Marking (Know for a quiz)

MAR 5TH: LPP Chap. 2 pp. 31-44, 57-62, 64-66; Logging Planning (Know for a quiz)
HSE Part 1: pp.3-45, Part 2: pp.127-180; Equip. Select./Operations

LAB. #2 1-3 PM: SEC 2 - LOGGING PROJECT Part #2
3-5 PM: SEC 1 – LOGGING PROJECT Part #2 Main Classroom

MAR 8TH: LPP Chap. 6 pp. 180-205; Tree Processing
ETH PP. 32-45; Tree Processing
HSE Part 2, pp.90-113; Tree Processing

MAR 9TH: LPP Chap. 7 pp. 206-223; Skidding and Forwarding,
ETH pp. 47, 48, 50-52, 54-58; Cable Skidding
HSE pp. 127-151; Operating Techniques

MAR 12TH: LPP Chap. 7 pp. 223-228; Skidding and Forwarding
ETH pp. 63-74; Skidding and Forwarding
HSE pp. 127-151; Operating Techniques
QUIZ #1-3 (Taken together, graded separately

LAB. #3 1-3 PM: SEC 1 - LOGGING PROJECT Part #3
3-5 PM: SEC 2 – LOGGING PROJECT Part #3
Main Classroom

MAR 15TH: Class Lecture Continued, QUIZ #4

MAR 17 TH: Guest Speaker: Mr. Peter Collins from Milton Caterpillar

MAR 19TH: LPP Chap. 9 pp. 267-299; Loading and Unloading
Chap. 10: pp. 300-319; Final Transport
ETH pp. 99-108; Loading
pp. 109-120; Logging Trucks
HSE PP. 122-123, pp. 145-149; Loading and Combined Systems
QUIZ #5

MAR 22ND: Class Lecture Continued, QUIZ #6

MAR 23RD: FINAL EXAM.

PROJECT DUE DATES:

READING SUMMARY: 8 AM: 15 MARCH (One topic of your choice from your reading from any of the Library sources on Timber Harvesting or Timber Processing/Equipment covered in a one-page summary with cover sheet. The source title, author, and page number must be referenced.)

LOGGING PLAN: 8 AM: MARCH 22ND

STUDENT LOGGING TIME STUDY: 8 AM: SEC #1 MAY 5TH
SEC #2 MAY 10TH

STUDENT LOGGING SCHEDULE:

CLASS BRIEFING: WHOLE CLASS - APRIL 27TH
APRIL 28, 29, 30 - LOGGING SEC. 1 (AND SURVEYING STUDENTS)
MAY 3, 4, 5 - LOGGING SEC. 2

FTC 217 Wildland Firefighting and Ecology
Course Syllabus
Spring Semester, 2011

2 credit hours; 25 hours lecture, 16 hours lab time.

Major Concepts

Students learn to recognize potential threats to the forest due to fire. This course covers the short- and long-term ecological effects of fire. Students learn how active or potential wildfire can be affected by fuels, weather and topography, and learn the basic elements of effective prevention and preparation programs used by fire control organizations. Discuss the fire control planning process, including common challenges and various decision-making processes.

Learning Outcomes: After completing this course, students should be able to:

Use the National Fire Danger Rating System to assess forest fire danger.
Predict fire behavior and describe the relationship between weather, topography, and fuel types.
Help plan and safely apply prescribed burns.
Use hand tools to safely and effectively fight an active wildfire as a member of a firefighting crew.

Course Resources.

Books

- S-130 and S-190 Training Materials
- Additional S-130/S-190 course-related supplies
- Edmonds, R.L., J.K. Agee. and R.I. Gara, 2011. Forest Health and Protection, Second Edition. Waveland Press, Long Grove IL, 667 p.
- Bulletin Board in 2nd floor hallway (or occasionally, my door)
- My Pages folder on the Z: drive
- Course materials distributed in class
- Email

Scheduled Course Time

We will have 25 hours of lecture time and 16 hours of laboratory time to accomplish our learning outcomes. Qualified New York DEC personnel will provide training in S-190 (Introduction to Wildland Fire Behavior) and S-130 (Firefighter Training). Components of S-132 (Standards for Survival) are also provided, including training in fire shelter deployment. The course culminates with a prescribed burn on the Dubuar Forest. Students wishing to receive a Red Card certification as a Type II Firefighter (FFT2) will also have to pass a physical fitness test, or 'pack test,' entailing a 3-mile hike with a 45-pound pack, completed in 45 minutes or less.

Grading

Your final grade for this class will be based on the criteria outlined below. Anything that is covered in class or in lab is subject to assessment. You will be required to make up any missed lab session or class due to an excused absence. Any unexcused absence from lecture or lab will negatively affect your final grade up to and including failing this course.

All assignments must be completed and submitted in order to pass this component. Unless otherwise stated, the grade for any assignment turned in past the due date will be reduced by 20% for each day the assignment is late.

The professional conduct portion of your grade will be based on faculty observations during lecture, lab and equipment handling. Actions such as sleeping in class, tardiness, inappropriate language, or other unprofessional conduct will negatively affect this portion of your grade. Academic dishonesty and unprofessional group interaction are also included here.

Exams	40%
Final Exam	40%
Lab Assignments	15%
Professionalism	5%
	100%

FTC 219 - INTRODUCTION TO FOREST RECREATION

Spring 2011
1 Credit Hour
Instructor: J. M. Savage, CF

Course Description

This course consists of both classroom (14 hours) and lab/field study (20 hours) of forest recreation resources and their importance to humans. It serves as an introduction to the field of Forest Recreation. Students will learn about the economic and sociologic importance of recreation in today's society, the history of recreation management, and the development of recreational resources. Federal, state, and local agencies that develop and/or manage recreational resources will be studied, as well as important laws and policies affecting forest-based recreation. The philosophy, values and management of wilderness will be discussed, as will the design and construction details pertinent to trails, campgrounds, and other recreation facilities. The concepts and skills covered in the course are reinforced through field tours and/or field-oriented, hands-on exercises.

Importance of the Course

Although this country started out managing forests mainly in response to a need for timber and/or a concern for water quality, we quickly began to recognize and appreciate important benefits and opportunities that forests provide, like recreation. Further, as human populations expanded and people's quality of life improved, the demand for recreation grew rapidly. Today, in the 21st century, it is not uncommon to see forests being managed for recreation in addition to, or instead of, timber. As forest technicians, you may be asked to inventory and/or help manage the recreation resources of a forest. Or, you may desire a career as park ranger, outdoor guide or recreation specialist. To succeed in such careers, it will be necessary to develop specialized skills and knowledge. Whether you desire to become a forest technician, a forester, a park ranger, or a recreation specialist, this course will serve as an important foundation for you in light of the increasing value that society places on forest-recreation resources.

Expected Learning Outcomes - *After completing this course you should be able to:*

1. Identify the high points and approximate chronology of the history of recreation management in the United States.
2. Explain, and understand the causes and effects of key policies and legislation affecting forest-based recreation, both past and present.
3. Name the primary federal and New York State agencies that provide and/or manage recreational resources.

4. Know the amount and describe the types of public land available for outdoor recreation in the United States.
5. Define 'wilderness' and discuss the multiple values that wilderness areas provide.
6. Describe some relationships and/or connections between recreation management and forest management.
7. Describe and apply the seven principles of Leave No Trace.
8. Describe the qualifications, knowledge and experience necessary to act as a professional, licensed Outdoor Guide in New York State.
9. Better appreciate the planning, labor, tools and logistics required to build and/or maintain recreational resources such as trails, lean-tos, campgrounds, boat launches, visitor centers, etc.

Course Resources

- "Forest Recreation" folder within instructor's "Pages" folder on Ranger School intranet
- ◆FTC 219 bulletin board on second floor, near "dry lab"
- ◆Lecture notes, course handouts, and assigned readings
- ◆Ranger School library, and ESF's Moon Library (accessible through internet)

Assessment

Not all of the work that you complete in this course will be evaluated and count towards your final grade. Some of your work, in particular some of your lab work, will be assessed. That is, I will not judge the work, but merely provide feedback on it to help you improve your performance. I will point out strengths in the work and provide you with some ideas on how to improve future "performances." In fact, several different kinds of assessment will be used throughout the course to help you achieve the course objectives and grow as a professional. At times I may ask you to assess your own work and your own growth in the course. Alternatively, I may ask you to "peer-assess" one of your classmates work. And as your instructor, I will provide both on-going, "real-time" assessment (especially during labs) and written assessment of some of your work.

*Whether graded or not, all assigned work must be completed in order for you to pass the course.

Evaluation/Grading

1.	Exam (1)	45%
2.	Quizzes (2-5)	20%
3.	Reading/Homework Assignments (4-8)	30%
4.	Professionalism & Participation	5%
	TOTAL	100%

Final Grade Determination

A	93.0 +
A-	90.6 – 92.9
B+	87.6 – 90.5
B	84.6 – 87.5
B-	81.0 – 84.5
C+	77.0 - 80.9
C	72.0 - 76.9
C-	67.0 - 71.9
D	60.0 - 66.9
F	59.9-

Course Policies and Expectations

While enrolled in this course, I expect that you will:

- Regularly attend and participate in the course: Unexcused absences from lecture or lab will result in an "incomplete" for the course.
- Come to class and lab on time, or let me know in advance if you will be late.
- Turn in assignments on or before the date they are due, and complete all reading assignments by the assigned deadline. Unless special arrangements have been made, grades for assigned projects/reports will be reduced by 15% for each day they are turned in past the due date (i.e., one day late = 15%, two days late = 30%, etc.)
- Adhere to and uphold the policies and regulations set forth in the Ranger School Student Handbook. In particular, I expect that you will never cheat on exams or quizzes, nor plagiarize other's work when preparing a written assignment or oral presentation. Any student caught cheating in any way will receive an "F" for the course.
- Remember not to wear hats or hoods while in the classroom.
- Stay awake in class. Students who cannot do so may have their 'professionalism' grade reduced, and/or may be asked to leave the classroom. The latter incident will be deemed an "unexcused absence" (see expectation #1).
- Conduct yourself in a safe and responsible manner during all labs, whether or not an instructor/faculty member is present.
- Be considerate to others and not smoke during class or lab time. During outdoor labs, students may smoke only during official break times. Unless otherwise specified, official break times will be from 5 minutes before to 5 minutes after the top of the hour.
- Be courteous and respectful to any guest speakers we may have in class or lab.
- Be courteous and respectful to each other, especially during class and lab time. Please make every effort to work cooperatively and efficiently with assigned crew partners.
- Notify me or Mr. Westbrook if you have an identified learning disability and will need accommodations. He and I will work with you to develop some approved accommodations. Accommodations will not be provided

retroactively; they will be provided once any and all accommodations have been approved. If you have questions regarding disabilities, please see the Director or myself. All conversations will be confidential.

☺ How to Succeed in this Course:

- In this course, you will learn the most and receive the highest grade if you:
- Regularly attend and participate in class and lab, and thoughtfully engage in class discussions, laboratory exercises, and take-home assignments
- Complete all reading assignments in a timely manner, and take and maintain notes on those readings
- Take and maintain legible, meaningful notes in lecture and lab
- Periodically review lecture notes, handouts, and assigned readings (at least once per week)
- Complete all assignments on time. Do the best work you are capable of in the time allowed.
- Ask questions of the instructor or guest speakers to help clarify and/or solidify terms, concepts, or methods
- Begin studying for an exam at least one week prior to it being given.
- Carefully proofread papers, reports, presentations, etc before they are turned in for evaluation or assessment. Equally important, ask at least one other person to proofread your work!
- Maintain an open-mind and a positive attitude.
- Other ideas? _____

FTC 221 - Natural Resources Management
Course Syllabus
Spring Semester, 2011

3 credit hours; 35 hours lecture, 30 hours lab time.

Major concepts

Introduction to the planning process, including common challenges and various decision-making processes. History of natural resources management in the United States and Adirondack region. Valuation and characterization of natural resources for producing various goods and services. Techniques for establishing appropriate landowner goals and objectives. Organization and integration of multiple goals addressing such diverse uses as recreational opportunities, wildlife habitat, soil and water conservation, and forest products or other monetary goals. Strategic, tactical and operational planning and the role of the forest technician in the planning process. Incorporation of forest inventory data, regeneration surveys and other forest records into the planning process. Discussion of ecosystem management, sustainability, landowner rights and forest certification systems. A variety of guest lecturers and field trips complement topics discussed in class.

Learning Outcomes: After completing this course the student should be able to:

1. Describe the history and basic land management policies of various federal and state agencies.
2. Identify landowner goals for a particular forest property, and recognize and evaluate incompatible goals.
3. Define, describe and evaluate various natural resources inventory and monitoring techniques.
4. Conduct a simple economic analysis of various management alternatives.
5. Produce competent written communications in letter, memo and technical report formats, demonstrating ability to adequately summarize field data and draw concise conclusions and recommendations based on fieldwork and observations.
6. Acquire data from various sources (paper maps, GPS, internet data sources, and field observation) and compile thematic maps using a standard GIS software package.
7. Analyze, summarize and utilize data collected from a specific forest property to produce a written natural resources management plan that addresses a given set of landowner objectives.
8. Summarize the major forest certification systems currently in use world-wide and locally, and describe how the process of certification works.

Course Resources

- *Required*: Bettinger, P., K. Boston, J.P. Siry and D.L. Grebner, 2009. Forest Management and Planning. Academic Press, Burlington MA, 331 p.
- *Provided*: UNH Cooperative Extension Service, 2010. Good Forestry in the Granite State.
- *Recommended: DEC Website*

Class Conduct

- You are expected to be quiet and attentive during lectures and labs.
- Please arrive to class on time and remain in class until dismissed. Tardiness will negatively impact your grade.
- If for some reason you must miss a class or lab, a slip must be filled out and signed by both the instructor and director prior to the absence.
- Inappropriate language, aggressive behavior, vulgarity, etc. will not be tolerated in class or in course work.
- Hats and hoods must be removed during lectures.
- Tobacco use of any kind (including chewing) is prohibited during class.
- All policies as set forth in the Ranger School Student Handbook apply.
- Academic dishonesty will result in a zero grade for the assignment and possible dismissal from this course.

Grading

Your final grade for this class will be based on the criteria outlined below. Anything that is covered in class, in lab, or in assigned readings is subject for assessment. You will be required to make-up any missed lab session or class due to an excused absence. Any unexcused absence from lecture or lab will negatively affect your final grade up to and including failing Natural Resources Management. All assignments must be completed and submitted in order to pass Natural Resources Management. Unless otherwise stated, the grade for any assignment turned in past the due date will be reduced by 20% for each day the assignment is late. The professional conduct portion of your grade will be based on faculty observations during lecture, lab and equipment handling. Actions such as sleeping in class, tardiness, inappropriate language, or other unprofessional conduct will negatively affect this portion of your grade.

Lab reports & assignments	**30%**
Forest Management Plan	**25%**
Quizzes	**15%**
Final Exam (cumulative)	**15%**
Annotated Bibliography	**10%**
Professionalism	**5%**
	100%

Water Resources
Schedule and grading
Spring Semester 2010

Schedule:

Date	Time	Reading	Topics
March 17	8:00 a.m.	Topic 1 & 2;	Intro./definitions & Water equivalents & conversions
March 24	9:00 a.m.	Topic 3 & 4;	Concept of flow – Parts 1 and 2
April 8	8:00 a.m.	Topic 5	Water balance equation
April 12	8:00 a.m.	Topic 6;	Water budget example
April 15	8:00 a.m.	Topic 7 & 8;	Components of precipitation and evapotranspiration & Physical properties of soil reviewed
April 16	8:00 a.m.	Topic 9	Measuring runoff
April 19	8:00 a.m.	Topic 10	Forest practices and stream flow
April 20	8:00 a.m.	Topic 11 & 12	Slope and channel erosion
April 23	8:00 a.m.	Topic 13 & 14	More erosion
April 27	9:00 a.m.		Exam

		Lab exercise #	Topic
March 17	1-5 p.m.	Exercise 1	Precipitation & snowpack measurements
March 19	1-5 p.m.	Exercise 2	Precipitation/runoff analysis
April 15	1-5 p.m.	Exercise 3	Current metering
April 20(22)	1-5 p.m.	Exercise 4	TBD

Grading:

Quizzes	**25%**
Exam	**35%**
Labs	**35%**
Professionalism	**5%**
	100%

FTC 225 – Timber Transportation and Utilization
Structure and Growth Unit Syllabus - 2011

Course Description:

Forty three lecture hours and forty three laboratory hours (3 credits). Students gain knowledge of graveled forest road administration, location, design, construction, and maintenance. ***Differences in wood structure, and their effects on wood products of various species are studied.***

Event	Date	Subject	Before Class Reading Assignment [8]	
Lecture 1	Jan 18	Growth and wood	Chapter 1	No quiz
Lecture 2	Jan 24	The structure of wood	Chapter 2	Quiz 1
Lecture 3	Jan 26	Softwood structure	Chapter 3	Quiz 2
Lab 1	Jan 31	1-3 pm – Section 1 only		
Lab 2	Feb 1	*1-3 pm – Section 2 only*		
Lecture 4	Feb 2	Hardwood structure	Chapter 4	Quiz 3
Lecture 5	Feb 4	Juvenile and reaction wood	Chapter 6	Quiz 4
Lab 2	Feb 7	1-3 pm – Section 2 only		
Lab 2	Feb 7	*3-5 pm – Section 1 only*		
Lecture 6	Feb 8	Water and Specific gravity	Chapter 5	Quiz 5
Lab 3	Feb 9	*1-3 pm – Section 1 only*		
Lab 3	Feb 9	3-5 pm – Section 2 only		
Lab 4	Feb 11	1-3 pm - Section 1 only		
Lab 4	Feb 11	*3-5 pm – Section 2 only*		
Lecture 7	Feb 16		Lecture Exam	
Lab 5	Mar 1	*1-3 pm – Section 1 only*		

[8] All reading assignments are in "Identifying Wood", by R. Bruce Hoadley. 1990. The Taunton Press. ***Identifying Wood*** by R. Bruce Hoadley ($26.37)

Lab 5	Mar 1	*3-5 pm – Section 2 only*
Lab 6	Mar 4	*Lab Final* 1-3 pm – Section 1 only
Lab 6	Mar 4	*Lab Final 3-5 pm – Section 2 only*

- Homework reading assignments (distributed separately) must be completed and submitted into the Brown Box before attending the lecture. No homework will be accepted late!

- Except for the first lecture, a quiz will be conducted at each lecture. The daily quiz will include material from the previous lecture, vocabulary words, **AND** reading material from the currently assigned chapter.

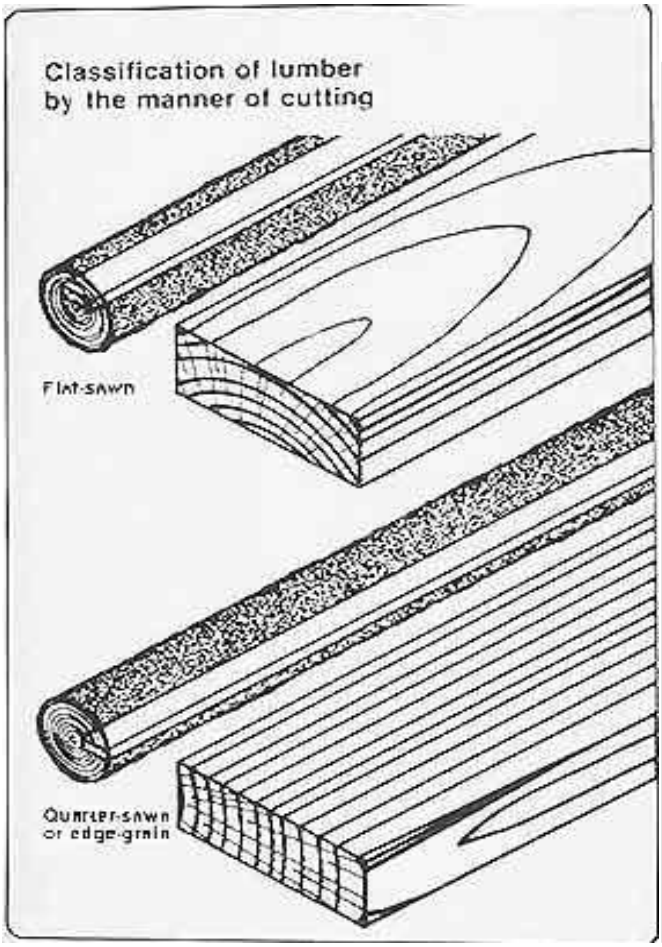
- S&G laboratories will be conducted in the drafting room. Students should bring the pack of razor blades, their 10x hand lens, and their textbooks with them to the labs.

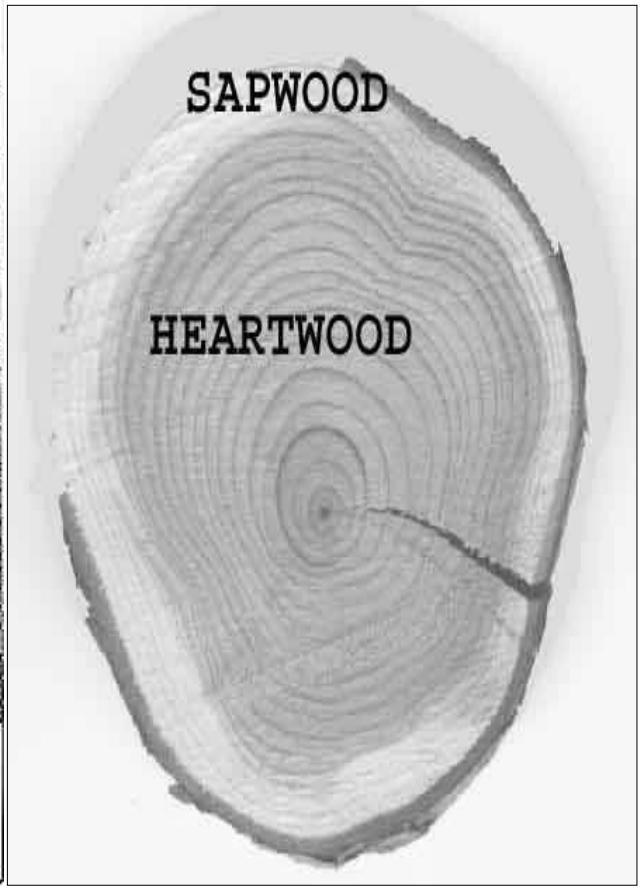
- All lab quizzes are "open book".

How this Unit is Graded

Five lecture quizzes	35 % (7% per quiz)
Homework assignments	*6 %*
Lecture Exam	12 %
Four lab quizzes	35 % (8.75% per quiz)
Lab final	12 %

Structure and Growth represents about 0.73 credits of the entire 3-credit course





FTC 234 – WILDLLIFE CONSERVATION

Spring 2011
3 Credit Hours
Instructor: J. M. Savage, CF

Course Description

This course consists of both classroom (35 hours) and lab/field study (30 hours) of forest-wildlife resources and their importance to humans. This course serves as an introduction to the fields of wildlife biology, wildlife ecology, wildlife management, and conservation biology. Students develop an appreciation for the wildlife resource, its intrinsic and anthropogenic value, and the need for its conservation and management. They survey the history of wildlife management, and study federal, state and local agencies that manage wildlife and/or habitat. Important laws and policies affecting the wildlife resource are discussed, with special emphasis on the Endangered Species Act. Students learn the basic terminology used by wildlife professionals, and are given the opportunity to improve their communication skills through the presentation of papers and speeches. Students study the effects of silviculture and other forest management practices on the wildlife resource, and learn to better incorporate the needs of wildlife into forest management plans.

Assigned readings, guest lecturers and field trips will be utilized to enhance learning of the course material. The latter will also be used to help the student identify career opportunities in wildlife conservation. Finally, students will work towards improving their communication skills in this course by presenting papers and speeches on wildlife topics, and by critically observing guest-lecture presentations.

Importance of the Course

Although this country started out managing forests mainly in response to a need for timber and not managing the wildlife resource at all, we quickly began to realize that our exploitation of the wildlife resource was not sustainable, and that forests provide critical habitat for numerous wildlife species. Today, in the 21st century, it is not uncommon to see forests being managed for wildlife in addition to, or instead of, timber. As forest technicians, you may be asked to inventory and/or help manage the wildlife resources of a forest. Or, you may desire a career as a wildlife technician, assisting with more detailed tasks associated with wildlife conservation and management. To succeed in such careers, it will be necessary to develop specialized skills and knowledge. Whether you desire to become a forest technician, a forester, a wildlife technician, or wildlife biologist, this course will serve as an important foundation for you in light of the increasing value that society places on wildlife resources.

General Instructional Objectives - *In this course we will:*

1. 1.Learn that wildlife resources are valued and critical components of forest ecosystems.
2. 2.Discuss the high points of the history of wildlife management in the United States.
3. 3.Review the causes and effects of some past and current wildlife-reated legislation.
4. 4.Learn the basic terminology used by wildlife ecologists and managers.
5. 5.Study the relationships between wildlife management and forest management.
6. 6.Identify the critical components of habitat, and learn how to manipulate wildlife populations through the manipulation of habitat.
7. 7.Study the effect of certain diseases on wildlife populations and on humans.
8. 8.Discuss common characteristics of wildlife populations, including concepts related to natality, mortality and wildlife movements.
9. 9.Discuss some of the negative impacts that wildlife can have on forest ecosystems and/or on forest management objectives.
10. Strive to improve both our written and oral communication skills by reading assigned material, preparing informative papers, and delivering speeches related to wildlife.
11. Learn to identify, by sound alone, 20 birds and 5 amphibians common to the forests of the eastern US.
12. Observe common techniques used to trap, monitor and/or research wildlife

Expected Learning Outcomes - *After completing this course you should be able to:*

1. Use the basic terminology of wildlife ecology and management, and conservation biology.
2. Describe some of the ecological concepts upon which modern wildlife management is based.
3. Name milestones and important people in the history of wildlife conservation and management in the United States.
4. Appreciate, describe and discuss the impact of forest management—especially timber management—on wildlife and biodiversity.
5. Describe the value—past and present—of wildlife to ecosystems and to Society.
6. Discuss the causes and effects of major legislation related to wildlife, including the Endangered Species Act.
7. Recognize and describe some current and continuing controversies related to wildlife.
9. Describe the components of wildlife habitat, and recognize key habitat features in the field.

10. Deliver thoughtful, coherent, fact-based speeches in a professional manner.
11. Incorporate the needs of wildlife—especially endangered and/or protected species—into forest management plans.
12. Identify, by sound alone, 20 species of birds and 5 species of amphibians.
13. Describe the methods by which small mammals, and even some larger mammals, are trapped, tagged and monitored.

Course Resources

- *Required Manual*: Technical Report Writing: A Manual of Style, by JM Savage & CE Martin
- *Required CD*: Wild Sounds: Greatest Hits (Available through RS bookstore)
- "Wildlife" folder within Savage "Pages" folder
- *Optional Textbook*: Wildlife Ecology & Management, 5th ed., by E.G. Bolen & W.L. Robinson. Available at RS bookstore and in library
- FTC 219 bulletin board on second floor, near "dry lab"
- Lecture notes, course handouts, and assigned readings
- Ranger School library, and ESF's Moon Library (accessible through internet)
- Optional books/guides available for purchase at the RS bookstore or General Store

Assessment

Not all of the work that you complete in this course will be evaluated and count towards your final grade. Some of your work, in particular some of your homework and lab work, will be assessed. That is, I will not judge the work, but merely provide feedback on it to help you improve your performance. I will point out strengths in the work and provide you with some ideas on how to improve future "performances." In fact, several different kinds of assessment will be used throughout the course to help you achieve the course objectives and grow as a professional. At times I may ask you to assess your own work and your own growth in the course. Alternatively, I may ask you to "peer-assess" one of your classmates work. And as your instructor, I will provide both on-going, "real-time" assessment (especially during labs) and written assessment of some of your work.

*__Whether graded or not, all assigned work must be completed in order for you to pass the course.__

Evaluation/Grading

1.	Exams (2)	35%
2.	Quizzes (3-6)	10%
3.	Reading/Homework Assignments (5-10)	15%
4.	Individual Oral Report	15%
5.	Lab Practical	8%
6.	Term Paper	12%
7.	Professionalism & Participation	5%
TOTAL		**100%**

Final Grade Determination

A	93.0 +
A-	90.6 – 92.9
B+	87.5 – 90.5
B	84.0 – 87.4
B-	80.5 – 83.9
C+	77.0 - 80.4
C	72.0 - 76.9
C-	67.0 - 71.9
D	60.0 - 66.9
F	59.9-

FTC 238 - Forest Insects & Disease

Course Syllabus

Spring Semester, 2011

3 credit hours; 35 hours lecture, 26 hours lab time.

Major concepts

FTC 238 Forest Insects and Disease is a three-credit course designed to study diseases (Pathology), and insects (Entomology). The class is taught in two, focused components. Pathology has 18 lectures and 14 lab hours, while Entomology has 17 lectures and 12 lab hours. In this course, students learn to recognize signs and symptoms of forest insects and pathogens. Introductory identification and classification of insects and fungal organisms are presented, and the beneficial roles and economic impacts of insects and fungi in the forest ecosystem discussed. Life cycles, ecology and associated concepts and terminology are introduced. The interactions between insects, fungi, fire and abiotic agents of forest damage are discussed, as are disease and insect control methods and integrated pest management. Discuss common challenges and various decision-making processes.

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

1. Describe the beneficial roles and economic impacts of insects and fungi in forest ecosystems.
2. State the fundamentals of insect classification, structure and development, including the major categories and characteristics of selected insect orders.
3. State the fundamentals of fungi classification, structure and development, including major categories and characteristics of selected phyla, genera and species.
4. Identify selected forest insects and fungi by common and scientific names.
5. Identify actual or potential insect, fungal or abiotic disease problems by their symptoms and recommend appropriate control or preventative measures in a forest management scheme.
6. Estimate cull deduction due to wood decay based on visible symptoms.

Course Resources

- Textbooks
    - Edmonds, R.L., J.K. Agee. and R.I. Gara, 2011. Forest Health and Protection, Second Edition. Waveland Press, Long Grove IL, 667 p.
    - Adams, K.B., D.C. Allen and others, The Stewardship of Northern Hardwoods: A Forest Owner's Handbook (provided through bookstore)
    - Allen, D.C., 1985. Introduction to Forest Entomology (provided at bookstore)
    - Mushrooms of Northeast North America by George Barron (Recommended, but not required – available at the bookstore)
- Course Lecture & Study Guides (distributed at start of class)

- Bulletin Board
- Computer Resources
- My pages on the Z: drive pages
- Internet Resources are invaluable for this course! Forest Insect and Disease Leaflets (FIDL) from the U.S. Forest Service are especially helpful.

Grading

Your final grade for this class will be based on the criteria outlined below. Anything that is covered in class, in lab, or in assigned readings (including course handout materials) is subject for assessment (tests & quizzes).
You may be permitted to make-up any missed lab session or class due to an excused absence. Any unexcused absence from lecture or lab will negatively affect your final grade up to and including failing this course.

Academic dishonesty is not acceptable and will negatively affect your final grade, up to and including failing this course. See the ESF Academic Integrity handbook (http://www.esf.edu/students/handbook/integrity.pdf) if you are unclear about what actions constitute academic dishonesty.

The professional conduct portion of your grade will be based on faculty observations during lecture, lab and equipment handling. Actions such as sleeping in class, tardiness, inappropriate language, or other unprofessional conduct will negatively affect this portion of your grade.

All assignments must be completed and submitted in order to pass FTC 238 Forest Insects & Disease. Unless otherwise stated, the grade for any assignment turned in past the due date will be reduced by 20% for each day the assignment is late.

Quizzes	**30%**
Lab Exercises & Homework	**25%**
Lecture Finals (2)	**15%**
Lab Finals (2)	**15%**
Entomology Project	**5%**
Pathology Project	**5%**
Professionalism	**5%**

Appendix B-4

Samples of Final Exams

Dendrology Final Exam

This test attempts to integrate the important information introduced in the course. You have plenty of time to work through it, and should be able to go back over it at least once. Be sure to read the directions for each question carefully before attempting an answer. If you are having difficulty with a certain question, or series of related questions, mark it and move on temporarily. Often there are clues etc. in other areas of the test that may help to jog your memory. GOOD LUCK!

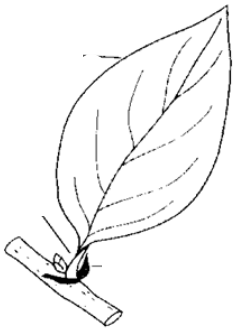
Provide a concise definition of a tree (2 pt)_____

_____

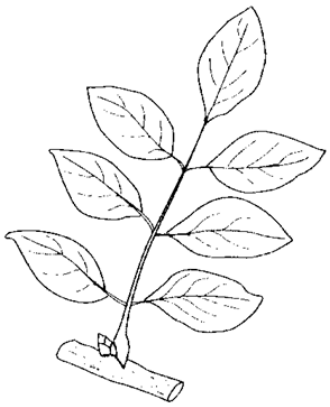
Morphology and Associated Terminology (1 pt ea; 4 pts total)

Early on in this class we spent some time learning the language of dendrology. Finally, here is your chance to show it off. Each figure illustrates an aspect of plant morphology useful for identification. Use the appropriate (and unique) term to identify each (2 pts ea; 8 pts total). Hint - note the location of the lateral bud(s).

Types of leaves



1. _____



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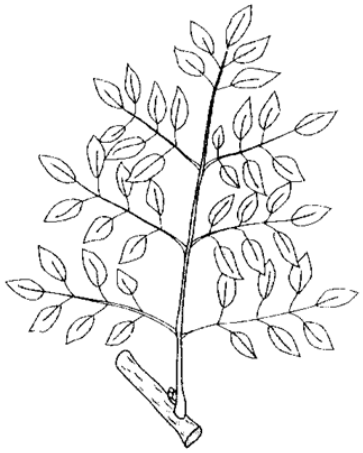
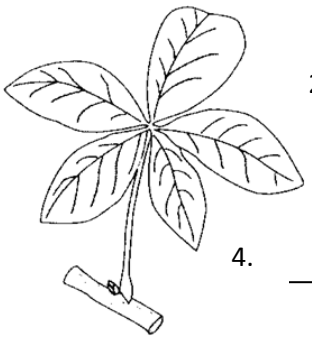


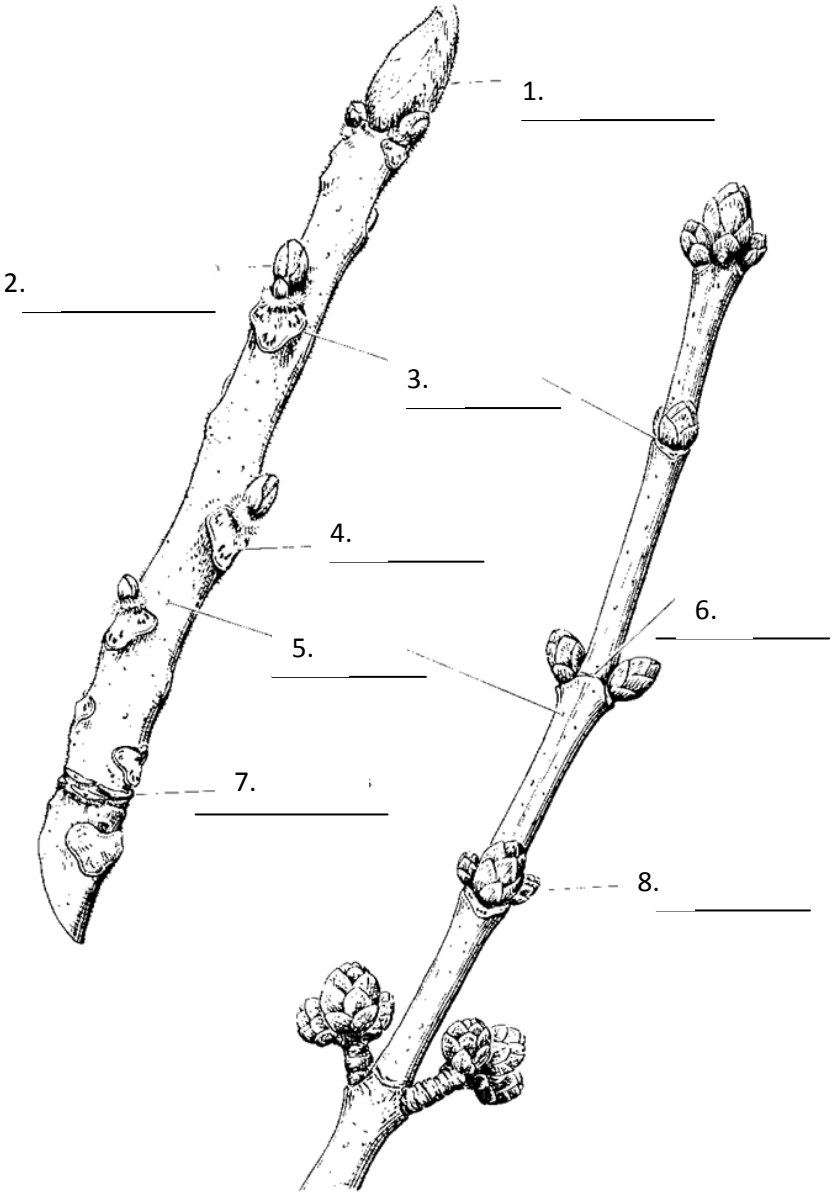
3. _____



4. _____

Features of twigs

Match each numbered space with the appropriate letter from the list of choices (there is but one letter for each number).



Choices

A. Stipule scar
B. Terminal bud
C. Bud scale scar
D. Superposed bud
E. Lateral bud
F. Leaf scar
G. Bundle scar
H. Lenticels

9. Is the leaf arrangement for the twig on the left opposite or alternate? (circle correct answer)

10. Are the buds for the twig on the right valvate or imbricate? (circle correct answer)

11. ___ True or False. The twig on the right belongs to the Genus *Prunus*.

Fruits and Flowers (0.5 pts ea; 10 pts total)

Match each term with its definition (Flowers)

___ Raceme	A. Central rachis densely crowded with sessile flowers.
___ Umbel	B. Central rachis with sessile flowers.
___ Catkin	C. Flat-topped, many stalked inflorescence.
___ Spike	D. Central rachis with stalked flowers

Match each term with its definition (Fruits)

___ Samara	A. Dry dehiscent fruit.
___ Drupe	B. Fleshy fruit, multiple seeds (a compound ovary).
___ Nut	C. Dry, indehiscent, winged fruit.
___ Capsule	D. Fleshy fruit, single seed (stone fruit).
___ Pome	E. Dry, indehiscent, hard-walled fruit.

Match each species with a fruit (answers may be used repeatedly, or not at all).

___ Green ash	A. Follicle
___ *Black cherry*	*B. Achene*
___ Sugar maple	C. Pome
___ *Shagbark hickory*	*D. Drupe*
___ White oak	E. Nut
___ *Tuliptree*	*F. Legume*
___ Common apple	G. Berry
___ *American beech*	*H. Capsule*
___ Black locust	I. Samara
___ Eastern white pine	J. None of the above
___ Cucumbertree	

Classification and Nomenclature (1 pt ea; 9 pts total)

___ *The most precise designation in the identification of an organism.*

A. Family C. Order
B. Species D. Genus

___ *By definition, individuals within a population must have the capacity to _____ in order to be considered a species.*

A. Root graft C. Disseminate viable seed
B. Produce allelochemicals D. Interbreed

___ *A family of true flowering plants.*

A. Pinaceae C. Magnoliidae
B. Fabaceae D. Cupressaceae

___ *The system we use for classifying plants is based primarily on-*

A. Leaf morphology C. Natural history
B. Reproduction D. Phenology

___ *Is an example of a Monotypic genus.*

A. *Acer* C. *Thuja*
B. *Sequoia* D. *Fagus*

___ *The only genus listed that is not within the family Pinaceae.*

A. *Abies* C. *Taxodium*
B. *Picea* D. *Tsuga*

___ *We use scientific nomenclature to identify species in order to*

A. Honor famous people C. Avoid confusion
B. To keep Latin from becoming a dead language D. A and C

___ *The proper way to identify a hybrid resulting from a cross between a yellow birch (male parent) and a paper birch (female parent).*

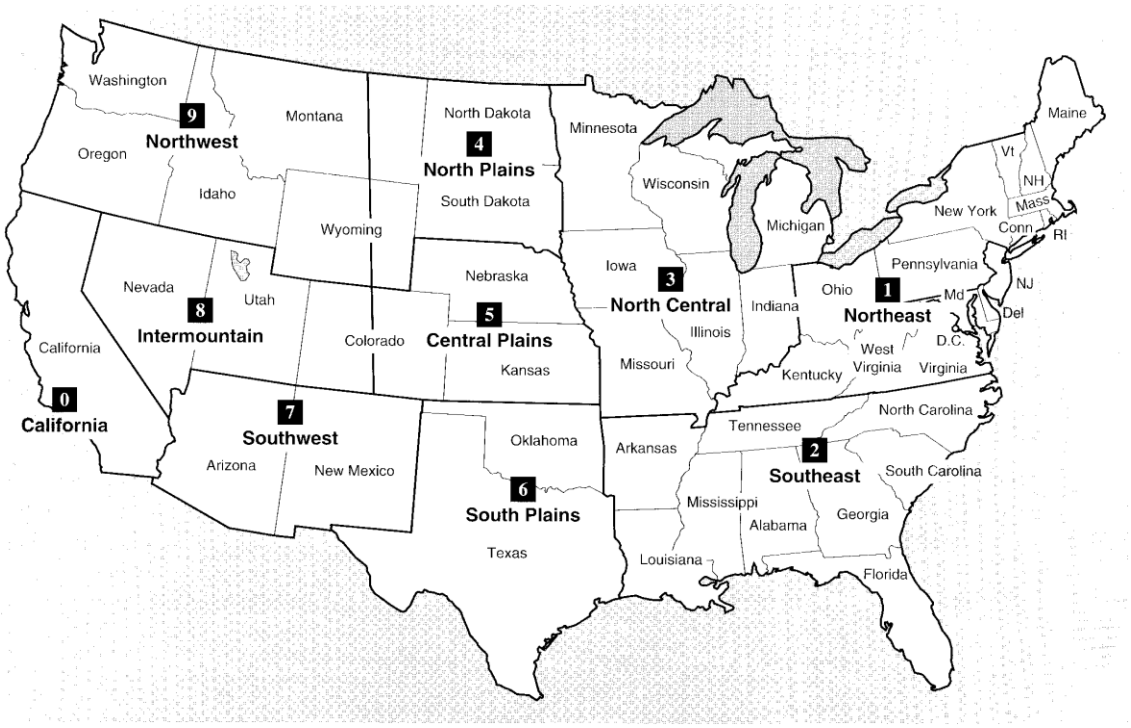
A. *Betula papyrifera* var *alleghaniensis*
B. *Betula alleghaniensis x papyrifera*
C. *Betula alleghaniensis* var *papyrifera*
D. *Betula papyrifera x alleghaniensis*

__ *Nyssa*, or blackgum, a species noted for its white wood and perpendicular branches, is in the same family as:

A. Maples C. Sweetgum
B. Witch-hobble D. Dogwood

Species Ranges *(0.5 pts. each, max 10.5)*

Use the 'Range Map' and 'Species List' below to associate a ZONE (#'s 0-9) with each species. If a species range extends across zones you need only identify one. However, if the species is much more common in one zone than another, identify it with the former.



Species List

_____ Northern red oak	_____ Loblolly pine	_____ American beech
_____ Sugar maple	_____ Redwood	_____ Baldcypress
_____ Black ash	_____ Eastern white pine	_____ Tamarack
_____ Bitternut hickory	_____ Giant arborvitae	_____ Black birch
_____ Red alder	_____ Bigtooth aspen	_____ Blue spruce
_____ Balsam fir	_____ Sugar pine	_____Paper birch
_____ Ponderosa pine	_____ Chestnut oak	_____ Douglas-fir

Shade Tolerance Classifications *(0.5 pts ea; 10.5 pts total)*

You had to know this was coming! Shade tolerance is an important characteristic of a tree species for foresters to know about. Demonstrate your knowledge in this area by filing out the table below. Match the species with the appropriate CODE for its shade tolerance classification.

CODES: **1=very tolerant to tolerant 2=intermediate; 3=intolerant to very intolerant**

_____ Douglas-fir	_____ Western larch	_____ Paper birch
_____ White ash	_____ Eastern hemlock	_____ Red spruce
_____ Northern red oak	_____ Balsam fir	_____ Black spruce
_____ Ponderosa pine	_____ Pin cherry	_____ Red maple
_____ Red pine	_____ Bigtooth aspen	_____ Black ash
_____ Black cherry	_____ Gray birch	_____ Loblolly pine
_____ Striped maple	_____ Eastern white pine	_____ Tamarack

_____ True or False. There is a tendency for some species to be more shade tolerant as seedlings than at later stages of development.

_____ True or False. In general, shade tolerant species tend to be fast growing and short lived.

_____ True or False. Shade tolerance is not an absolute characteristic, and may vary with such things as species range, stage of development, and competition.

_____ True or False. Pioneer species tend to be intermediate in their ability to tolerate overhead shade.

_____ True or false. The soils of western Oregon and Washington originate primarily from volcanic origins.

_____ True or False. The bark of American Holly (*Ilex opaca*) is smooth and gray, very similar to that of American Beech.

_____ True or False. After taking this course, you will never look at trees the same.

Commercial Uses (0.6 pts ea; 12 pts total)

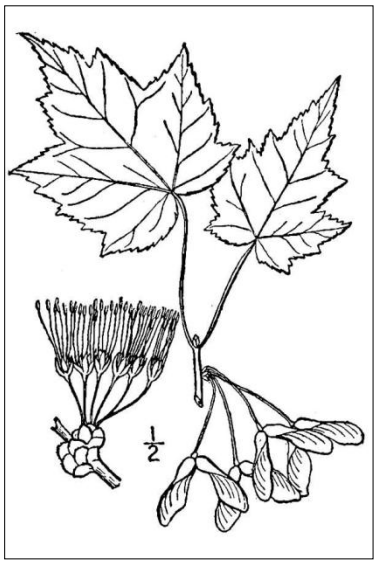
Certain species tend to be favored for certain applications, some are more broadly useful, while others are currently put to no commercial use. Your task here is to associate each species listed below with current use categories. Put an '**X**' in each cell you feel is a correct answer. By placing a mark in a cell you are indicating that that species has a primary use consistent with the column heading. Some species on the list may be useful for a number of applications, others not. The lumber category is inclusive of wood products of varying quality/value (e.g. everything from pallet wood to veneer).

Species	**Pulpwood**	**Lumber**	**Ornamental**	**Non-commercial**
Yellow birch				
Loblolly pine				
Black walnut				
American beech				
Western hemlock				
Pin oak				
Balsam poplar				
Fire cherry				
Yellow-poplar				
Giant sequoia				
Slash pine				
Choke cherry				
Ponderosa pine				
Douglas-fir				
Southern magnolia				
Black spruce				
Oregon ash				
White ash				
Shagbark hickory				
Mountain maple				

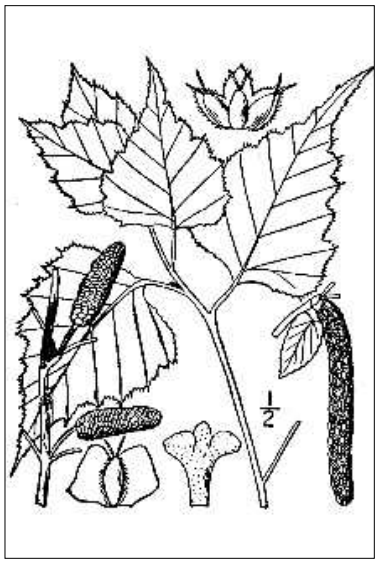
The following diagrams show leaves, flowers, and fruits of various hardwood species.

In the spaces provided above the diagrams, write the common name for each species. The diagrams are NOT drawn to a particular scale.

1. _____



2. _____

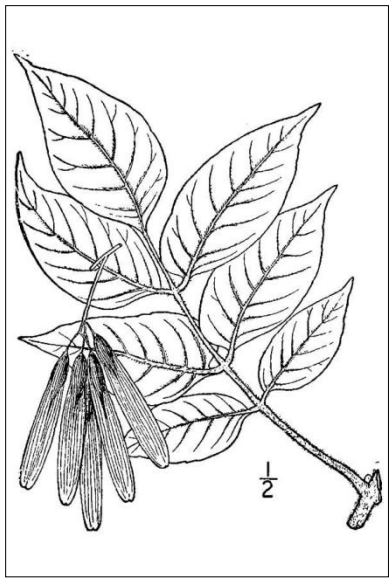


3. _____

4. _____

5. _____

6. _____



Species Site Relations

Certain species tend to be found growing 'only' under certain environmental conditions, others tend to be less exacting in this regard. Use your knowledge in this area to answer the following series of questions.

_____ True or False. Buying firewood locally may help reduce the spread of invasive insects, such as the emerald ash borer.

_____ True or False. Northern white-cedar is often found growing in northern hardwood communities.

_____ True or False. Within its natural range, pin oak exhibits its best development on excessively well drained soils.

_____ True or False. Red maple tends to grow on more poorly drained sites than sugar maple.

_____ True or False. In general, pines tend to out-compete hardwoods under excessively drained soil conditions.

_____ Which of the following species are you most likely to encounter at high elevations (approaching tree line) in the Northeast.

A. Sugar maple
B. Eastern white pine
C. Balsam fir
D. Grand fir

_____ Which species would you expect to find growing on basic (high pH) soils of limestone origin.

A. Choke cherry
B. Northern white-cedar
C. Pecan
D. Loblolly pine

_____ A wide-ranging, eastern hardwood species, found growing on wet to poorly drained sites in the northern part of its range, being more common on drier, less fertile sites to the south.

A. Basswood
B. Red maple
C. Sugar maple
D. Red alder

_____ Common (at least not uncommon) associate in mixed-species forests growing on upland sites in New England and the Adirondacks.

A. Black ash
B. Red spruce
C. Pitch pine
D. Black spruce

Miscellaneous Category- Matching
<u>Best Answer</u>- each is only used once (0.5 pts ea; 12 pts total)

_____ Nematodes	A. Secondary xylem
_____ Hickory	B. Transcontinental distribution
_____ Southern yellow pines	C. Fruits mature in 2 years
_____ Ponderosa pine	D. Conifers
_____ Dicots	E. A pest in pistachio trees
_____ *Picea pungens*	F. White pine weevil
_____ Fluted boles	G. Scale-like leaves
_____ Jack pine	H. High fuel value
_____ Softwood	I. Platy bark
_____ Red oak	J. Abrupt transition in annual rings
_____ Cupressaceae	K. *Taxodium distichum*
_____ Elm	L. Nitrogen fixer
_____ Dogwood	M. Arborvitae
_____ Tulip poplar	N. Naturalized species
_____ White spruce	O. Wiped out by an introduced disease
_____ Red alder	P. Scabrous (sand-paper-like) leaves
_____ *Thuja*	Q. Arcuate venation
_____ Scots pine	R. Has branch architecture similar to softwoods
_____ Norway spruce	S. Serotinous cones
_____ Pin cherry	T. Flattened petiole
_____ Club shaped buds	U. Single bud scale
_____ American chestnut	V. Glaucous needles
_____ *Salix*	W. Speckled alder
_____ Quaking aspen	X. Seeds remain viable long-term in forest floor

Multiple Choice *(1pt ea; 9 pts total)*

_____ An insect pest invading hardwood trees in the eastern United States. It was introduced into the Lake States region, and only this year was discovered in New York.

A. Elm bark beetles C. *Gypsy moth*
B. Emerald ash borer D. Leaf miners

_____ Which species produces the largest fruit native to North America?

A. Pawpaws C. Watermelon
B. Orange D. Horsechestnut

_____ This species should probably not be used to make sugar or beverages from its sap:

A. Sugar maple C. Butternut
C. Black cherry D. Yellow birch

_____ The bark of this species may be used to make rope. The Iroquois made "false- face" masks out of the tree. Also, bees make honey from its flowers.

A. Willow C. Basswood
B. Green ash D. Black locust

_____ This softwood species may sprout from the stump, forming albino (achlorophyllous) trees which may grow up to 30 feet tall.

A. Baldcypress C. Redwood
B. Has thorns D. Alaska-cedar

_____ This species of spruce is the only native spruce in Maryland, where paper was first made from wood pulp.

A. Norway spruce C. Red spruce
B. Blue spruce D. White spruce

_____ Which of the following conditions may actually CONTRIBUTE to better growth of trees on the Newton Falls Mine Tailings site:

A. Fragipan C. Acid soils
B. Minimal competition D. Low nutrient concentration

_____ Not a river-bottom or wetland species:

A. Green ash C. White ash
B. Pumpkin D. Black ash

_____ The fruit of argan trees of Morocco may be used to produce a vegetable oil commonly used in couscous and other north African dishes. What animal is used to collect the nuts?

A. Squirrels C. Birds
B. Monkeys *D. Goats*

More Multiple Choice *(1pt ea; 9 pts total)*

_____ Which of the following species produces a 'vernal fruit'.

A. Silver maple C. White ash
B. American elm D. Red maple

_____ A grassy stage is typical of seedlings of this species.

A. Southern yellow pine C. Loblolly pine
B. Slash pine D. Longleaf pine

_____ Naval stores (oleoresin; turpentine; pine sap) were obtained from all of the following species except.

A. Pitch pine C. Eastern white pine
C. Slash pine D. Longleaf pine

_____ The bark of this species was important to the tanning industry in the east.

A. Douglas-fir C. Pitch pine
B. Eastern hemlock D. Eastern larch

_____ The "tree-of-heaven" may be a poor name since the tree:

A. Stinks-to-high-heaven C. Is used to make devil's horns in Halloween costumes
B. Has thorns D. Its wood is used to make vampire-killing stakes

_____ Develops an extensive root system before putting on much above ground biomass.

A. White ash C. Black oak
B. Ohio buckeye D. Red maple

_____ The longest lived species in the Northeast.

A. Red spruce C. Eastern hemlock
B. Eastern white pine D. Bristlecone pine

_____ Not a Legume family.

A. Fabaceae C. Mimosaceae
B. Myrtaceae D. Caesalpinaceae

_____ A northern hardwood species which is commonly found in wetlands (swamps), an associate of American elm and red maple, which is used by Micmacs and Mohawks for making traditional baskets.

A. Black ash C. Rock elm
B. Green ash D. Yellow birch

Essay Question (5 points):

We often associate specific objects with particularly significant times in our lives. For example, the car you drove to the prom, or an outfit you wore to a friend's wedding. Now, and probably for the rest of your lives, you will begin to associate tree species with particularly significant times of your lives.

In the space below, identify a tree species and describe why you associate it with a significant event in your life:

_____

_____

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_____

THE END!

Introduction to Surveying – FTC 202

FINAL EXAM Name: _____

Date: November 23, 2010 Begin 12:30 PM

PART I: MULTIPLE CHOICE: Put your answer in the space to the left of the question. (3/4 of a point each or 75 points total). Choose the **BEST** answer.

REMEMBER: E = all or none of the above, choice is available for any question.

_____ 1. An example of natural error is:
a. Declination. b. Refraction. c. Gravity. d. Wind.

_____ 2. Projecting the back sight forward and measuring the horizontal angle left or right is a:
a. Closing the horizon.
b. Bearing ahead.
c. Deflection angle.
d. Doubling the angle.

_____ 3. Pacing may be used:
a. For practice, as it is too crude for any professional work.
b. To check for large or gross errors in more precise work.
c. In place of taping when 1:2000 precision is needed.
d. To measure slope distances in flat, horizontal areas.

_____ 4. Random errors:
a. Are systematic
b. Are cumulative
c. Affect neither precision nor accuracy.
d. Tend to compensate each other.

_____ 5. In a series of linear measurements of the same distance,
a. Agreement between repeated measurements assures accuracy.
b. Precision can be obtained without agreement between repeated measurements.
c. Quality equipment insures precise work.
d. Agreement between repeated measurements insures precision.

_____ 6. A precision of 1:2000 in repeated measurements of a line requires:
a. A standardized tape.
b. Agreement between measurements of 0.05' for the length of the line.
c. Agreement between measurements of 0.50' per 100' of line.
d. Agreement between measurements of 0.05' per 100' of line.

_____ 7. The error resulting from a steel tape being shorter than its nominal length is:
a. A blunder
b. Accidental
c. Compensating
d. Systematic

_____ 8. A horizontal **highway** curve has a degree of curve of 2° 30'. That means:
a. The central angle for 100 feet along the long chord is 1° 15'.
b. The central angle for 100 feet along the arc is 1° 15'.
c. The central angle for 100 feet along the long chord is 2° 30'.
d. The central angle for 100 feet along the arc is 2° 30'.

_____ 9. 92.7 acres is the same as:
a. 927 square chains.
b. 92.7 square chains.
c. 9270 square chains.
d. 46.4 square chains.

_____10. Which of the following is true when comparing a 100 foot adding tape to a 100 foot subtracting tape?
a. The adding tape has a graduated foot between the zero and one foot mark.
b. The subtracting tape has a graduated foot between the zero and one foot mark.
c. Neither tape would have a graduated foot adjacent to the zero mark.
d. There is no difference in the construction or design of the two tapes.

_____11. When measuring with a 100 foot tape the head tape person should have:
a. The 100' end
b. The zero end
c. No preference to which end is ahead.
d. The end which is best suited to the crews liking.

_____12. A bearing is always:
a. Measured clockwise from a reference meridian.
b. Equal to the azimuth of the same line.
c. Equal to or between 0° and 360° in value.
d. Equal to or between 0° and 90° in value

_____13. In an area of west declination:
   a. The value of the true bearing is always less than the value of the magnetic bearing.
   b. The value of the true bearing is always more than the value of the magnetic bearing.
   c. The angular value between true and magnetic bearings is never the same.
   d. The value of the true bearing in the northeast quadrant is the magnetic bearing minus the declination.

_____14. An isogonic chart shows primarily:
   a. Lines connecting points of local magnetic attraction.
   b. Lines connecting points of equal declination.
   c. Lines connecting points of equal azimuths from north.
   d. True meridians.

_____15. Magnetic declination:
   a. Changes from year to year.
   b. Depends upon the location of the point of observation.
   c. Is the most common reference meridian in this area.
   d. Is the angular difference between the true and magnetic meridians.

_____16. What is the magnetic bearing of a line with a true bearing of N 14° 16' E if the declination is 15° East?
   a. N 14° 01' E
   b. N 0° 44' E
   c. N 29° 16' E
   d. N 0° 44' W

_____17. What is the magnetic bearing of a line with a true bearing of S 6° 16' E if the declination is 5° West?
   a. S 1° 16' W
   b. S 1° 16' E
   c. N 11° 19' E
   d. S 6° 14' E

_____18. What is the true bearing of a line with a magnetic bearing of S 87° 56' E if the declination is 5° West?
   a. S 82° 56' E
   b. S 92° 56' E
   c. N 87° 04' E
   d. N 87° 56' E

_____19. What is the true bearing of a line with a magnetic bearing of S 79° 09' W if the declination is 13° West?

a. N 87° 09' W
b. N 87° 51' W
c. S 66° 09' W
d. S 92° 09' W

_____20. What is the azimuth from north for a line with a bearing of N 16° 32' W?

a. 343° 28'
b. 163°28'
c. 16° 32'
d. 196° 32'

_____22. What is the bearing of a line with an azimuth from north of 12° 56'?

a. S 12° 56' W
b. N 12° 56' E
c. S 77° 04' E
d. N 77° 04' W

_____23. What is the bearing of a line with an azimuth from north of 312° 16'?

a. N 47° 44' W
b. S 47° 44' E
c. N 42° 16' W
d. S 42° 16' E

_____24. The bearing of a line AB is N 81° 56' W. Angle ABC is turned to the right 42° 31'. What is the bearing of line BC?

a. N 55° 33' W
b. S 55° 33' E
c. S 39° 25' E
d. S 39° 25' W

_____25. The bearing of line CD is N 5° 41' E. Angle CDE is turned to the left 49° 17'. What is the bearing of line ED?

a. N 54° 58' E
b. S 54° 58' W
c. N 43° 36' W
d. S 43° 36' E

_____26. The bearing of line FE is N 3° 32' W. Angle EFG is turned to the right 53° 46'. What is the bearing of FG?

a. N 50° 14' E
b. N 57° 18' W
c. S 50° 14' W
d. S 57° 18' E

_____27. The bearing of line GH is N 42° 07' E. Angle IHG is turned to the left 28° 47'. What is the bearing of line HI?
a. N 70° 54' E
b. S 70° 54' W
c. N 13° 20' E
d. S 13° 20' W

_____28. Round off the number 4.55 to the nearest whole number.
a. 5.0 b. 5 c. 4.0 d. 4

_____29. Round off the number 1.6501 to the nearest tenth?
a. 1.6 b. 1.60 c. 1.7 d. 1.70

_____30. Round off the number 3.1749 to the nearest hundredth?
a. 3.17 b. 3.170 c. 3.18 d. 3.180

_____31. Round off the number 250.000 feet to the nearest one hundred feet?
a. 250 b. 250.00 c. 200.00 d. 200

_____32. When leveling an auto level or total station:
a. The level bubble follows the right thumb when adjusting two adjacent screws in opposite directions. (clockwise vs. counter clockwise)
b. The level bubble follows the left thumb when adjusting two adjacent screws in opposite directions.
c. The level bubble follows the right thumb when adjusting two adjacent screws in the same direction.
d. The level bubble follows the left thumb when adjusting two adjacent screws in the same direction.

_____33. When traversing, turning interior angles to the left:
a. Progress is counterclockwise around the traverse.
b. Progress is clockwise around the traverse.
c. The bearings are impossible to calculate.
d. The sum of the exterior angles is 360°.

_____34. The **horizon** was closed with 5 angles. The first four were: 18°15'; 121° 56'; 35° 01'; and 82° 17'. What is the value of the 5th angle (providing there is no error)?
a. 257° 30' b. 102° 31' c. 77°30' d. 78° 30'

_____35. When using the compass rule to balance a traverse:
a. Corrections are applied relative to the length of each course.
b. Corrections in latitudes are always added.
c. Corrections in latitudes are always subtracted.
d. Corrections are applied in reference to the bearing of each course.

_____36. The cosine of the bearing for line AB multiplied by the length of line AB is used to calculate:
a. Latitude of point B.
b. Latitude of line AB.
c. Departure of point b.
d. Departure of line AB.

_____37. In a closed traverse the error in latitudes is 0.36 feet, the error in departures is 0.25 feet and the perimeter is 1364.00 feet. The standard fraction of precision for this traverse is most nearly:
a. 1:2228 b. 1:3100 c. 1:3226 d. 1:4489

_____38. Which of the following statements is correct concerning a series of traverse computations?
a. Points have latitudes and departures, lines have coordinates.
b. Lines have latitudes and departures, points have coordinates.
c. Both lines and points have latitudes and departures.
d. Both lines and points have coordinates.

_____39. When the latitude and departure of a line are known, which of the following formulas would you use to determine the bearing of the line. Let "B" equal the angular value of the bearing. "l" equals the latitude of the line, and "d" equals the departure of the line.
a. Cos B = d/l b. Sin B = l/d c. Tan B = l/d d. Tan B = d/l

_____40. The **most** important quality of good surveying field notes is:
a. clarity
b. legibility
c. accuracy
d. neatness

_____41. You set up a total station with an adjustable leg tripod over a "red eye". After walking the tripod to get the instrument close to over the point, firmly planting the tripod feet into the ground and then using only the level screws and move the optical plummet or laser plummet to the center of the "red eye", the next procedure is to:
a) Adjust the instrument level bubble so that it stays level in perpendicular positions.
b) Adjust the tripod legs so that the bubble in the bull's eye level on the tribrach is close to the center of the "ring" in the bull's eye level.
c) Zero the upper plates of the total station.
d) Reach under the top of the tripod, loosen the clamp that holds the instrument to the top of the tripod and move the instrument over the "red eye".

_____42. The graduations on a level rod are read directly to the nearest:
a. tenth of an inch
b. tenth of a foot
c. hundredth of an inch
d. hundredth of a foot

_____43. How do you convert decimal degrees to degrees and decimal minutes?
a. Multiply the value of the angle right of the decimal point by 3600.
b. Multiply the value of the angle right of the decimal point by 60.
c. Divide the value of the angle right of the decimal point by 3600.
d. Divide the value of the angle right of the decimal point by 60.

_____44. The approach to the absolute nearness to the true measurement is:
a. Precision b. Repeatability c. Clarity d. Accuracy

_____45. A series of bench marks established throughout a project site is known as:
a. Horizontal control
b. Closure
c. Vertical control
d. Grade

_____46. Computing the last **bearing** in traverse computations by using the closing angle:
a. Will reflect the angular error.
b. Is a check of the LEOC..
c. Checks the error in departure and the error in latitude.
d. Does not check anything.

_____47. A reading of 180 was obtained on the 40th scale of an engineer's rule. This value equals:
a. 9 inches b. 4.5 inches c. 6 inches d. 4 inches

_____48. The scale of a map is 1 inch is equal to 50 feet. If the distance of a line measured in the field was 263 feet, what would the distance plotted on the map measure?
a. 2.63 inches
b. 5.26 inches
c. 26.3 inches
d. 52.6 inches

_____49. The coordinates of B and F are:
Point B: N 101.27 E 531.42
Point F: N 306.55 E 938.53 <u>What is the length of line BF?</u>
a. 764.30
b. 455.94
c. 764.48
d. 455.71

_____50. What is the bearing of the line B→F given the coordinates values above?

a. N 63° 14' 28" E
b. S 63° 14' 28" W
c. N 26° 45' 32" E
d. S 26° 45' 32" W

Questions 51-55 are based on the following set of latitudes and departures (given in feet)

Line	ft. Latitude	ft. Departure
E-A	+310.24	+187.10
A-B	-140.38	-320.41
B-C	-321.16	-56.82
C-D	-109.82	+360.62
D-E	+261.12	-170.49

_____51. If the coordinates at point E are N 1000.00 and E 1000.00, what are coordinates of point B?

a. N +1169.86, E +866.69
b. N +738.88, E 1170.49
c. N +1310.24, E +1187.10
d. N –1169.86, E –866.69

_____52. What are the coordinates of point D?

a. N +848.70, E +809.87
b. N +1170.49, E +738.88
c. N +738.88, E +1170.49
d. N +809.87, E +848.70

_____53. What is the bearing and distance of line BD?

a. N 35° 10' 49" W 527.29'
b. S 35° 10'49" E 527.29'
c. S 54° 49' 11" E 305.69'
d. N 54° 49' 11" W 305.69'

_____54. What is the distance of line A-E?
a. 349.81'
b. 497.34'
c. 123.32'
d. 362.29'

_____55. What is the azimuth from north of line D→E?
a. 33° 08' 28"
b. 56° 51' 31"
c. 303° 14' 12"
d. 326° 51' 31"

_____56. An instrument that can be used for trigonometric leveling is a(n):
a. automatic level
b. dumpy level
c. transit
d. hand level

_____57. GDOP, geometric dissolution of precision, in reference to GPS is a measure of GPS satellite geometry. The greater the value the
a. Better the strength of the satellite signal.
b. Poorer the strength of the signal.
c. The more spread out the satellites are in the sky.
d. The less spread out the satellites are in the sky.

_____58. What value would represent 1 inch = 6000 feet on a map?
a. 1:600
b. 1:7200
c. 1:50
d. 1:5000

_____59. In mapping, the term relief refers to:
a. rivers, lakes, harbors
b. vegetation
c. man-made features
d. shape of the ground
e. Rolaids

_____60. The term culture in mapping refers to the representation of such things as:
a. rivers, lakes, harbors
b. vegetation
c. differences in elevation
d. railroads, highways, power lines

_____61. The radius of a simple horizontal curve is 500 feet and the arc is 150 feet. What is the delta angle? (You DO NOT need a formula you don't already know)
a. 17°25'24"
b. 17°18'00"
c. 17°11'19"
d. not enough information

_____62. The MOST important feature of contour lines is:
a. They are not evenly spaced on uniform slopes.
b. They always close on each other within the limits of the map
c. They never cross each other
d. All points on the same contour line are at the same elevation.

_____63. The contour interval can be defined as:
a. The horizontal angle between contour lines.
b. The vertical distance between contour lines.
c. The vertical angle between contour lines.
d. The horizontal distance between contour lines.

_____64. In differential leveling, the elevation of the turning points is found by:
a. Adding the F.S. to the HI.
b. Subtracting the F.S. from the HI
c. Adding the B.S. to the HI
d. Subtracting the B.S. from the HI

_____65. When the zenith angle is recorded with the slope distance the horizontal distance is computed using what formula?
a. Sine of the Zenith angle X slope distance
b. Cosine of the Zenith angle X slope distance
c. Tangent of the Zenith angle X slope distance
d. Tangent of the Vertical angle X slope distance

_____66. Geodetic surveys
a. Are conducted from an airplane for the purpose of mapping.
b. Involve long distances and take the earth's curvature into account.
c. Are made with the surveyor's compass
d. Are a type of hydrographic survey

_____67. Accurate setting of the transit plates to zero is accomplished by means of the:
a. upper tangent screw
b. upper clamp
c. lower tangent screw
d. lower clamp

_____68. Differential leveling is a method of measuring:
a. horizontal distances
b. vertical angles
c. slope distances
d. differences in elevation

_____69. A distance on 10 Gunter's chains 5 links is equal to:
a. 1076.4 feet
b. 663.3 feet
c. 710.5 feet
d. 693.0 feet

_____70. A reasonable standard fraction of precision (SFP) for **pacing** is:
a. 1/10
b. 1/50
c. 1/100
d. 1/200

_____71. When closing a horizon with 6 angles the sum of the angles should equal
a. 720°
b. 1440°
c. 900°
d. 360°

_____ 72. The main difference between Quit Claim and Warranty deeds is:
a) The grantees of Warranty deed guarantees title and a Quit Claim they do not.
b) The grantees of Quit Claim deeds guarantees title and with a Warranty they do not.
c) The grantors of Warranty deeds guarantees title and a Quit Claim they do not.
d) The grantors of Quit Claim deed guarantees title and with a Warranty they do not.

_____ 73. Small value back sight readings on the rod and large value for sight readings on the rod in reference to differential leveling means:
a. The survey crew is moving uphill.
b. The survey crew is moving downhill.
c. The level is not level or out of adjustment.
d. Can't tell anything from these readings until closing out.

_____74. Chord definition curves are primarily used for:
a. Highways
b. Utility lines and corridors
c. Natural gas lines
d. Railroads

_____75. The elevation at turning point 3 is 440.34 feet. The BS measurement was 9.02 feet and the FS measurement to turning point 4 was 2.32 feet. What is the elevation of turning point 4?

a. 447.04 feet b. 433.64 feet c. 440.34 feet d. 451.68 feet

_____76. A level surface which is used as a reference for measuring vertical distances is called a?:

a. grade surface
b. datum
c. horizontal surface
d. benchmark

_____77. The height of instrument (HI) as used in differential leveling means the:

a. Distance from the ground to the line of sight of the level.
b. Elevation of the line of sight of the level.
c. Height of the line of sight of the level above the turning point or benchmark.
d. Overall height of the tripod and level combined.

_____78. The term "backsight" in differential leveling means:

a. A sight in the general direction of the rear.
b. The vertical distance from the line of sight to a point whose elevation is to be determined.
c. A rod reading on a point whose elevation is known.
d. A rod reading on a turning point.

_____79. If the rod is not held plumb when differential leveling, the rod reading will:

a. Always too large.
b. Sometimes too small.
c. Always too small.
d. Sometimes too large.

_____80. In a deed, the person who acquires or buys a tract of land is known as the:

a. Grantee
b. Grantor
c. Administrator
d. Executor

_____81. Another name for an easement curve is:

a. Compound curve
b. Spiral curve
c. Simple curve
d. Vertical curve

_____82. Geomatics is another name for
a. Land Surveying
b. Leveling
c. Digital mapping
d. GPS

_____83. An example of geodetic coordinates is:
a. State Plane Coordinates (SPC).
b. Universal Transverse Mercator (UTM).
c. Latitude and Longitude.
d. All of the above.

_____84. The minimum number of satellites signals required to get a relatively precise autonomous location using GPS is:
a. 24 b. 4 c. 1 d. 16

_____85. GPS locates your position by:
a. Ranging
b. Angular measurement
c. Sun shot
d. Telemetry

_____86. 1 meter is equal to exactly (in U.S. Survey feet):
a. 39.37 feet
b. 37.39 inches
c. 39.37 inches
d. 39.37 yards

_____87. 45° 29' 52" + 87° 09' 11" = ?(DMS)
a. 133° 05' 08"
b. 132° 38' 03"
c. 132° 39' 03"
d. 132° 37' 11"

_____88. A survey crew uses the Abney level and the topographic scale to measure the slope angle of – (minus) 7 over a 3 chain distance. What is the difference in elevation between the head chainman and the rear chainman?
a. – 7 feet.
b. – 21 feet
c. – 9 feet
d. + 21 feet

_____89. 2 degrees are equal to:

a. 60 minutes
b. 180 minutes
c. 7200 seconds
d. 3600 seconds

_____90. The lower motion of transits is primarily used for:
a. Fore sighting and zeroing the horizontal plates.
b. Back sighting.
c. Turning vertical angles.
d. Turning zenith angles.

_____91. Tangents are the straight segments between curves. The central or delta angle of an included arc or curve has the same value as:
a. The angle formed between the tangent and the radius.
b. The difference between the azimuths of the incoming tangent and the outgoing tangent.
c. The angle between the tangent and the long chord.
d. The angle formed between a line formed by the PC to the PI and the PI to the PT.

_____92. The length of the sides of 3 acres square is:
a. 626.13 feet
b. 361.49 feet
c. 361.50 feet
d. 626.14 feet

_____93. A student survey crew measured a slope distance of 173.8 at a slope angle of 13.5%. What is the horizontal distance?:
a. 168.99 feet
b. 169.00 feet
c. 23.25 feet
d. 172.24 feet

The following four measurements are made between two iron pipes:

498.77'
499.02'
499.00'
498.82'

_____94. The discrepancy is: (0.01')
a. 0.23 feet
b. 0.25 feet
c. 0.20 feet
d. 0.18 feet

_____95. The SFP for the above four measurements is: (1:0.0)
a. 1:2000.0
b. 1:1995.1
c. 1:1995.6
d. 1:2005.0

_____96. For simple curves, the relationship between radii and tangents (or semi tangents) is:
a. radii are always perpendicular to tangents
b. radii are sometimes perpendicular to tangents
c. the angle between the radii and tangents is equal to the central angle
d. they are not related at all

_____97. The deed you have in hand lists the grantor as Black and the grantee as White. White has since sold the property. How do you find the grantee of that deed?
a. Search the grantor index from the recording date of Black to White ahead in time.
b. Search the grantor index from the recording date of Black to White back in time.
c. Search the grantee index from the recording date of Black to White ahead in time.
d. Search the grantee index from the recording date of Black to White back in time.

_____98. The PPM for modern total stations is set by entering the:
a. ambient temperature and barometric pressure
b. ambient temperature and humidity
c. humidity and barometric pressure
d. precipitation and barometric pressure

_____99. A traverse that proceeds in a clockwise direction with angles turned to the right will create:
a. interior angles
b. exterior angles
c. deflection angles
d. left hand angles

_____100. In leveling, if the upper wire reads 6.97' and the lower wire reads 5.03', what will the center wire read?
a. 1.94 feet
b. 0.97 feet
c. 7.94 feet
d. 6.00 feet

Part B: PROBLEMS 25 points:

Be sure to show **all work** in a neat and orderly manner. Partial credit will be given where appropriate.

1) A survey crew measures a line with a 100 foot tape. They measured a distance of 633.10 feet. After returning to the office, they find out the tape they used is actually 99.98 feet long. What is the true length of this line? (0.01') (4 points)

_____

2) Given the following coordinates, calculate the area in to the nearest .01 acres. (5 points).

Station	Northing	Easting
A	400	800
B	500	100
C	400	0
D	0	700
E	200	600

3) A surveyor paces a 100 foot length 6 times with the following results:
14.5, 15.0, 15.5, 14.0, 14.5, and 15.0 paces. How many paces must he step off in order to lay out a distance of 10 chains. (3 points).

_____(nearest ½ pace)

4) Fill in the highlighted cells. (5 points)

STA	BS	HI	FS	ELEV. (ft.)	NOTE
BM 1	10.64			803.75	hydrant
TP 1	8.55		2.57	811.82	Nail in pave
		820.37			
TP 2	11.43			815.55	Nail in pave
		826.98			
TP 3	8.31		3.90	823.08	Nail in pave
		831.39			
TP 4			4.61	826.78	Nail in pave
		835.82			
BM 2			3.24		hydrant
SUM BS:		SUM FS:			

5) A transit was set up at Station B and measurements were made to a prism set up at Station C. The elevation of Station B is 727.20 feet. A slope distance from B to C was measured and recorded as 709.80 feet. The vertical angle to the center of the prism was 9° 15' 30". The hi was 4.60 feet and the height of the prism was 5.65 feet. What is the elevation of Station C? (to the nearest 0.1 feet) (4 points).

6) The magnetic bearing of a property line was S 13° 30' W in the 1917 and the declination at the time was 6° 15' W. Today the magnetic declination is 13°30'W. What is the magnetic bearing of the line if it was retraced today? (4 points).
Hint: Make a sketch!

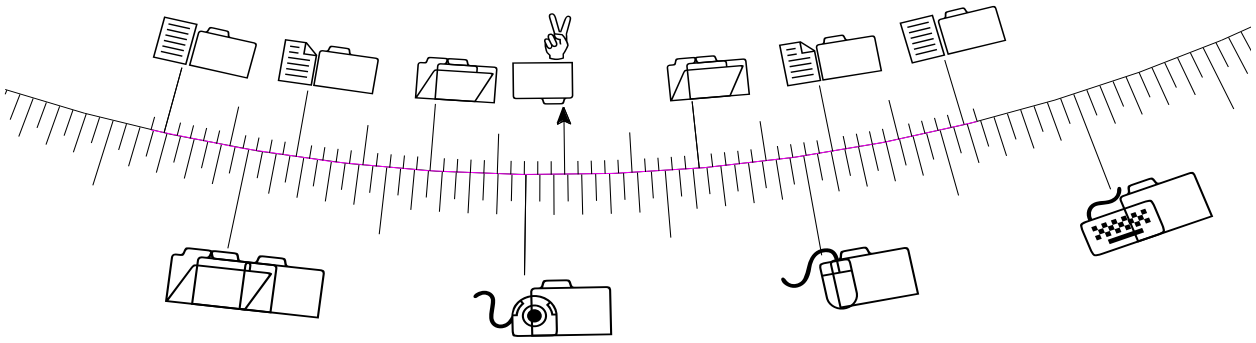
See bonuses on next page.

BONUS 1 : 6 points Solve the following problem.

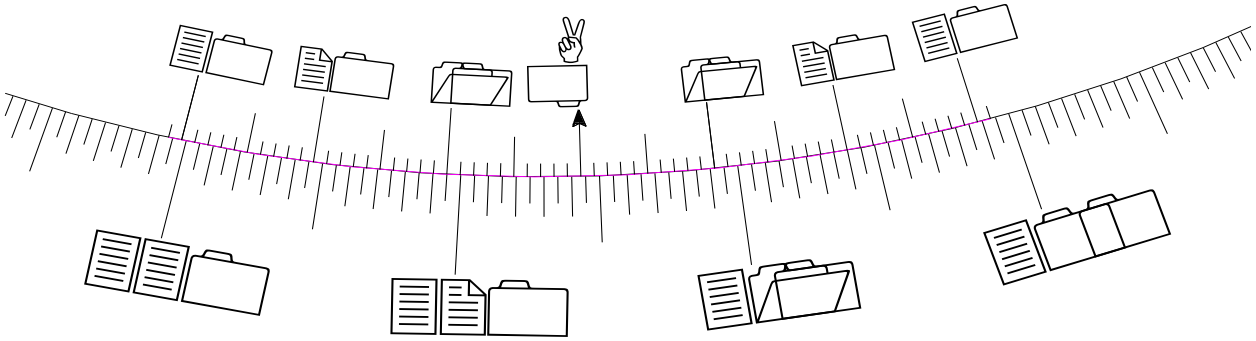
A survey crew needs to measure the height of a cliff. They measure the vertical angle to the bottom of the cliff as -2°35', the slope is 320.5 feet and the HR is 4.67 feet. They also measure the zenith angle to the top of the cliff as 82°55', the slope distance is 670.2 feet and the HR is 11.90 feet. What is the total difference in elevation from the bottom of the cliff to the top of the cliff.

BONUS 2 : 4 points, 2 transit plates, 2 level rod readings:

Reading A: Angle turned to the right: _____ 1 pt.



Reading B: Angle turned to the right: _____ 1 pt



See over for level rods.

NAME/S :_____ **DATE:**_____

FTC 215: TIMBER HARVESTING FINAL

1. **MAIN TEST PORTION**: Answer 50 of the following 70 questions in the space provided. (For 2 points per question)

2. **EXTRA CREDIT QUESTIONS**:

   a. Define any of the list of historical descriptive logging terms. (For 2 points per term)

   b. Answer 1 of the 2 short essay questions. (For 10 points)

EXTRA CREDIT PAGE

1. DEFINE ANY OF THE FOLLOWING LIST OF HISTORICAL DESCRIPTIVE LOGGING TERMS. (FOR 2 POINTS EACH)

a. bull cook:

b. road monkey:

c. whistlepunks:

d. birling match:

e. misery whip:

2. CHOOSE ONE OF THE TWO CHOICES BELOW AND COMPOSE A SHORT ESSAY THAT FULLY AND COMPLETELY COVERS THAT TOPIC. (FOR 10 POINTS) USE THE FRONT SHEET IF EXTRA SPACE IS NEEDED.

    a. Concisely describe the innovations in skidding, loading, and transporting wood products that have greatly improved logging efficiency from the past until now.

    b. Describe your proper role as a timber inspector with the timber cutter under your jurisdiction while administrating a timber contract for your employer.

Timber Harvesting Final: FTC 215 **Name:** _____

_____ 1. On your Logging Plan, which of the items below was located last?
   a. block boundaries
   b. haul roads
   c. landings
   d. skid trails

_____ 2. True or False A good logging operation normally progresses from the front to back of the sale area or cutting block.

_____ 3. True or False One of the major items affecting felling cost is tree species.

_____ 4. True or False As the cut per acre increases, the logging cost per MBF increases.

_____ 5. True or False As the cut per acre increases, the logging cost per acre increases.

_____ 6. Stumpage value is the value of a ….
   a. felled tree
   b. standing tree
   c. log at the mill
   d. tree length stem at the landing

_____7. True or False Stumpage is considered personal property.

_____ 8. Which cord would give the logger a higher profit return?
   a. Average diameter of the cord is 4 inches.
   b. Average diameter of the cord is 6 inches.
   c. Average diameter of the cord is 8 inches.
   d. The average diameter has no effect on profit.

_____ 9. A logging contractor must evaluate the possible stumpage price they can pay by considering their capabilities …..
   a. Against the most efficient logging contractor's capabilities.
   b. Against the least efficient logging contractor's capabilities.
   c. Alone.
   d. None of the above.

_____10. True or False When skidding, full turns or hitches are more important when using a bulldozer than when using a rubber tired skidder.

Timber Harvesting Final: FTC 215 Name: _____

_____ 1. The winch's primary purpose is to assist in which operation?
a. Bunching stems or logs.
b. Prehauling stems or logs.
c. Skidding stems or logs.
d. Slashing stems or logs.

_____2. Most of the stumpage in the United States is cut into ….
a. Cross ties for railroad use.
b. Poles for power lines.
c. Pulpwood for paper.
d. Sawlogs for lumber.

_____ 3. True or False Pulp mills vary the price they pay for pulpwood according to the hauling distance from the job to the mill.

_____ 4. The region harvesting the most woody material per year is the ….
a. Lake States
b. Northeast
c. Pacific States
d. South

_____ 5. Bucking for grade normally ….
a. increases the total volume of the sale.
b. lengthens the average log length.
c. shortens the average log length.
d. none of the answers apply.

_____ 6. In a four-person partnership doing logging operations, which person of the four must be covered by workmen's compensation insurance?
a. all four persons.
b. only the person driving the skidder.
c. only the person felling trees.
d. none of the above answers are correct.

_____ 7. On which type of timber sale does a landowner <u>least</u> have to be concerned with logging utilization practices?
a. Integrated saw log and pulp sale.
b. Log Scale
c. Pulp Scale
d. Standing tree volume estimate.

_____ 8. True or False Timber sold based on a "Lump Sum" sale must be scaled on the stump before it leaves the woods.

_____ 9. The primary way logs are transported in the United States is by ….

a. raft
b. railroad
c. skidder
d. truck

_____10. True or False State log hauling regulations determine the load limits that a truck can haul on all roads within that state.

Timber Harvesting Final: FTC 215 Name: _____

_____ 1. Which machine has articulated steering?
a. bulldozer
b tracked harvester/processor
b. rubber tired skidder
c. log truck

_____ 2. Which skidder moves best over rocky terrain?
a. bulldozer
b. farm tractor
c. horse
d. rubber tired skidder

_____ 3. Which term means the same as "Prehauling"?
a. forwarding
b. bunching
c. skidding
d. yarding

_____ 4. As skidding distance increases, which skidder is more efficient?
a. bulldozer
b. horse
c. rubber tired skidder
d. farm tractor

_____ 5. From the answers below, select the best skid trail spacing layout if the contractor is using a bulldozer with a 150' cable winch.
a. 150 ft.
b. 225 ft
c. 300 ft
d. 375 ft.

_____ 6. True or False The length of truck hauling road is related in part to the maximum desirable skidding distance.

_____ 7. True or False The easiest and cheapest hauling season in the northeast is usually spring.

_____ 8. Which hook is used with wire rope chokers?
a. grab hook
b. slip hook
c. teardrop or keyhole hook
d. none of the answers is correct

_____ 9. True or False The logger has determined that all poor grade beech logs are not worth skidding to the landing therefore all low grade beech logs already on the landing do not have to be removed from the landing.

_____ 10. True or False The trim allowance on pulp sticks cut in the northeast is 3-4 inches.

(WGA 2007)

Timber Harvesting Final: FTC 215 Name: _____

_____ 1. Logging in the northeast is mainly done by ….
a. company crews
b. dealers
c. pulpwood yard workers
d. small scale contractors

_____ 2. The number "45" painted on a tree in a sale area could mean ….
a. estimator number "45"
b. tree #45
c. 45 ft pole
d. all answers are correct

_____ 3. Which is the advantage to paying fellers hourly wages rather than by volume on a high value logging operation?
a. better quality and safer work
b. less supervision needed
c. lower felling cost per MBF
d. all answers given are correct

_____ 4. The average number in a "felling crew" for the northeast is ….
a. 1 person
b. 2 persons
c. 3 persons
d. 4 persons

_____ 5. Trees should be felled at what angle in relation to the direct they will be skidded out?

a. 45 degrees
b. 90 degrees
c. 135 degrees
d. 180 degrees

_____ 6. Leaving high stumps from felling causes the most problems in which operation?

a. bunching
b. skidding
c. stump piling
d. unloading

_____ 7. Felling damage could occur more when thinning in an …..

a. all aged stand
b. even aged stand
c. both stands would show the same amount of damage

_____ 8. "Jump Bucking" usually occurs at the …..

a. Stump
b. Yard or landing
c. Mill yard
d. None of the above

_____ 9. The size of the pulpwood chipping machine is the major item that limits the ….

a. diameter of the pulpwood
b. length of the pulpwood
c. species of the pulpwood
d. weight of the pulpwood

_____ 10. True or False The present market selling price of sawtimber, etc. has an effect on the minimum volume of timber that can be silviculturally marked in a commercial thinning.

Timber Harvesting Final: FTC 215 Name: _____

_____ 1. Of the items listed below, the appraisal cost of felling is most dependent on which factor?
a. tree species
b. stumpage value
c. volume cut per acre
d. tree weight

_____ 2. The appraisal cost of skidding is least dependent on which factor?
a. tree species
b. tree weight
c. volume cut per acre
d. type of skidding machine

_____ 3. True or False As the average diameter of trees to be cut becomes less, the cost per MBF increases.

_____4. Which skidding distance is used to help determine the location of primary landings?
a. average maximum skidding distance
b. average skidding distance
c. maximum efficient skidding distance
d. seventy percent of the average skidding

_____ 5. Over the last 20 years the ratio of logging costs to stumpage values in the northeast has ….
a. decreased
b. increased
c. remained the same

_____ 6. Which cutting block in a sale area should be harvested first?
a. Block furthest away from the entrance road to the contract area.
b. Block with the least volume to cut.
c. Block with the most volume to cut.
d. Block with the highest valued timber to be cut.

_____ 7. What is the major advantage of a rubber tired skidder over a bulldozer?
a. flotation
b. traction
c. speed
d. versatility

_____ 8. True or False An appraisal Conversion Value consists of the Profit and Risk value and production cost.

_____ 9. More residual damage can occur when logging in …..

a. all aged stands
b. even aged stands
c. sapling stands
d. none of the above

_____ 10. On a timber appraisal, a permanent road is considered a development cost because ….
a. it would cost a lot to build.
b. it must be maintained.
c. it would become part of the public transportation system.
d. It would become part of the real estate value of the land.

Timber Harvesting Final: FTC 215 Name: _____

_____ 1. True or False On a leaning tree, tension wood is usually formed on the side that the tree is leaning towards.

_____ 2. True or False The first job in felling a tree is to determine your get-away route.

_____ 3. Which is the advantage to paying fellers hourly wages rather than by volume on a high value logging operation?

a. better quality and safer work
b. less supervision needed
c. lower felling cost per MBF
d. all answers given are correct

_____ 4. The number "45" painted on a tree in a sale area could mean ….

a. estimator number "45"
b. tree #45
c. 45 ft pole
d. all answers are correct

_____ 5. A "barber's chair" usually occurs when felling ….

a. butt rotted trees.
b. leaning trees towards the lean.
c. leaning trees 15 degrees from the lean.
d. leaning trees 30 degrees from the lean.

_____ 6. Trees on a slope of 35 % should be felled ….

a. Along the contour.
b. At a 45 degree angle to the slope.
c. Straight downhill.
d. Straight uphill.

_____ 7. Trees should be felled at what angle in relation to the direct they will be skidded out?

a. 45 degrees
b. 90 degrees
c. 135 degrees
d. 180 degrees

_____ 8. What is the most dangerous direction to fell trees on a 55% slope?

a. Along the contour.
b. At a 45 degree angle to the contour.
c. Straight downhill.
d. Straight uphill.

_____ 9. Bucking sawlogs for grade can best be done ….

a. At the landing.
b. At the stump.
c. Either at the landing or the stump.
d. While attached to the skidder.

_____ 10. When bucking a large diameter tree with a top bid, the last cut should be …..

a. Away from the bind.
b. Towards the bind.
c. 45 degrees away from the bind.
d. None of the answers are correct.

Timber Harvesting: FTC 215 **Name:_____**

___ 1. True/False The cost of skidding key factors are machine type, Average Maximum Skidding Distance, cut/acre, volume/tree, and slope %.

___ 2. True/False Falling trees in a "herring bone" pattern with the butts facing the skid/yard trail helps minimize residual tree damage.

___ 3. True/False A "dutchman" is a prop for preventing a chainsaw pinch while bucking.

___ 4. True/False "Chainrite" hooks can also be used as choker hooks?

___ 5. True/False Less complex ground based logging equipment is typically less costly to own and operate than either cable or aerial.

___ 6. True/False Wider tires reduce ground pressure of forest equipment.

___ 7. True/False A clam bunk skidder has a loader and facing-up grapple mounted on the rear of the machine.

___ 8. True/False Forwarders are built on an articulated chasis.

___ 9. True/False A three-wheeled feller-buncher requires highly favorable ground conditions to be used successfully.

___ 10. True/False Environmental concerns are not an issue when logging a gully or drainage.

FTC 238 Forest Insects & disease

Pathology Final, Spring 2011

1. – 10. True or False: Circle either "T" for true or "F" for false. If the statement is false, change a word(s) to make it a true statement. (2 points each)

1. T or F A facultative saprophyte typically acts as a parasite, but has the faculty (ability) to be saprophytic.
2. T or F Fungi are achlorophyllous, spore producing, and eukaryotic.
3. T or F Diseases caused by air pollution generally have a uniform pattern of symptoms.
4. T or F Foliage diseases typically do not kill trees.
5. T or F Foliage diseases are more damaging to hardwoods than conifers.
6. T or F An example of a tree disease caused by a bacteria is Elm Phloem Necrosis (elm yellows).
7. T or F A tree seedling that has died from a damping-off fungus will typically have a constricted root collar.
8. T or F Wood products commonly decay in place when exposed to overly-dry conditions.
9. T or F A Hawksworth rating of 6 means there is little to no infection of mistletoes in a particular host.
10. T or F The two biggest forest disease problems, economically speaking, in the west are root diseases and dwarf mistletoes.

11-14. Short Answer: (4 pts) – Show your work.

11. Using the Percent of Cubic Foot Volumes for All Trees chart (attached), what is the cull volume and the net volume (nearest .1) of a 56' tree based on the following information?

    Gross Volume of tree: 50 ft^3

    Cull 1st 4 foot section: 45%

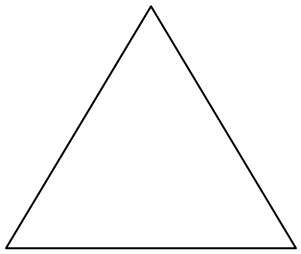
    Cull 2nd 4 foot section: 20%

    Cull 3rd 4 foot section: 8%

    Cull Volume: _____ Net volume: _____

12. What are four characteristics of a healthy forest?

13. Label (4 labels) the disease triangle. <u>In words, explain the triangle</u>**.**



14. (6 points) You are called out to a forest property to investigate reports of a large number of dead and dying trees.

    a. What steps might you follow to determine the causal agent?

    b. What considerations might you take into account when deciding whether or not to manage a forest disease?

15. – 35. Multiple Choice: Circle the **BEST** answer. (2 points each)

15. Which of the following statements is true about fungi?

a. a mass of hyphae makes up mycelium

b. hyphae with septa are called coenocytic

c. an organized mycelial structure that is root-like is called a rhizomorph

d. all of the above

16. All of the following are forest management options to combat root diseases, except:

a. stump removal b. genetically resistant species c. pruning d. chemicals

17. *Nectria* is a genus responsible for several canker diseases. What Phylum is it classified in?

a. Oomycota b. Ascomycota c. Pholiomycota d. Basidiomycota

18. A management practice commonly used to control Brown Spot Needle Blight during the grass stage of longleaf pine in the southeast is:

a. prescribed burns b. chemical c. biological d. nothing

19. Parasitic organisms possess a structure that penetrates the host tissues and absorbs food and water from the host, called a:

a. hyphae b. mycelium c. rhizomorph d. haustorium

20. A typical sign of a biotic pathogen is:

a. frost crack b. necrosis c. fruiting body d. crown dieback

21. A sign of a common abiotic injury is:

a. frost crack b. hyphae c. fruiting body d. target canker

22. You work at the Seeds-R-Us nursery. Nothing has emerged from all those seeds you planted - not a shoot, not a root, nothing. A possible explanation for the problem is:

a. post-emergence damping off c. seed fungus

b. root rot d. sunscald

23. Which of the following is NOT characteristic of a decline disease.

a. slow, progressive deterioration of health

b. young and old trees affected

c. involves multiple factors that can be biotic and/or abiotic in origin

d. decreased growth and increased dieback

24. Which of the following pathogens kills trees the slowest – think of the type of root disease that kills the slowest?

a. *Phellinus* spp.
c. *Fusarium* spp.
b. *Phytophthora* spp.
d. *Basidiofisheye* spp.

25. A foliar disease that occurs throughout the southeastern US attacking *Cornus* spp. in forests and yards alike; loves cool-moist conditions:

a. Dogwood Anthracnose b. Oak Wilt c. Tar Spot of Maple

26. White rot is typified by removal of what component(s) from the cell wall:

a. lignin only b. cellulose only c. both cellulose & lignin

27. A rust that was introduced from Europe, attacks five-needle pines and has an alternate host of *Ribes* is:

a. *Cronartium pinicola*
c. *Cronartium ribicola*
b. *Armillaria ostoyae*
d. *Cronartium cocacola*

28. Spraying a Borax solution on top of stumps after a thinning operation to control the spread of annosus root and butt rot is what type of management?

a. biological b. silvicultural c. genetic d. chemical

29. What category of diseases commonly has the following characteristics:
- typically do not kill host
- usually interfere with photosynthesis
- have both parasitic and saprophytic phases
- have more negative effect on conifers than on hardwoods
- most caused by Ascomycetes

a. root diseases
c. foliar diseases
b. nursery diseases
d. decline diseases

30. Fungi from this phylum are generally responsible for root diseases that infect structural roots:

a. Ascomycota b. Oomycota c. Basidiomycota d. Gimmemycota

31. A secondary pollutant, such as ozone (O_3), is:

a. toxic after reacting with other pollutants or water vapor in the atmosphere.

b. toxic to plants right from the source

c. not considered a toxin

32. Nectria canker and eutypella canker are examples of what type of canker?

a. annual b. diffuse c. blight d. perennial

33. The two most important types of pathogens that cause stem and branch diseases are:

a. viruses & nematodes
b. fungi & parasitic plants
c. bacteria & birds
d. nematodes & phytoplasmas

34. One of the most recent tree diseases to invade New York state is:

a. Oak Wilt b. Emerald Ash Borer c. Diplodia Blight d. *Sirex* sp.

35. The scientist who has worked for the USFS and spent a large portion of his career dissecting trees and developing the CODIT concept is Dr:.

a. Silverborg b. Shigo c. Bridgen d. Worrall

36. – 40. Fill in the blank with the scientific name; spelling counts (2 points each)

Common Name	Scientific Name
36. beech bark disease	_____
37. birch polypore	_____
38. false tinder fungus	_____
39. artists conk	_____
40. turkey tail	_____

41. – 45. Fill in the blank with the common name; spelling counts. (2 points each)

Common Name	Scientific Name
41. _____	*Fomitopsis pinicola*
42. _____	*Inonotus obliquus*
43. _____	*Apiosporina morbosa*

44. _____ *Hypoxylon deustum*

45. _____ *Oxyporus populinus*

46. – 56. Matching: Place the letter of the BEST answer on the line to the right of the number. Each letter is only used once (2 points each)

46. ____	*Phellinus weirii*, narrow distribution, difficult to manage	A.	obligate saprophyte
47. ____	Basidium	B.	deBary
48. ____	Major problem in southeastern U.S., alternate host is oak	C.	Hartig
49. ____	organisms that cannot produce their own food	D.	water molds
50. ____	Ascomycota	E.	sac fungi, 8 spores
51. ____	Foliar disease affecting Douglas-fir on the Cascade range, dark spots	F.	heterotrophic
52. ____	organism that can only live on a dead host	G.	Laminated Root Rot
53. ____	Published first field patho text, “father” of forest pathology	H.	fusiform rust
54. ____	Oomycota	I.	necrosis
55. ____	Credited with identifying the pathogen that caused the blight leading to the Irish potato famine	J.	4 spores borne on a club-like structure
56. ____	death of tissues or cells	K.	Swiss Needle Cast

Bonus Questions (2 points each)

Bonus #1: Name one of the authors of your textbook for this class _____.

Bonus #2: What is the formal name for “the study of fungi”? _____.

Percent of Cubic Foot Volumes for all Trees (by 4-foot sections and location)																		
Merch. Height (ft.)	Section #																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
8	57	43																
12	42	32	26															
16	30	26	23	21														
20	26	23	21	19	11													
24	24	21	18	17	10	10												
28	21	19	17	16	10	9	8											
32	20	18	16	14	10	8	7	7										
36	19	16	14	13	9	8	8	7	6									
40	17	15	13	12	9	8	7	7	6	6								
44	16	14	12	11	9	7	7	7	6	6	5							
48	15	13	12	10	8	7	7	6	6	6	5	5						
52	14	12	11	9	8	7	6	6	6	6	5	5	5					
56	13	11	10	9	8	6	6	6	6	6	5	5	5	4				
60	12	11	10	9	7	6	6	6	5	5	5	5	5	4	4			
64	11	10	9	9	7	6	6	5	5	5	5	5	5	4	4	4		
68	10	10	9	8	6	6	6	5	5	5	5	5	5	4	4	4	4	
72	10	9	8	8	6	6	6	5	5	5	4	4	4	4	4	4	4	4

Appendix B-5

Safety Equipment and Procedures

FTC 200 Dendrology
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	No
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	No
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	Yes
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

6. This course involves several outdoor, field-oriented lab exercises. Other than the conditions normal to exercises in forested settings, students will not be exposed to any special hazardous conditions. Students will be instructed on safe walking techniques while traveling forest paths.
7. While using canoes, the ESF Boating Policy and NY State Safe Boating principles are followed.
8. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to the uneven terrain encountered in many field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasion from low-level forest vegetation, students will be required to wear long pants during all field exercises. Because of the dispersed nature of the field activities, all faculty and staff will be required to carry two-way radios or cell phones to maintain contact with the administrative site in the event of emergencies.

FTC 202 Introduction to Surveying
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	No
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	No
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	No
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

6. This course involves several outdoor, field-oriented lab exercises. Other than the conditions normal to exercises in forested settings, students will not be exposed to any special hazardous conditions. Students will be instructed on safe walking techniques while traveling forest paths.
8. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to the uneven terrain encountered in many field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasion from low-level forest vegetation, students will be required to wear long pants during all field exercises. Because of the dispersed natured of the field activities, all faculty and staff will be required to carry two-way radios or cell phones to maintain contact with the administrative site in the event of emergencies.

FTC 204 Intro to Natural Resources Measurements
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	No
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	No
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	No
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

6. This course involves several outdoor, field-oriented lab exercises. Other than the conditions normal to exercises in forested settings, students will not be exposed to any special hazardous conditions.
8. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to the uneven terrain encountered in many field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasiveness of low-level forest vegetation, students will be required to wear long pants during all field exercises. Because of the dispersed nature of the field activities, all faculty and staff will be required to carry two-way radios and/or cell phones to maintain contact with the administrative site in the event of emergencies.

FTC 206 Forest Ecology
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	No
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	No
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	No
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

6. This course involves several outdoor, field-oriented lab exercises. Other than the conditions normal to exercises in forested settings, students will not be exposed to any special hazardous conditions.
8. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to the uneven terrain encountered in many field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasion from low-level forest vegetation, students will be required to wear long pants during all field exercises. When working near roads or highways, proper signs will be set up to warn motorists that students are working in the area and students will be required to wear reflective vests. Because of the dispersed nature of the field activities, all faculty and staff members will be required to carry two-way radios and/or cell phones to maintain contact with the administrative site in the event of emergencies.

FTC 207 Forest Safety
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	Yes
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	Yes
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	No
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

1,2. During field exercises students will be required to wear proper field clothing and safety equipment, such as hardhats, goggles, chaps, and other approved pants, boots, and gloves. Students will be instructed in how to wear this gear safely and maintain its efficiency. Students will be instructed in all the proper safety procedures and techniques for operating any power machinery the course requires.

6. This course involves outdoor, field-oriented lab exercises. Other than the conditions normal to exercises in forested settings, students will not be exposed to any special hazardous conditions.

Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to the uneven terrain encountered on the field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasiveness of low-level forest vegetation, students will be required to wear long pants during all field exercises. Because of the dispersed nature of the field exercises, all faculty and staff will be required to carry two-way radios to maintain contact with the administrative site in the event of emergencies. Students will be instructed on safe walking techniques while traveling forest paths in different seasons.

FTC 208 Geographic Information Technology
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	No
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	No
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	No
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

6. This course involves several outdoor, field-oriented lab exercises. Other than the conditions normal to exercises in forested settings, students will not be exposed to any special hazardous conditions.
8. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to the uneven terrain encountered in many field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasion from low-level forest vegetation, students will be required to wear long pants during all field exercises. When working near roads or highways, proper signs will be set up to warn motorists that students are working in the area and students will be required to wear reflective vests. Because of the dispersed nature of the field activities, all faculty and staff members will be required to carry two-way radios and/or cell phones to maintain contact with the administrative site in the event of emergencies.

FTC 210 Leadership and Forest Technology
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	Yes
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	Yes
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	No
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

1-2. Students will be instructed in all the proper safety procedures and techniques for operating any power or motive machinery the course requires, such as chainsaws, brush saws, skidding equipment, and portable sawmills

6. This course involves outdoor, field-oriented lab exercises. Students will be instructed on safe walking techniques while traveling forest paths in different seasons.

8. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to uneven terrain encountered on the field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasiveness of low-level forest vegetation, students will be required to wear long pants during all field exercises. Because of the dispersed nature of the field activities, all faculty and staff will be required to carry two-way radios to maintain contact with the administrative site in the event of emergencies.
   During field exercises involving power or motive machinery, students will be required to wear proper field clothing and personal safety equipment, such as hardhats, safety glasses, chaps or other approved cut resistant safety pants, hearing protection, logging boots, and gloves. Students will be instructed on how to wear this gear safely and maintain its efficiency..

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FTC 211 Silviculture
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	No
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	No
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	No
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

6. This course involves several outdoor, field-oriented lab exercises. Other than the conditions normal to exercises in forested settings, students will not be exposed to any special hazardous conditions. Students will be instructed on safe walking techniques while traveling forest paths.
8. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to the uneven terrain encountered in many field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasion from low-level forest vegetation, students will be required to wear long pants during all field exercises. Because of the dispersed natured of the field activities, all faculty and staff will be required to carry two-way radios or cell phones to maintain contact with the administrative site in the event of emergencies.

FTC 213 Forest Inventory Practicum
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	No
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	No
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	No
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

6. This course involves a 6-day, field-oriented lab exercise during winter. Other than the conditions normal to exercises in forested settings, students will not be exposed to any special hazardous conditions.
8. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to the uneven terrain encountered on the field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasiveness of low-level forest vegetation, students will be required to wear long pants during all field exercises. Because this course requires that students work outside during winter conditions, students will be expected to dress warmly, preferably utilizing layers and non-cotton clothing. Because of the dispersed nature of the field activities, all faculty and staff will be required to carry two-way radios or cell phones to maintain contact with the administrative site in the event of emergencies. At least one snowmobile must be available at each field site to provide emergency transport on snow-covered roads and trails.

FTC 215 Timber Harvesting
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	Yes
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	Yes
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	Yes
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

1-2. Students will be instructed in all the proper safety procedures and techniques for operating any power or motive machinery the course requires, such as chainsaws, brush saws, skidding equipment, and portable sawmills.

6. This course involves outdoor, field-oriented lab exercises. Students will be instructed on safe walking techniques while traveling forest paths in different seasons.

7-8. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to uneven terrain encountered on the field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasiveness of low-level forest vegetation, students will be required to wear long pants during all field exercises. Because of the dispersed nature of the field activities, all faculty and staff will be required to carry two-way radios to maintain contact with the administrative site in the event of emergencies. During field exercises involving power or motive machinery, students will be required to wear proper field clothing and personal safety equipment, such as hardhats, safety glasses, chaps, or other approved cut resistant safety pants, hearing protection, logging boots, and gloves. Students will be instructed on how to wear this gear safely and maintain its efficacy.

FTC 217 Wildland Firefighting and Ecology
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	No
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	No
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	No
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

6. This course involves several outdoor, field-oriented lab exercises. Other than the conditions normal to exercises in forested settings, students will not be exposed to any special hazardous conditions.
8. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to the uneven terrain encountered in many field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasion from low-level forest vegetation, students will be required to wear long pants during all field exercises. When working near roads or highways, proper signs will be set up to warn motorists that students are working in the area and students will be required to wear reflective vests. Because of the dispersed nature of the field activities, all faculty and staff members will be required to carry two-way radios and/or cell phones to maintain contact with the administrative site in the event of emergencies.

FTC 219 Intro to Forest Recreation
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	No
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	No
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	No
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

6. This course involves several outdoor, field-oriented lab exercises. Other than the conditions normal to exercises in forested settings, students will rarely be exposed to any special hazardous conditions. As part of a field trip to the Huntington Wildlife Forest, students have the opportunity to briefly handle small mammals and amphibians.
8. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to the uneven terrain encountered in many field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasiveness of low-level forest vegetation, students will be required to wear long pants during all field exercises. Because of the dispersed nature of the field activities, all faculty and staff will be required to carry two-way radios and/or cell phones to maintain contact with the administrative site in the event of emergencies.

FTC 221 Natural Resources Management
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	No
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	No
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	No
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

6. This course involves several outdoor, field-oriented lab exercises. Other than the conditions normal to exercises in forested settings, students will not be exposed to any special hazardous conditions.
8. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to the uneven terrain encountered in many field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasion from low-level forest vegetation, students will be required to wear long pants during all field exercises. When working near roads or highways, proper signs will be set up to warn motorists that students are working in the area and students will be required to wear reflective vests. Because of the dispersed nature of the field activities, all faculty and staff members will be required to carry two-way radios and/or cell phones to maintain contact with the administrative site in the event of emergencies.

FTC 223 Water Measurements
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	No
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	No
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	No
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

6. This course involves several outdoor, field-oriented lab exercises. Other than the conditions normal to exercises in forested settings, students will not be exposed to any special hazardous conditions.
8. Due to the potential for falling debris in forested settings, students will not be exposed to any special hazardous conditions. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to the uneven terrain encountered in many field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasion from low-level forest vegetation, students will be required to wear long pants during all field exercises. Because of the dispersed nature of the field activities, all faculty and staff will be required to carry two-way radios to maintain contact with the administrative site in the event of emergencies.

FTC 225 Timber Transportation and Utilization
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	No
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	No
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	No
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

6. This course may involve outdoor, field-oriented lab. Other than the conditions normal to exercises in forested settings, students will not be exposed to any special hazardous conditions.
8. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to the uneven terrain encountered on the field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasiveness of low-level forest vegetation, students will be required to wear long pants during all field exercises. Because of the dispersed nature of the field activities, all faculty and staff will be required to carry two-way radios to maintain contact with the administrative site in the event of emergencies. Students will be instructed on safe walking techniques while traveling forest paths in different seasons.

FTC 234 Wildlife Conservation
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	No
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	No
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	No
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

6. This course involves a few field trips, some of which involve discussions and/or activities in forested settings. Other than the conditions normal to forested settings, students will rarely be exposed to any special hazardous conditions.

8. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to the uneven terrain encountered in many field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasiveness of low-level forest vegetation, students will be required to wear long pants during all field exercises. Because of the dispersed nature of the field activities, all faculty and staff will be required to carry two-way radios and/or cell phones to maintain contact with the administrative site in the event of emergencies.

FTC 238 Forest Insects and Disease
Health and Safety Considerations:

Conditions or situations present in association with the course?	Yes / No
1. **Will substances with any of the following properties be used during instruction:** flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?	No
2. **Will any physical hazards be present during instruction?** (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).	No
3. **Will any biological hazards be present during instruction?** (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).	No
4. **Will any radiation hazards be present during instruction?** (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).	No
5. **Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction?** (Give considerable thought to electrical use outdoors, or any potentially wet location.).	No
6. **Will there be any personal safety issues related to the class?** (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).	Yes
7. **Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?**	No
8. **Will any type of personal protective equipment be necessary during class exercises?** (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)	Yes

If the answer was “Yes” to any of the **HEALTH AND SAFETY** questions, please explain:

6. This course involves several outdoor, field-oriented lab exercises. Other than the conditions normal to exercises in forested settings, students will not be exposed to any special hazardous conditions.
8. Due to the potential for falling debris in forested settings, students will be required to wear orange hardhats that meet or exceed the ANSI Z89.1-1986, Class A and B standards. Due to the uneven terrain encountered in many field laboratory sites, students will be required to wear boots that provide ankle support and protection. Due to the abrasion from low-level forest vegetation, students will be required to wear long pants during all field exercises. When working near roads or highways, proper signs will be set up to warn motorists that students are working in the area and students will be required to wear reflective vests. Because of the dispersed nature of the field activities, all faculty and staff members will be required to carry two-way radios and/or cell phones to maintain contact with the administrative site in the event of emergencies.

Appendix B-6

Textbooks and Instructional Materials Used in Forest Technology Courses at Ranger School.

FTC 200—Dendrology

Text: Trees of the Northern United States and Canada, by John Laird Farrar. Iowa State University Press, Ames, Iowa. 1995. 502 p.

Dendrology-Eco Field Manual: A Guide to Plant Identification at the Ranger School, by Michael Bridgen. SUNY-ESF Ranger School, 2010. 270 p.

Handouts:

Audio/Visual Programs: All lectures presented in PowerPoint format and made available to students via intranet. Digital audio files of Latin-name pronunciations.

Field Trips: Newton Falls mine tailings site; Canton, New York; Jacques Cartier State Park on the St. Lawrence River; numerous trips to the Dubuar Forest and surrounding State lands.

Other: On-campus Arboretum; Intranet and internet resources.

FTC 202—Introduction to Surveying

Text: Elementary Surveying: An Introduction to Geomatics, by Charles D. Ghilani and Paul R. Wolf. 2008.

Handouts: Ranger School Basic Surveying Manual, by Michael Webb. SUNY-ESF Ranger School, 2010.

Numerous other handouts, including problem sets.

Audio/Visual Programs: Many lectures presented in PowerPoint format and made available to students via intranet.

Computer Programs: Carlson Survey Software, version _____

Field Trips: St. Lawrence County Court House, Canton, NY.

Other:

FTC 204—Introduction to Natural Resources Measurements

Text:	Forest Mensuration for the Forest Technician, James M. Savage and Charles E. Martin. SUNY-ESF, Department of Forest and Natural Resources Management, Syracuse, NY. 2005. 200 p.
Booklet:	Tables for Estimating Board-Foot Volume of Timber, by Clement Mesavage and James W. Girard. USDA Forest Service. 94 p.
Handouts:	Technical Report Writing: A Manual of Style. James M. Savage. SUNY-ESF Ranger School. 2010. 33 pp. FTC 204 Field and Laboratory Manual, by James M. Savage. SUNY-ESF Ranger School. 2010. Statistics Study Guide, by James M. Savage. SUNY-ESF Ranger School. 2010. Numerous other handouts, including problem sets.
Audio/Visual Programs	Many lectures presented in PowerPoint format and made available to students via intranet.
Computer Programs:	MS Word, MS Excel.
Other:	Intranet and internet resources; Guest speakers.

FTC 206—Forest Ecology

Text:	Forest Stand Dynamics, by C. D. Oliver and B.C. Larson. 1996. Dendrology-Eco Field Manual: A Guide to Plant Identification at the Ranger School, by Michael Bridgen. SUNY-ESF Ranger School, 2010. 270 p. Forest Cover Types of the United States and Canada, Society of American Foresters, 1980. Various Field Guides focused on ground vegetation.
Handouts:	University Readers copyrighted course materials packet for FTC 206 Forest Ecology (ordered online) Numerous other handouts.

Audio/Visual Programs: Many lectures presented in PowerPoint format and made available to students via intranet.

Field Trips: Newton Falls mine tailings; local NYS Forest Preserve lands; Adirondack Museum of Natural History (Wild Center), Tupper Lake, NY.

Computer Programs: MS Word, MS Excel, ArcGIS 9.3

Other: Intranet and internet resources.

FTC 208—Geographic Information Technology

Text: Elementary Surveying: An Introduction to Geomatics, 12th ed. By Charles D. Ghilani, and Paul R. Wolf. Prentice Hall, 2008. 900 p.

Handouts: Basic Graphics for the Forest Technician, various Ranger School Faculty authors, SUNY-ESF Ranger School.

Free hand Lettering, SUNY-ESF Ranger School

Numerous others.

Materials: USGS Quadrangles of local area; Digital orthophotos of Dubuar Forest; Various drafting equipment items used for lettering and line drawing.

Audio/Visual Programs: Many lectures presented in PowerPoint format and made available to students via intranet.

Computer Programs: MS Word, MS Excel, Windows Explorer, ArcGIS 9.3

Field Trips: LaFave, White and McGivern, Land Surveyors and Photogrammetrists, Theresa, NY

Other: Intranet and internet resources.

FTC 207—Forest Safety:

Text: First Aid, CPR, AED Program, American Red Cross, 2001.

Handouts: Hand Tools of the Forest Worker, by Richard Miller. SUNY-ESF Ranger School, _____

Trail Handbook, by Richard Miller. SUNY-ESF Ranger School, _____

Skidder Operation and Maintenance, by Wayne Allen. SUNY-ESF Ranger School, _____

Clearing for the Future, How to Use a Chainsaw, Jonsered Power Products A.B.

Materials: Hand tools, chainsaws, brush saws, skidder

Audio/Visual Programs: First Aid/CPR/AED, 2001, American Red Cross
Film: Chainsaw Safety , Tilton Equipment Company
Jonsered 2054C Turbo Chainsaws
Jonsered RS 51 Brushsaws,
Jonsered "Iron Horse" Skidding device
Jonsered Chainsaw Sawmill,
John Deer 440C Skidder

FTC 210—Leadership and Forest Technology:

Text: Loving Trees is Not Enough: Communication Skills for Natural Resource Professionals, by Brooks C. Mendell, 2006.

Handouts:

Audio/Visual Programs: Many lectures presented in PowerPoint format and made available to students via intranet.

Other: Intranet and internet resources; Guest speakers.

FTC 211—Silviculture

Text: The Practice of Silviculture: Applied Forest Ecology, 9th ed., by David M. Smith, Bruce Larson, Matthew Kelty, and P. Mark S. Ashton, 1997. 537 p.

Handouts: Silviculture Study Guide, by Michael Bridgen. SUNY-ESF Ranger School, 2011.

Audio/Visual Programs: All lectures presented in PowerPoint format and made available to students via intranet.

Field Trips: Visits to International Paper Timberlands, Brasher Fall State Forest,

Other: Intranet and internet resources; Guest speakers.

FTC 213—Forest Inventory Practicum

Text: Forest Mensuration for the Forest Technician, by James M. Savage and Charles E. Martin. SUNY-ESF Department of Forest and Natural Resources Management, 2005. 200 p.

Handouts: Technical Report Writing: A Manual of Style, by James M. Savage. SUNY-ESF Ranger School, 2010. 33 p.

The Timber Cruise: Background, Purpose and Procedure. SUNY-ESF Ranger School, 2011. 41 p.
Statistics Study Guide, by James M. Savage. SUNY-ESF Ranger School, 2010. 12 p.

Handbook: Tables for Estimating Board-Foot Volume of Timber. Clement Mesavage and James W. Girard. USDA Forest Service. 94 p.

Audio/Visual Programs: Digital, instructional photos made available to students via intranet.

Computer Programs: Fountains, Inc. TwoDog Forest Inventory software (OfficeDog 2.6.667), ESRI ArcGIS 9.3, MS Word, MS Excel

Other: Digital orthophotos of Dubuar Forest; Intranet and internet resources.

FTC 215—Timber Harvesting:

Text: Handbook for Eastern Timber Harvesting, Forest Service

Logging and Pulpwood Production ,2nd Edition; Stenzel, Walbridge, Pearce

Harvesting Systems and Equipment in British Columbia, A. J. MacDonald, 1999.

Handouts:

Timber Appraisal and Logging Plan Design, by Richard Miller and Wayne G. Allen. SUNY-ESF Ranger School, _____

Skidder Operation and Maintenance, by Wayne Allen. SUNY-ESF Ranger School, _____

Audio/Visual Programs: All lectures presented in PowerPoint format and made available to students via intranet.

Video: HAZARD: Logging Safety , NE Loggers Association

Video: Chainsaw Safety , Tilton Equipment Company

Video: Lumber Jack Sky Pilot: Frank Reed's Historic Logging Days
Various manufacturer's films describing their timber harvesting or transporting equipment.

Equipment: Chainsaws, skidders, hand tools, personal safety equipment.

Field Trips: At least one trip to active logging job in northern New York.

Other: Intranet and internet resources.

FTC 217—Wildland Firefighting and Ecology:

Text: Firefighter Training, S-130, 2003, USDA Forest Service.

Introduction to Wildland Fire Behavior, S-190, 1994, USDA Forest Service.

US Forest Service Student Fire Fighter & Introduction to Wildland Fire

Behavior Training Manuals, NFDRS Manual.

Handouts: Various handouts that pertain to Fire history, Fire Fighting Organization, Prescribed Burning, Forest Fire Ecology.

Audio/Visual Programs: Firestorm: The Smoke Jumper's Story, 1999, Discovery Video.

Fire Wars, 2002, NOVA-WGBH Boston Video.

Your Home in the Line of Fire , 2000?, South Carolina Forestry Commission, FEMA.

Various films used to augment the USDA Forest Service S130/190 instructional materials.

Equipment: Various wildland fire fighting hand tools, weather gathering, and fire ignition devices.

Other: Guest speakers, especially NYS Forest Rangers

FTC 219—Introduction Forest Recreation

Text: None

Handouts: Numerous handouts and supplemental readings.

Audio/Visual Programs: All lectures presented in PowerPoint format and made available to students via intranet.

Equipment: Hand tools, chainsaws, brush saws, carpentry tools.

Field Trips: High Peaks and/or Five Ponds Wilderness Areas, Adirondack Park, NY; NYS-DEC Cranberry Lake Campground, Cranberry Lake, NY.

Other: Intranet and internet resources; Guest speakers.

FTC 221—Natural Resources Management

Text: Forest Management and Planning, by P. Bettinger, K. Boston, J.P. Siry and D.L. Grebner. 2009.

Text: Good Forestry in the Granite State. UNH Cooperative Extension Service, 2010.

Handouts: Various handouts prepared and revised annually including, but not limited to: Forest management plans, FLEP, Forestry within Adirondack Park, NED/SIPS, NYS Right to Practice Forestry.

Guest Speakers: John E. Wagner, Ph.D., Associate Professor of Forest Resource Economics, SUNY College of Environmental Science and Forestry.
Thomas Martin, NYS DEC Regional Forester – Region 5.
Craig Vollmer, Certified Forester, Forecon, Inc.
Christopher Nowak, Ph.D., Professor of Silviculture, SUNY College of Environmental Science and Forestry.
Tony Woods, Forester, Wagner Forest Management, Ltd.
Michael Burns, Program Manager, Empire State Forest Products Association.

Audio/Visual Programs: Many lectures presented in PowerPoint format and made available to students via intranet.

The Greatest Good (video celebrating 100-year history of US Forest Service). USDA Forest Service, _____

Computer Programs: MS Word, MS Excel, NED/SIPS, ArcGIS 9.3, TwoDog Forest Inventory Software from fountains forestry.

Field Trips: NY-SAF Annual Meeting held in Syracuse, New York; Industrial forest lands in northern New York managed by fountains forestry and/or LandVest, Inc.

FTC 223—Water Measurements

Text: None

Handouts:

Audio/Visual Programs:

Other:

FTC 225—Timber Transportation and Utilization

Text: Identifying Wood: Accurate Results with Simple Tools, by Bruce R. Hoadley, 1990.

The Location of Forest Roads, by T.A. Walbridge, Jr., 1997.

Forest Roads for the Forest Technician (handbook), by Richard Miller and Wayne G. Allen. SUNY-ESF Ranger School, _____

Handouts: Guides to identifying wood structure

Materials: A collection of wood samples from four dozen species.

Audio/Visual Programs: Many lectures presented in PowerPoint format and made available to students via intranet.

Computer Programs: Carlson Survey Software, version _____

Field Trips: At least one sawmill and one manufacturing facility in northern New York.

Other: Intranet and internet resources.

FTC 234—Wildlife Conservation

Optional Text: Wildlife Ecology and Management, 5th ed., by Eric Bolen and William Robinson. Prentice Hall, 2003. 694 p.

Handouts: Several handouts and supplemental readings assigned.

Audio/Visual Programs: Wild Sounds: Greatest Hits (CD of bird and frog songs). Produced by James M. Savage. Published by SUNY-ESF Ranger School with permission from Lang Elliot, Naturesound Studios. 2004.

Think Like a Mountain (video on endangered species), USDA Forest Service, Pacific Southwest Region.

Counting Sheep: Restoring the Sierra Nevada Bighorn (video), Green TV, 2004.

Rattlers, Peepers, and Snappers: The First Complete DVD Guide to all the Amphibians and Reptiles that Breed in New England. Peregrine Productions, LLC, 2008.

Field Trips: Huntington Wildlife Forest, Newcomb, NY.

Other: Intranet and internet resources, including Cornell Lab of Ornithology website; Guest speakers.

FTC 238—Forest Insects and Disease

Text: Forest Health and Protection, by R.L. Edmonds, J.K. Agee and R.I. Gara. 2011.

The Stewardship of Northern Hardwoods: A Forest Owner's Handbook, by K.B. Adams and D.C. Allen. _____

Introduction to Forest Entomology, by D.C. Allen, 1985.

Handouts: Numerous handouts prepared and revised annually.

Audio/Visual Programs: All lectures presented in PowerPoint format and made available to students via intranet. Slides of signs, damage, and defects of various diseases. Slides of insects, insect anatomy, pest groups, damage.

Materials: Insect collections from Dubuar Forest and Central New York; insect-collecting equipment.

Other: Intranet and internet resources.

APPENDIX C
Documents for Standard III
Faculty

Appendix C-1

Forest Technology Program, 2010-11
Faculty/Staff Course Assignments.

Westbrook, Christopher – Professor – Director – 12 months

Courses – Primary responsibility

FTC 210 Leadership & Forest Technology	3.0 CH
FTC 223 Water Measurements	1.0 CH
Total	**4.0 CH**

Field Assistant

FTC 202 Introduction to Land Surveying
FTC 207 Forest Safety
FTC 215 Timber Harvesting

Bridgen, Michael – Professor – 10 months

Courses - Primary responsibility

FTC 200 Dendrology	3.0 CH
FTC 208 Geographic Information Technology	1.0 CH
FTC 211 Silviculture	4.0 CH
FTC 215 Timber Harvesting	2.0 CH
FTC 225 Timber Transportation and Utilization	1.0 CH
Total	**11.0 CH**

Field Assistant

FTC 213 Forest Inventory Practicum
FTC 215 Timber Harvesting

Savage, James – Professor – 10 months

Courses – Primary responsibility

FTC 200 Dendrology	1.0 CH
FTC 204 Intro to Natural Resources Measurements	4.0 CH
FTC 213 Forest Inventory Practicum	2.0 CH
FTC 219 Introduction to Forest Recreation	1.0 CH
FTC 234 Wildlife Conservation	3.0 CH
Total	**11.0 CH**

Field Assistant

FTC 207 Forest Safety
FTC 215 Timber Harvesting
FTC 238 Forest Insects and Disease

Garrison-Johnston, Mariann – Assistant Professor – 10 months

Courses -Primary responsibility

FTC 206 Forest Ecology	4.0 CH
FTC 208 Geographic Information Technology	1.0 CH
FTC 217 Wild Land Firefighting and Ecology	2.0 CH
FTC 221 Natural Resources Management	3.0 CH
FTC 238 Forest Insects and Disease	3.0 CH
Total	**13.0 CH**

Field Assistant

FTC 204 Intro to Natural Resources Measurements
FTC 213 Forest Inventory Practicum
FTC 215 Timber Harvesting

Webb, Michael – Instructor – 10 months

Courses -Primary responsibility

FTC 202 Introduction to Surveying	3.0 CH
FTC 207 Forest Safety	1.0 CH
FTC 208 Geographic Information Technology	1.0 CH
FTC 225 Timber Transportation and Utilization	2.0 CH
Total	**7.0 CH**

Field Assistant

FTC 204 Intro to Natural Resources Measurements

Fleming, Robert – Instructional Support Assistant – 12 months

Courses - Field/lab Assistant

FTC 200 Dendrology
FTC 202 Introduction to Surveying
FTC 204 Intro to Natural Resources Measurements
FTC 206 Forest Ecology
FTC 207 Forest Safety
FTC 210 Leadership and Forest Technology
FTC 211 Silviculture
FTC 213 Forest Inventory Practicum
FTC 215 Timber Harvesting
FTC 219 Intro to Forest Recreation
FTC 225 Timber Transportation and Utilization
FTC 238 Forest Insects and Disease

Vaverchak, Greg – Instructional Support Associate – 12 months

Courses – Field/lab Assistant

FTC 202 Introduction to Surveying
FTC 204 Intro to Natural Resources Measurements
FTC 206 Forest Ecology
FTC 207 Forest Safety
FTC 210 Leadership and Forest Technology
FTC 211 Silviculture
FTC 213 Forest Inventory Practicum
FTC 215 Timber Harvesting
FTC 219 Intro to Forest Recreation
FTC 221 Natural Resources Management
FTC 225 Timber Transportation and Utilization
FTC 238 Forest Insects and Disease

Appendix C-2

Curriculum Vitae Summary

CHRISTOPHER L. WESTBROOK
PROFESSOR
CURRICULUM VITAE SUMMARY
DEPARTMENT OF FOREST AND NATURAL RESOURCES MANAGEMENT RANGER SCHOOL
SUNY-COLLEGE OF ENVIRONMENTAL SCIENCE AND FORESTRY
WANAKENA, NY 13695

Name and Academic Rank: Christopher L. Westbrook, Professor

Degrees with field, institution, and date:

Certificate, Forest Technology; Ranger School, Wanakena, NY	1973
B.S., Forest Management; University of Montana, Missoula, MT	1977
M.A. Technology Education; West Virginia University, Morgantown, WV	1988

Number of year's service on this faculty: 21.5

Professor	2002 - Present
Director	1995 - Present
Associate Professor	1994 - 2002
Assistant Professor	1989 - 1994

Other related experience:

Assistant Professor, Land Surveying, Glenville State College, Glenville, WV	1982 - 1988
Instructor, Land Surveying, Glenville State College, Glenville, WV	1988– 1989
Surveying Technician, Smith Land Surveying, Glenville, WV (part time)	1983 - 1988
Technical Assistant, SUNY ESF Ranger School, Wanakena, NY	1980 - 1982

Consulting and Patents:

None

State(s) in which registered:

New York State Licensed Land Surveyor, No. 050250

Principal publications of last five years:

None

Scientific and professional societies of which a member:

New York State Association o Professional Land Surveyors (NYSAPLS)
American Congress on Surveying and Mapping (ACSM)
National Society of Professional Surveyors (NSPS)
Society of American Foresters (SAF) and New York SAF
Council of Eastern Forest Technology Schools (CEFTS)

Honors and awards:

SUNY Chancellor's Award for Excellence in Teaching	1996
Haddock Award, Ranger School Alumni Association	2002
President's ESF Public Service Award	2003
SUNY Chancellor's Award for Excellence in Faculty Service	2004
Robert Uplinger Distinguished Service Award (Lion's Club)	2010

Institutional and professional service in last five years:

Member, Ranger School Promotion and Tenure Committee
President, Clifton-Fine Economic Development Corporation
Member and Chair, NYSAPLS Education Committee
Member, SAF Forest Technology Accreditation Committee
Member, St. Lawrence County Leadership Institute
Member, Adirondack Economic Development Corporation
President and Past President and Member, Council of Eastern Forest Technology Schools (CEFTS)
Member, NYS DEC Commissioner's Adirondack Planning Initiative Steering Committee

Professional development activities in last 5 years:

NYSAPLS 52nd Annual Conference, Verona, NY	January 19-21, 2011
NYSAPLS 51st Annual Conference, Verona, NY	January 13-15, 2010
CEFTS Annual Meeting, Glenville, WV	August 2009
NYSAPLS 50th Annual Conference, Albany, NY	January 14-16, 2009
CEFTS Annual Meeting, Itasca Community College, MN	August 2008
NYSAPLS 49th Annual Conference, Niagara Falls, NY	January 16-18, 2008
CEFTS Annual Meeting, Fort Kent, Maine	August 2007
NYSAPLS 48th Annual Conference, Rochester, NY	January 17-19, 2007
CEFTS Annual Meeting, Paul Smith's College, NY	August 2006
NYSAPLS 47th Annual Conference, Verona, NY	January 2006
NYSAPLS 46th Annual Conference, Saratoga Springs, NY	January 2005

MICHAEL R. BRIDGEN
PROFESSOR
RANGER SCHOOL
DEPARTMENT OF FORESTRY AND NATURAL RESOURCES MANAGEMENT
SUNY- COLLEGE OF ENVIRONMENTAL SCIENCE AND FORESTRY
WANAKENA, NY 13695

CURRICULUM VITAE SUMMARY

Name and Academic Rank:

Michael R. Bridgen, Professor

Degrees with field, institution, and date:

B.S., Forest Science (with Distinction); Pennsylvania State University	1975
Ph.D., Tree physiology and genetics; Michigan State University	1979

Number of years service on this faculty: 19

Professor	2005 - present
Associate professor	1997 - 2005
Assistant professor	1992 - 1997

Other related experience:

Forest Research Scientist, Westvaco Corporation	1979 - 1992

Consulting and patents:

Consultant to St. Regis Mohawk Tribe Environment Division,	1993 - present
Consultant to Aroostook Band of Micmacs,	2003 – 2006
Consultant to Appleton Corporation,	1997 – 2000
Consultant to Alcoa Corporation	2007

State(s) in which registered: None

Principal publications of last five years:

Bridgen, M. R. and David McDonald. 2010. Compare and contrast: Two Ranger Schools. Council of Eastern Forest Technology Schools blog. (cefts.blogspot.com).

Bridgen, Michael R. Black ash silviculture projects in New York and Maine. West Lafayette, IN. Symposium on Ash in North America. March 9-11, 2010

Greenlaw, Suzanne, Marla R. Emery, Robin W. Kimmerer, and Michael R. Bridgen. Understanding and integrating native knowledge to determine and identify high quality ash resources. West Lafayette, IN. March 9-11, 2010

Bridgen, Michael R. 2009. "Seven-year results of Testing Paper Mill Residual Sludge as a Soil Ameliorant of Iron Mine Tailings" as an oral presentation this summer at the North American Forest Ecology Workshop, Logan, Utah June 22-26, 2009

Bridgen, Michael R. 2008. "Dendrology-Eco Field Manual, A Guide to Plant Identification at the Ranger School". Revised 2009, 2010

Bridgen, Michael R. 2007. Five-year assessment of black ash seedlings planted on the Alcoa East Wetland Mitigation Project. Report to Camp, Dresser and McKee, Environmental Consultants for Alcoa Inc., Massena East Plant.

Bridgen, Michael R. 2006. Forest Inventory Analysis Report, St. Regis Mohawk Tribe, Akwesasne, Hogansburg, NY. Supplemental Report. July 2006. Determining allowable cut estimations for the St. Regis Mohawk forest in the St. Lawrence River Valley.

Bridgen, Michael R. 2006. Seven-year results of testing paper mill residuals as a soil ameliorant of iron mine tailings. Prepared for the New York State Department of Environmental Conservation, investigating a "beneficial use" permit for potential buyers of the Newton Falls, NY paper mill.

Bridgen, Michael R. and Timothy I. McAbee. 2005. Stand Analysis and Recommendations for the Micmac Tribe Brown Ash Management Area. Final Report to the Aroostook Band of Micmacs, Presque Isle, Maine.

Scientific and professional societies of which a member:

Canadian Institute of Forestry, and Ottawa Valley Section of CIF
New York Forest Owners Association

Honors and awards:

UUP Professional Development Award, $650 travel allocation 2009
On May 19, 2007, during the Ranger School graduation ceremony, I was presented the "Bridgen Cup" and a commemorative plaque, from the Ranger School Alumni Association and the Class of 2007, in recognition of my service to the students and Ranger School alumni by promoting an extra-curricular hockey program.
Earle R. Wilcox Memorial Individual Achievement Award – Eastern Region
This award honor individuals who have made significant contributions in the field of Indian forestry. April 2004
SUNY Chancellor's Award for Excellence in Teaching
This award honors SUNY college professors for teaching excellence. 2003

Institutional and professional service:

College Service – Faculty Development

Member of the Ranger School Promotion and Tenure Committee 1999-2001, 2006, 2009, 2010
Chair of the Ranger School Promotion and Tenure Committee 2006-2008, 2011
Chair of the Ranger School Instructional Support Specialist Search Committee 2009-2010
Chair of the Ranger School Faculty Search Committees 2000-2001, 2007-2008
Member of Resident Hall Director Search Committee 2004, 2009-2010

College Service – Administration

Member of the ESF Faculty Governance Public Service Committee 1994-1998
Co-Chair 1998

Graduate Student Education

Major professor for Christina Ricci, M.S. 1998-1999
Major professor for James Norman, M.S. 1999-2001
Major professor Eric Easton, M.S. 2002-2006
Served on Steering Committee for Gary Rachel 1998-1999
Served on Steering committee for Tom Touchet 2000
Served on examining committee for Ryan Hanavan (MS degree) 2004
Served on examining committee for Ariusz Kornacki (MS degree) 2003-2005
Served on Steering Committee member for Nicholas A. Padowski, M.S. 2005-2007
Serving as a Steering Committee member Suzanne Greenlaw, MS candidate 2009-present

Honors Student Project

Principle instructor for ESF 499, Honor Thesis, with Tim McAbee 2005-2006

The Arboretum

Served as supervisor of the Ranger School Arboretum 1992 to present

Other Recent Activities

Presented a one-hour lecture on "The Natural History and Silviculture of Black Ash" to the second-year forest technology students at the Maritime College of Forest Technology in Fredericton, New Brunswick. October 20, 2009
Served as an "Educator" for the Research Foundation, for a program conducted by Richard Beal at the Wanakena Campus. 2008
Conducted a tour of the mine tailings re-vegetation project for the Laurentian Chapter of the Adirondack Mountain Club. An article of the tour was later published in Adirondack Life magazine. May 24, 2008
Invited to serve as a technical reviewer (Technical Evaluation Panel) for NYSERDA's "Greening Bronx" project. 2008
Reviewed "Predicted and observed sugar maple mortality in relation with site quality factors" for consideration to the *Northern Journal of Applied Forestry*. 2007
Organized the "Foundational Black Ash Center Meeting", held in Syracuse, NY. May 24-25, 2007
Recruiting students from SUNY Ulster, SUNY Canton and SUNY ESF 2007 – present
Instructed "Woodlot Management Skills" for the annual Soil and Water Conservation Districts Training, Cortland, New York. October 23 to 25, 2006
Presented one lecture as part of the Ranger School's "Summer Lecture Series", "A Tale of Two Waste Products: Restoring Forest Vegetation on the Newton Falls Mine Tailings Using Paper Mill Sludge". August 17, 2006
Serve on the St. Lawrence-Lewis County BOCES Advisory Council, Environmental Technology program. 2006 - present
Served on the board of directors of the Northern Adirondack Chapter of the New York Forest Owners' Association. 2006
Served as a reviewer of the Walker Fellowship Program of the Merwin Rural Services Institute, located in SUNY Potsdam, in Potsdam, NY. 2006

<u>Professional development activities in the last five years</u>:

Attended Introduction of ArcGis 9.3, a workshop offered by the University of New Hampshire at Laconia, New Hampshire. May 22 to May 26, 2010

Attended Symposium on Ash in North America. West Lafayette, IN. March 9-11, 2010
Attended North American Forest Ecology Workshop, Logan, Utah June 22-26, 2009
Attended 7th Biennial Conference on University Education in Natural Resources Corvallis, Oregon March 13-15, 2008
Attended the "Active Learning: Creating Excitement in the Classroom", sponsored by SUNY Training Center, at the University of Buffalo, Buffalo, New York. March 2, 2007
Attended the "Best Assessment processes VIII, A Working Symposium", sponsored by ABET, Inc. and the Rose-Hulman Institute of Technology, in Terre Haute, Indiana.
February 26, to March 1, 2006
Attended (and served as an invited speaker) the 24th Annual National Conference of the Native American Fish and Wildlife Society in Bar Harbor, Maine May 22 to 25, 2006

ROBERT T. FLEMING
Ranger School – Forest Technology Program
SUNY College of Environmental Science and Forestry
Wanakena, New York 13695

Career Objective: To continue to work in the forest technology field at an educational level and to broaden my knowledge in the field of forestry through continued education.

Educational Experience:

SUNY College of Environmental Science and Forestry, Ranger School. A.A.S. in Forest Technology with an emphasis in the field of surveying (May '96).

Jefferson Community College. Spring '93 – Spring '95, majored in Math / Science.

Work Experience:

Fall '97 - Instructional Support Assistant, Ranger School. Wanakena, New York. Provide technical support to staff in classroom and field environments. Responsible for the inventory, care and distribution of equipment associated with course activities.
40 hrs./ wk.

Spring '97 – Fall'97 Research Aide, SUNY Research Foundation. Wanakena, New York. Assisted with a beneficial use research and demonstration project for revegetation of iron mine tailings using paper mill residuals.

Fall '96 – Spring '97 Instructional Support Assistant, Ranger School. Wanakena, New York. Provided technical support to staff in classroom and field environments. Responsible for the inventory, care and distribution of equipment associated with course activities.
25 hrs./ wk.

1993 – 1995 Maintenance Technician, Jefferson Community College. Watertown, New York. Responsible for the maintenance and upkeep of school grounds.

Military Experience:

Honorable Discharge – January '89, SP4, United States Army Reserves.

Awards:

*Butterfield Lake Scholarship ,*awarded annually to a student going on in the environmental field and academic achievement.
Ranger School Alumni Annual Spring Scholarship, for academic achievement.

Certificates:

American Red Cross, First Aid/CPR & AED certified.

Honors:

Presidents List, *Jefferson Community College,* Spring '95.
Presidents Honors List, *Ranger School,* Fall '95, Spring '96.

Professional Development Activities:

1996 Attended New York State Professional Land Surveyors (NYSPLS) Conference in Syracuse, N.Y.

1997 Attended NYSPLS Annual Conference in Lake Placid, N.Y.
Attended a one-day seminar on Microsoft Office in Watertown, N.Y.
Attended Basic Real Time GPS Course, presented by Pam Featherstone in Wanakena, N.Y.

1998 Attended NYSPLS Annual Conference in Buffalo, N.Y.
Attended Best Management Practices Workshop on Timber Harvest Planning and Implementation.
Attended Resource, Conservation & Development Workshop on Milling Practices.
Attended The Hazard Tree Dilemma Workshop in Wanakena, N.Y.

1999 Attended New York State Maple Producers Satellite Conference in Canton, N.Y.
Attended a two-day seminar on the Introduction to ArcView GIS in Syracuse, N.Y.

2000 Attended New York State Maple Producers Satellite Conference at Potsdam State University

2001 Attended New York State Maple Syrup Producers Satellite Conference in Potsdam, N.Y.

2009 Attended New York State Society of American Foresters Annual Meeting in Syracuse, N.Y

2010 Attended New York State Society of American Foresters Annual Meeting in Syracuse, N.Y.

2011 Attended New York State Society of American Foresters Annual Meeting in Syracuse, N.Y

Mariann T. Johnston
Assistant Professor
Faculty of Forest and Natural Resources Management
SUNY-College of Environmental Science and Forestry Ranger School
Wanakena NY 13695

Name and Academic Rank: Mariann T Johnston, Assistant Professor

Degrees with field, institution and date:

B.S. Forest Biology , Colorado State University, Ft. Collins CO	1986
M.S.Forest Resource Management University of Idaho, Moscow ID	1993
Ph.D.Forestry, Wildlife and Range Sciences, Univ. of Idaho, Moscow ID	2003

Number of years of service on this faculty: 3

Assistant Professor	2008-2011

Other related experience:

Research Scientist, Forest Resources, University of Idaho, Moscow ID	2004-2008
Research Aide/Associate, Forest Resources, University of Idaho, Moscow ID	1994-2004
Teaching/Research Assistant, Forest Resources, University of Idaho, Moscow ID	1991-1994
Peace Corps Forestry/Environmental Education Trainer, Tumbaco, Ecuador	1991-1994
Peace Corps Volunteer, Forestry Program, Riobamba, Ecuador	1987-1990
Forest Technician (seasonal), Routt National Forest, Colorado	1983-1986

Consulting and Patents: None

States in which registered or certified:

Society of American Foresters Certified Forester #3219	2004-present

Principal publications of the last five years:

Kimsey, M.J., **M.T. Garrison-Johnston** and L.R. Johnson, 2011. Characterization of Volcanic Ash-Influenced Forest Soils Across a Geoclimatic Sequence. Soil Science Society of America Journal 75:267-279.

Garrison-Johnston, M.T., 2010 Northeast Oregon IFTNC Region Nutrition Guidelines By Rock Type: Nutrition guidelines for use in conjunction with digital geology for the northeastern portion of the state of Oregon. Intermountain Forest Tree Nutrition Cooperative, Department of Forest Resources, College of Natural Resources, Univ. of Idaho, Moscow, Idaho, 63p.

Garrison-Johnston, Mariann T., Peter G. Mika, Dan L. Miller, Phil Cannon and Leonard R. Johnson, 2007. Ash Cap Influences on Site Productivity and Fertilizer Response in Forests of the Inland Northwest. IN: Page-Dumroese, D., R. Miller, J. Mital, P. McDaniel and D. Miller, tech. eds. 2007. Volcanic-Ash-Derived Forest Soils of the Inland Northwest; Properties and Implications for Management and Restoration. November 9-10, 2005, Coeur d'Alene, ID. Proceedings RMRS-P-44; Ft. Collins, CO: US Dept. of Agriculture, Forest Service, Rocky Mountain Experiment Station.

Garrison-Johnston, Mariann, Terry Shaw, Peter Mika and Leonard R. Johnson, 2005. Management of ponderosa pine nutrition through fertilization. IN: Martin W. Ritchie, Douglas A. Maguire, Andrew Youngblood (technical coordinators). Proceedings of the Symposium on Ponderosa Pine: Issues, Trends, and Management. 2004 October 18-21 Klamath Falls, OR. Forest Service Gen. Tech. Rep. PSW-GTR-198. Albany CA: US Department of Agriculture, Forest Service, Pacific Southwest Research Station.

Scientific and professional societies of which a member:

Society of American Foresters
Soil Science Society of America
Ecological Society of America

Honors and Awards:

2004 Inland Empire Society of American Foresters Communicator of the Year

Institutional and professional service in the last five years:

Chair-Elect, New York Society of American Foresters, 2011-2012
Search Committee for Assistant Professor in support of the Forest Technology and Environmental and Natural Resources Conservation Programs, 2011 (in progress).
Moderator for 'Professional Research Presentations' session, NYSAF 2010 Annual Meeting, Syracuse, NY
FNRM Honors and Awards Committee, 2010 - present
Search Committee for Program Aide, Wanakena Campus, 2010
Search Committee for Instructional Support Associate, Wanakena Campus, 2010
Faculty Advisor to Student Government, 2009-present
Website Administrator, New England Society of American Foresters, 2006-2008
Executive Councilor, Inland Empire Society of American Foresters, 2003-2004
Secretary, Palouse-Snake River Chapter Society of American Foresters, 2003-2004

Professional development activities in the last five years:

McIntire-Stennis Proposal "Fresh Taste from a Stale Pickle: An Alternate Perception of Beech Bark Disease" successfully funded FY 12-13 for $53,590
Hardy L. Shirley Faculty Mentoring Colloquium: Collaborations in Research, Teaching and Outreach: Opportunities, Challenges and New Paradigms, January 12, 2011, Drumlins Country Club, Syracuse, NY
New York SAF 2011 Annual Meeting, January 27-28, 2011, Syracuse, NY
Society of American Foresters National Convention, October 27-30 2010, Albuquerque, NM
Hubbard Brook Committee of Scientists Quarterly Meeting, July 9, 2010, Thornton NH
Presentation: Vector Analysis: Promises and Pitfalls, July 7, 2010, Hubbard Brook Ecosystem Study Annual Meeting, Thornton NH
Hubbard Brook Ecosystem Study Annual Meeting, July 7-8 2010, Thornton NH
Women in Scientific and Environmental Professions Series, Dr. Laura Kenefic and Dr. Susan Stout, ESF Moon Library, April 2010, Syracuse NY
FNRM Speaker Series, Dr. Laura Kenefic, ESF Moon Library, April 2010, Syracuse NY
Eighth Biennial Conference on University Education in Natural Resources, March 25-27, 2010, Virginia Tech University, Blacksburg, VA
FNRM Speaker Series, Dr. Tim Fahey, ESF Moon Library, February 2010, Syracuse NY
New York Society of American Foresters 2010 Annual Meeting, January 2010, Syracuse NY
Hubbard Brook Committee of Scientists Quarterly Meeting, October 2009, Millbrook NY
ESF Beech Consortium Organizational Meeting, August 25, 2009, Newcomb, NY
Hubbard Brook Committee of Scientists Quarterly Meeting, July 9, 2009, Thornton NH
Hubbard Brook Ecosystem Study Annual Meeting, July 7-8 2009, Thornton NH
Presentation: Potlatch Slash Leaching Trial, Intermountain Forest Tree Nutrition Cooperative 2009 Annual Meeting, April 7, 2009, University of Idaho Commons, Moscow, ID
New York Society of American Foresters 2009 Annual Meeting, January 2009, Syracuse NY
Presentation: Geology and Nutrition Guidelines for the Inland West, Intermountain Forest Tree Nutrition Cooperative 2008 Annual Meeting, April 8, 2008, University of Idaho Commons, Moscow, ID
New England Society of American Foresters Annual Meeting, March 21-23, Fairlee, VT

Cognition, Teaching and Learning (2 credits), University of New Hampshire Graduate School, May-June 2007, Durham NH

Teaching With Writing (2 credits), University of New Hampshire Graduate School, May-June 2007, Durham NH

National Workshop on Forest Productivity and Technology: Cooperative Research to Support a Sustainable and Competitive Future, November 8-9, 2006, Holiday Inn Capitol at Smithsonian, Washington DC

Wetland Classification, University of New Hampshire Professional Development Series, October 2006 Portsmouth NH

Army Corps of Engineers Wetland Delineation Methods, University of New Hampshire Professional Development Series, September-October 2006, Portsmouth NH

Percentage of time available for research, scholarly activities or professional development:

Teaching 75%
Research 17%
Service 8%

James M. Savage
Professor
Curriculum Vitae Summary
Department of Forest and Natural Resources Management, Ranger School
SUNY College of Environmental Science and Forestry
Wanakena, NY

Name and Academic Rank: James M Savage, Professor

Degrees with field, institution, and date:

M.S., Silviculture, SUNY College of Environmental Science and Forestry,Syracuse, New York. 1990
B.S., Resource Management, SUNY College of Environmental Science and Forestry, Syracuse, New York. Graduated cum laude. 1986
A.A.S., Pre-Professional Forestry, Paul Smith's College, Paul Smiths, New York. Graduated cum laude. 1984
H.S.D., Fayetteville-Manlius High School, Manlius, New York. 1982

Number of years service on this faculty: 19

Professor, 2008 to present
Associate Professor, 1997 to 2008
Assistant Professor, 1991 to 1997

Other Related Experience:

SAF Certified Forester, 1995-present
NYS Licensed Outdoor Guide, 2009-present
NAI Certified Interpretive Guide, 2008-present
Forester, Fountain Forestry, Inc., part-time, 2000-present
Principle Investigator, SUNY Research Foundation, March-September, 2002.
Forester/Biological Research Technician, USDA Forest Service, May-November, 2001
Senior Research Support Specialist, SUNY Research Foundation, summer 1992
Forester, Forecon, Inc., May 1990 - November 1991
Office Manager, Forecon, Inc., Lowville, NY, February-November 1991
Graduate Teaching Assistant in Statistics and Forest Biometrics, SUNY-ESF ,1988-1989
Graduate Research Assistant, SUNY-ESF, 1988-1989
Nature-Camp Counselor and assistant program director, Tanager Lodge, Summers 1979, 1980, 1987
Forest Worker, Domänverket (Swedish Forest Service), summer 1986
Forest Crew Worker, SUNY-ESF Heiberg Memorial Forest, summer 1985

States in which licensed or registered:

None

Principal publications of last five years

Savage, J., K. Davidson, and L. Karasin, eds. Cranberry Lake 50: Trail Map and Guide. Five Ponds Partners, Wanakena, NY. 2009
Savage, J. To highgrade or not to highgrade, that is not the question! The New York Forester. 65(1):15. 2009

Craig, S., and Jamie Savage. 2008. Circumnavigating Cranberry: 50-mile loop around traverses remote backcountry. Adirondack, September/October, p. 14-17

Savage, J., and B. Breitmeyer, M. Gooden, A. Drew, C. Dawson. A Strategic Forest Management Plan for the James F. Dubuar Memorial Forest. 2007

Savage, J. A Tactical Forest Management Plan for the James F. Dubuar Memorial Forest. 2007

Bevilacqua, E., and J. Savage. Forestry Foundations. The New York Forester. 62 (2): 6 - 8.2006

Bevilacqua, E., and J. Savage. Forestry Foundations. The New York Forester. 61(3): 5 - 8. 2005

Bevilacqua, E., and J. Savage. Forestry Foundations. The New York Forester. 61(2): 5 - 8. 2005

Savage, J.M., and C.E. Martin. Forest Mensuration for the Forest Technician. 4th ed. Faculty of Forest & Natural Resources Management, Tech. Pub. #6. SUNY-ESF, Syracuse, NY. 200 p. 2005

Scientific and professional societies of which a member:

Society of American Foresters
National Association for Interpretation

Honors and awards:

Forester of the Year, New York Society of American Foresters, 2010
Plaque of Recognition, New York Society of American Foresters, 2009
Employee of the Year, SUNY-ESF Ranger School, 2004
Plaque of Recognition, Northern Adirondack Chapter, NY Forest Owners Assoc., 2000

Institutional and professional service in the last five years:

Chair, SUNY-ESF Ranger School Faculty Search Committee, 2010-2011
Member, NY Society of American Foresters, Legislation and Policy Committee, 2010-present
Member, SUNY-ESF Ranger School Instructional Support Associate Search Committee, 2010
Website Manager, NY Society of American Foresters, 2010
Immediate Past Chair, NY Society of American Foresters, 2009-2010
Chair, Ranger School Promotion and Tenure Committee, 2008-2010
Member, Stewardship, Education and Access Committee, a sub-committee of the Raquette River Blueway Corridor Committee, 2009-present
Member, Waterfront Advisory Committee, Towns of Clifton and Fine Local Waterfront Revitalization Strategy, 2006-2010
Member, Five Ponds Partners, a sub-committee of the Clifton-Fine Economic Development Corportion, 2003-present
Manager, Ranger School Library, 1994-present
Advisor, Ranger School Outing Club, 2002-present
Chair, NY Society of American Foresters, 2007-2008
Member, SUNY-ESF Ranger School Faculty Search Committee, 2008
Chair-elect, NY Society of American Foresters, 2005-2006
Organizer and Host, Ranger School Summer Lecture Series, 2004-2008
Advisor, Ranger School Yearbook, 2005
Coordinator, Northeast Regional Environthon Forestry Exam, 2007-2010

Professional development activities in the last five years:

NYSAF Annual Meeting, Syracuse, NY, 2011
Webinar, "Wild Things in Your Woodlands," 2011
SAF Silviculture/Utilization Pre-Convention Technical Tour, New Mexico, October 2010
SAF National Convention, Albequerque, NM, 2010
Webinar, "Lyme Disease in Pennsylvania" 2010
8th Biennial Conference on University Education in Natural Resources, Blacksburg, VA, 2010
Webinar, "Deer Habitat Management" 2010
NYSAF Annual Meeting, Syracuse, NY, 2010
Webinar, "Beginning Maple Syrup Production" 2010
NY Licensed Outdoor Guide Workshop, including First Aid and CPR, 2009
Webinar, "Climate Change: Your Woods and Wildlife" 2009
Online ArcGIS self-training modules, via the ESRI website, January 2009
NYSAF Annual Meeting, Syracuse, NY, 2009
SAF HSD Meeting and National Convention Reno, NV, 2008
NAI *Certified Interpretive Guide* course, Paul Smiths, NY, 2008
New England SAF Annual Meeting, Fairlee, VT, 2007
NYSAF Annual Meeting, Syracuse, NY, 2007
Travelled to Germany to learn about forestry and national park management in Bavaria, 2007
NYSDEC Marten and Fisher Training Workshop for Volunteers, Newcomb, NY, 2006
NYSAF Adirondack Chapter Meeting, North Creek, NY, 2006.
SAF National Convention, Pittsburgh, PA, 2006
NY-SAF Annual Winter Meeting, Liverpool, NY, 2006
NYSAF Adirondack Chapter meeting and tour of Dillon Park and IP lands, 2006
SAF National Leadership Academy, Nebraska City, NE, 2005
SAF National Convention, Fort Worth, Texas, 2005

GREGORY M VAVERCHAK
INSTRUCTOINAL SUPPORT ASSOCIATE
RANGER SCHOOL
DEPARTMENT OF FORESTRY AND NATURAL RESOURCE MANAGEMENT
SUNY- COLLEGE OF ENVIRONMENTAL SCIENCE AND FORESTRY
WANAKENA, NY 13695

Name and Academic Rank:

Gregory M. Vaverchak, Instructional Support Associate

Degrees with field, institution, and date:

A.A.S., Forest Technology; SUNY Environmental Science and Forestry Ranger School 2002
A.A.S., Business Administration; Broome Community College 2003
B.S., Forestry; Paul Smith's College 2006

Number of years service: 0

Instructional Support Associate 2011-present

Other related experience:

Arborist, Davey Tree Expert Co. 2006-2010
Urban Forest Technician, New Jersey Department of Environmental Protection 2005

Consulting and Patents:

None

States in which registered or certified:

International Society of Arboriculture Certified Arborist 2007-present

Principle publications of last five years:

None

Scientific and professional societies of which a member:

None

Honors and awards:

F.A. Bartlett Tree Experts Scholarship Award for academic excellence in urban tree management 2005
Honorary North American Forest Technician for superior academic achievement 2002
Arthur D. Shaw Scholarship Award for excellence in land surveying 2002
Matthew Moor Eagle Award based on character 2002

Institutional and professional service in the last five years:

Annual attendance at the "One Day, One School" work day in Morris County NJ 2007-2010

Attendance at the International Society of Arboriculture, NJ chapter work day 2009

Professional development activities in the last five years:

Attendance at the Davey Institute of Trees Sciences for four weeks of intensive professional development and best practices training in Practical Tree Care, Technical Sciences and Management 2010

Attendance at the NY State Society of American Foresters conference 2011

Michael H. Webb
Forest Technology and Land Surveying Technology
The Ranger School
Forest & Natural Resources Management
SUNY – College of Environmental Science & Forestry
Syracuse, NY 13210

Name and Academic Rank: Michael H. Webb, Instructor

Degrees with field, institution and date:

A.A.S Forest Technology; SUNY ESF Ranger School, Wanakena, NY 1974

Number of years service on this faculty: 8

Instructor	2005 to date
Visiting Instructor	2001 to 2005

Other related experience:

Principle, M. H. Webb Land Surveyor, Canton, NY	2000 to date
Principle, Webb & Wilhelm Land Surveyors, Parishville, NY	1984 to 2000
Crew Chief, David A. Haynes Land Surveyor, Nicholville, NY	1979 to 1984
Land Surveyor Trainee III, NYSDEC New Paltz, NY	1977 to 1979
Instrument man, Frank V. Scarborough Surveyor, Costa Mesa, CA	1976 to 1977

Consulting and Patents:

Consultant, WCT Land Surveyors, PC Canton, NY	2000 to 2005

States in which registered:

Licensed Land Surveyor #049557 State of New York	1983 to date

Principle publications of the past five years:

None at this time

Scientific and Professional societies of which a member:

New York State Association of Professional Land Surveyors

Honors and awards:

None at this time

Institutional and professional services in the last five years:

- Education Summit meetings @ SUNY ESF Main Campus. 2005 to date
- Topographic survey of Maintenance Building on Ranger School campus for the design of a wood chip boiler. 2007
- Boundary survey of entire Ranger School properties 2002 to date
- Various Ranger School Committees (Awards, Curriculum Review,
- Equipment, Centennial, Friends of the Surveyors and ABET

Professional development activities in the last five years: (CEUs)

- Introduction to ArcGIS, University of New Hampshire, Laconia, NH (8) May 2010
- Various workshops @ NYSAPLS 51st Annual Conference Verona, NY(8) Jan. 2010
- Various workshops @ NYSAPLS 50th Annual Conference Albany, NY(12.5) Jan. 2009
- Various workshops @ NYSAPLS 49th Annual Conference Niagara Falls, NY (12) Jan. 2008
- The Surveyor, FEMA & Elevation Certificates, Rochester, NY(8) June 2008
- Various workshops @ NYSAPLS 48th Annual Conference Rochester, NY (12) Jan. 2007
- Various workshops @ NYSAPLS 47th Annual Conference Verona, NY (12) Jan. 2006
- Various workshops @ NYSAPLS 46th Annual Conference Saratoga Springs, NY (8.5) Jan. 2005
- Future Role of the Surveyor in GIS, East Syracuse, NY (4) Aug. 2005
- Designing and Implementing a GIS, East Syracuse, NY (4) Aug. 2005

Appendix C-3

FTE Calculations for Ranger School

FTE Calculations for Ranger School, 2010-2011.

Faculty Full-Time Equivalents (FTEs)	Fall	Spring	Year
Westbrook	0.5	0.2	0.35
Bridgen	1	1	1
Savage	1	1	1
Johnston	1	1	1
Webb	1	0.25	0.625
Total (Yearly Total = "Z")	4.5	3.45	3.975

School SUNY-ESF Ranger School

Semester of Quarter? S

Overall Program Ratio

"X"	"Y"	"Z"	**Ratio**
1651	55.0	3.98	**7.5**

Course Prefix	Course Number	Course Name	Number of Credits	Lab Course	# Sec/Yr	Faculty/sec	Total Enrollment	x	y
FTC	200	Dendrology	3		1	1	43	129	4.30
FTC	202	Introduction to Surveying	3		1	1	43	129	4.30
FTC	204	Intro to Natural Resources Measurements	4		1	1	43	172	5.73
FTC	206	Forest Ecology	4		1	1	43	172	5.73
FTC	207	Forest Safety	1		1	1	43	43	1.43
FTC	208	Geographic Information Technology	3		1	1	43	129	4.30
FTC	210	Leadership and Forest Technology	3		1	1	43	129	4.30
FTC	211	Silviculture	4		1	1	34	136	4.53
FTC	213	Forest Inventory Practicum	2		1	1	34	68	2.27
FTC	215	Timber Harvesting	2		1	1	34	68	2.27
FTC	219	Intro to Forest Recreation	1		1	1	34	34	1.13
FTC	221	Natural Resources Management	3		1	1	34	102	3.40
FTC	223	Water Measurements	1		1	1	34	34	1.13
FTC	225	Timber Transportation and Utilization	3		1	1	34	102	3.40
FTC	234	Wildlife Conservation	3		1	1	34	102	3.40
FTC	238	Forest Insects and Disease	3		1	1	34	102	3.40

Appendix C-4

Job Descriptions

Director of the Ranger School

The Director of the Ranger School serves as the academic officer of the three academic programs offered at ESF's Wanakena Campus. In addition, the Director serves as chief contact and liaison between the Wanakena Campus and a variety of offices/departments on Syracuse Campus and as such has the primary responsibility of the welfare and safety of the students, faculty and staff. The Director teaches courses in one or more of the Ranger School's three academic degree programs. Given the nature of the position, the Director is required to live in on campus housing (The Director's House) provided by the institution.

RESPONSIBILITIES:

The Director reports to the Chair of the Department of Forest and Natural Resources Management. Given the many other responsibilities as noted below, the Director works closely with the President, Vice Presidents, Deans, Chairs, and department heads.

Specific responsibilities include but are not limited to:

1. Chief academic officer of the Ranger School.

2. Supervision of five faculty members, two instructional support staff, a Residence Hall Director and two administrative/clerical staff.

3. Responsible for the administrative operations related to the Ranger School Residence Hall. Responsible for year round security and safety of the residents of the Ranger School Dormitory for both the Ranger School Programs and other programs and groups who use the facility.

4. Responds to on campus emergencies and critical incidents on a 24 hour basis.

5. Responsible for student counseling and discipline
.
6. Serve as liaison between prospective students and the ESF Admissions Office staff. Conduct prospective student interviews, evaluate transcripts on an as needed basis, assist applicants with the application process, etc.

7. Responsible for all Ranger School fiscal accounts.

8. Works closely with ESF Director of Development on a wide range of development activities including contacts with donors, tracking donor gifts, recognizing donors, etc.

Serve as an ex-officio member of the Ranger School Alumni Association Board of Directors and be involved in various Alumni Association activities and events.

Instructional Support Associate (SL 2)

Description of Duties:

This is a full-time, 12-month appointment in the A.A.S. programs of SUNY ESF's Ranger School, at Wanakena, New York

This individual will work in association with members of the Ranger School Faculty assisting in a variety of courses including Dendrology, Forest Biology, Forest Ecology, Forest Measurements, Silviculture, Forest Management, logging and Forest Technology;

- The associate will serve as a field lab teacher for Dendrology forest Biology, forest Ecology, Forest Measurements and other courses in Forest Technology.

- Assist in the maintenance of the Ranger School arboretum, including establishing new planting areas, maintaining trails, weed control and general up-keep.

- Set up indoor and field laboratory instructional project, transport students into field study locations, and supervise students during field activities.

- Prepare, organize and distribute educational supplies.

- The associate will store, maintain, issue and set-up specialized educational supplies and equipment.

- Demonstrate, operate, or instruct students on the use of specialized equipment, including chainsaws and skidders.

AGENCY PROGRAM AIDE – JOB DESCRIPTION
SUNY ESF – Ranger School, Wanakena, NY

1. Carries out and establishes all office procedures needed to operate the Ranger School academic program and summer bridge program. Supervisor is the Program Director but work is received from the director, faculty members,, other academic staff, physical plant staff and at times students.

2. Correspondence: On a daily/as needed basis this position:
    a. Corresponds with prospective students and their parents. Answers questions regarding admission procedures, program content, summer bridge program, employment opportunities, academic requirements tuition, etc.
    b. Corresponds with the general public and answers questions on the school history, hiking trails, local points of interest and accommodations. Refers technical inquiries to the appropriate faculty or staff member.
    c. At times corresponds with alumni and answers questions on potential jobs, alumni activities. Etc.
    d. Corresponds with potential employers of students and distributes this information as appropriate to students.
    e. Handles and distributes all incoming and outgoing mail.

3. Receptionist: this position acts as the primary visitor and telephone call receptionist for the campus. Callers and visitors usually consist of state employees from other campuses, students, prospective students and their families, contractors, and salespersons. Referrals to the proper campus employee are made if the inquiry or needs cannot be completed by this position.

4. Student recruitment activities:
    a. Works closely with incoming students on the admission process and communicates with them regarding their application process.
    b. Works as a liaison with the ESF Admissions Office staff and the Ranger School faculty and prospective students and communicates key information to all groups.
    c. Represents the Ranger School by attending a variety of college fairs and information sessions attended by prospective students and their parents.
    d. Keeps records on prospective students to track the year they plan on attending, first year college, program of interest, etc.

5. Reports; Most reports, handouts of a periodic nature that concern such topics as recruitment, enrollment, regulations, graduation, student job placement, etc. are developed and revised on a timely basis by this office.

6. Scheduling: this position schedules accommodations for campus and alumni visitors, potential student interviews, and student/employer interviews. Manuals, handbooks, brochures, etc., that must be printed by contractors or the main campus printing office are schedule by this position. Coordinates Open House activities and registration.

7. Word processing: Types (word processes) letters, memos, handbooks, manuals tests lab program sets, etc. for the Director and faculty.

8. Student Support Activites:
    a. Maintains the student job placement bulletin board and records positions notices on the web site. Emails job info to current students and alumni.
    b. Assists student in the completion of applications when necessary.
    c. Administers distribution, ordering and management of room and mailbox keys for students and employees.

9. Other:
    a. In the absence of the Director or faculty, interviews prospective students.
    b. Recording secretary for the Surveying Friends Committee and the Forest Technology Advisory Committee.
    c. Assists the Director with administrative duties associated with Endowment and Foundation accounts including typing than you letters, working with Raisers Edge software, etc.
    d. Acts as sexual harassment advisor for female students.

Residence Hall Director **(half-time position)(SL2)**

Forest Technology Program, Ranger School, Wanakena, NY

Brief Description of Duties:

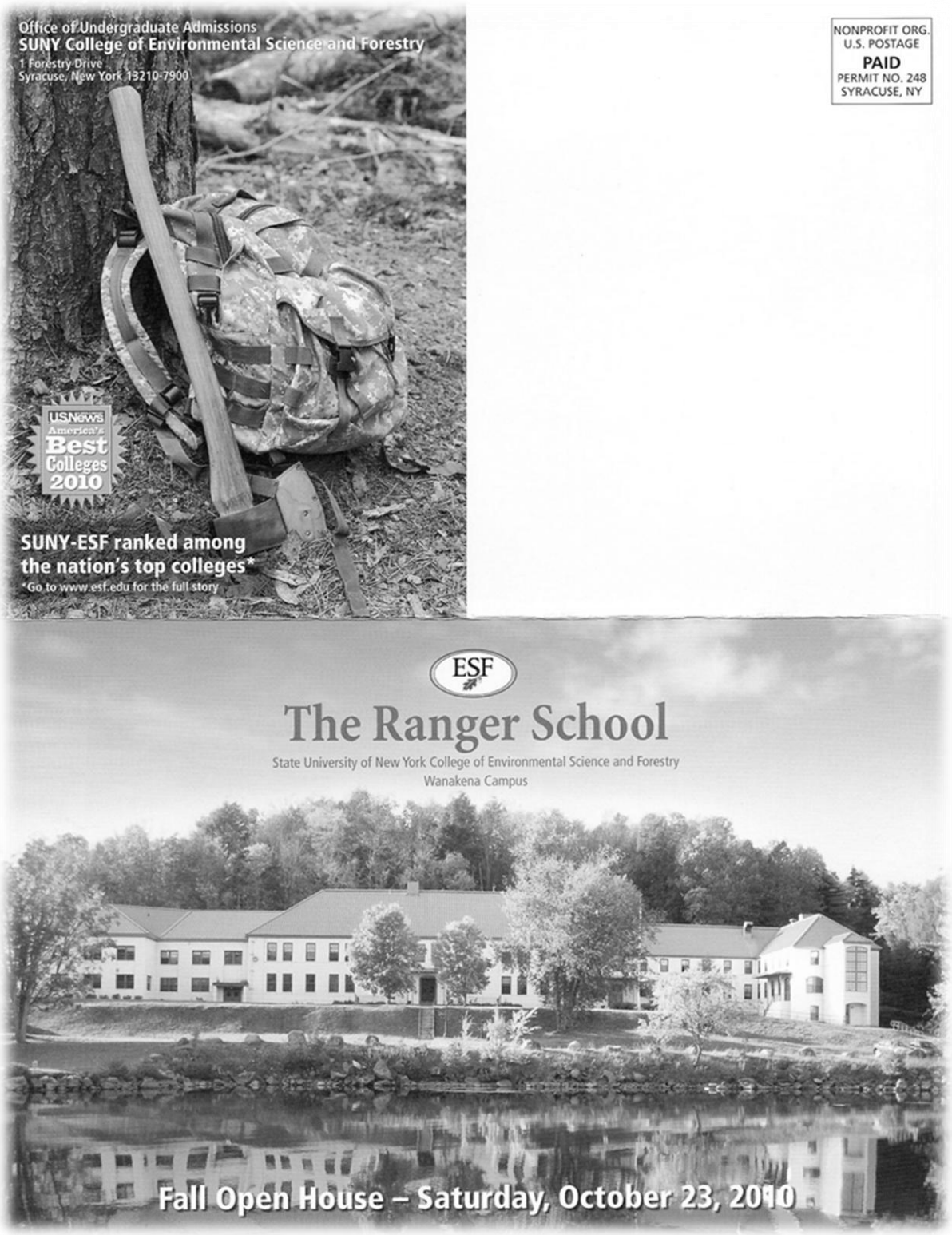
- Supervise students who reside in the Ranger School Residence Hall; be a regular and consistent presence in the residence hall and main academic building by conducting rounds during evening and weekend hours.
- Plan and assist with Student Life activities
- Assist program Director with orientation activities, provide bi-monthly programming and weekly late-night programming.
- Advise Student Government and other student organizations and assist with class related activities.
- Enforce College policies and report violations.
- Annually review and update Student Handbook.
- Meet with Syracuse Campus Student Activities Director regularly.
- **Required to live in studio apartment within the residence hall. Weekend and evening hours are required. Approximately sixty (60) resident students.**

Qualifications: Baccalaureate degree. Valid driver's license for travel in New York State required. Residence Hall supervisory experience is desirable.

APPENDIX D
Documents for Standard IV
Students

Appendix D-1

Open House Invitation



Come join us.

We're hosting an open house to show you how The Ranger School can help you achieve a satisfying technical career and a rewarding future.

Ranger School students are smart and hard-working. They care about the environment and want to help keep it beautiful and productive. We've been teaching young men and women how to do that since 1912 — longer than any other college in the United States.

Employers know this. Each year, the number of job notices we receive far exceeds the number of students we have. After graduation, some of our students choose to continue their education, and they are well prepared to do so.

During this visitation day, you'll meet students like yourself who want to make a positive impact on the environment. You'll see the 2,800-acre forest where our students work and learn every day.

You'll learn about the associate degree programs offered in forest technology, land surveying technology and a new program in environmental and natural resources conservation.

And, you'll see our beautiful classrooms, dining hall, computer laboratories, residence hall space and student recreational facilities.

We hope you'll take advantage of this opportunity to visit us.

"It's hands on...This is a pretty good segue to the real world."

– Brian Hernon '06
A.A.S. Land Surveying Technology

The Program

9:30 a.m.
Registration and Refreshments

10-11:30 a.m.
Welcome and Formal Program

- The Ranger School: Information on academic programs and student life.
- Information on admissions, financial aid, transfer options, job placement and career services.

11:30 a.m.-1:30 p.m.
Complimentary Lunch and Campus Tour
Take a tour of The Ranger School facilities with current students.

1:30 p.m.
Forest Property Tour
Learn about our programs firsthand with this field trip led by Ranger School faculty.

2:45 p.m.
Program Concludes

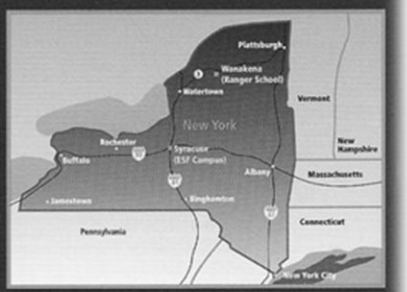
In the field and in the classroom, Ranger School students get a solid education while earning an A.A.S. degree.

To register, call The Ranger School at 315-848-2566 or on-line: www.esf.edu/rsvisit

For More Information:

The Ranger School
P.O. Box 48 • Wanakena, New York 13695
315-848-2566
www.esf.edu/rangerschool

Office of Undergraduate Admissions
SUNY-ESF Main Campus
1 Forestry Drive • Syracuse, NY 13210
315-470-6600
www.esf.edu



For directions:
www.esf.edu/rangerschool/directions

Appendix D-2

Teacher and Course Evaluations

SUNY-ESF RANGER SCHOOL
TEACHER EVALUATION AND ASSESSMENT FORM

Instructor: _____Course #: _____ Date: _____

Please respond to any or all of the statements below by circling the letter which corresponds to your desired response, where

A = strongly agree
B = agree
C = neutral
D = disagree
E = strongly disagree

In Lecture and In General, The Instructor:

1.	seems knowledgeable about the subject matter.	A B C D E
2.	is enthusiastic about the subject matter.	A B C D E
3.	welcomes, and responds constructively to, student questions and comments.	A B C D E
4.	uses explanations and examples which are clear and to the point.	A B C D E
5.	speaks well (not too low, nor too fast, does not mumble, etc.).	A B C D E
6.	gives fair quizzes and tests in an effective way.	A B C D E
7.	returns tests and papers in a reasonable amount of time.	A B C D E
8.	uses visual aids and projection equipment effectively.	A B C D E
9.	encourages student participation, active learning, and collaboration	A B C D E
10.	is organized and well-prepared.	A B C D E
11.	motivates you to do your best work.	A B C D E
12.	is approachable and sensitive to student needs and problems.	A B C D E
13.	seems genuinely interested in the course and the students.	A B C D E
14.	is available and willing to help students outside of class.	A B C D E
15.	has an effective teaching style overall.	A B C D E

In Lab Or In The Field, The Instructor:

16. clearly states the objectives of, and directions for, each lab exercise. A B C D E

17. is enthusiastic about the exercise and the subject matter. A B C D E

18. is organized and well-prepared. A B C D E

19. motivates you to do your best work. A B C D E

20. speaks well (not too low, nor too fast, does not mumble, etc.). A B C D E

21. is present and available for help. A B C D E

22. allows adequate time for each exercise. A B C D E

23. gives fair quizzes/practicums in an effective way. A B C D E

24. has helped you develop new skills. A B C D E

Course Evaluation:

25. the required textbook was useful. A B C D E n/a

26. handouts, manuals, etc. were useful. A B C D E n/a

27. guest speakers were worthwhile and relevant. A B C D E n/a

28. field trips were worthwhile and relevant. A B C D E n/a

29. relative to other college courses I have taken, this course was easy. A B C D E n/a

30. If you had to give the instructor a letter grade to evaluate his/her **<u>over-all</u>** teaching performance, his/her grade would be (circle one): A+ A B+ B C+ C D F

I. What are the instructor's <u>strengths</u>? Why?

II. What are the instructor's areas for <u>improvement</u>? Why?

III. What <u>insights</u> have you gained about the instructor or the course as a result of this assessment?

Appendix D-3

Student Assessments

Student Comments 2008-2010, Ranger School Forest Technology Program
Forest Ecology, GIS, Natural Resources Management, Forest Insects & Disease

- if you ever have questions and the handouts/lectures were VERY effective at teaching the material
- you are a fair instructor as far as with work being due and mistakes being made. The extra time and help you have given have been life savers
- very good thorough instructions on labs and assignments
- she's very knowledgeable about the subject matter
- good PowerPoint
- she cares about the students, always tries to help
- very knowledgeable, enjoy going to class
- knowledgeable in subject matter, nice person, able to maintain control and keep us motivated
- availability help students outside of class
- enthusiastic about subject
- well prepared every day, always available
- enthusiasm for the subject and willingness to help
- enthusiasm, knowledge of subject, easy to approach
- patience and works well with students, handles stressful situation like really slow computer in the lab, very well remains calm
- willingness to host review sessions, accessible for students
- knowledgeable in ecological concepts, interested I student's welfare
- I have to say, the day you collected all our flags we left in the trees I started to admire your style, Thank you for your time
- ecology is not an exact science, rather an educated guessing game
- throughout the course, I have seen the instructors' willingness to help students and put forth an effort to help students to learn with a little more practice
- better knowledge of tree growth better understanding of competition, higher interest in firefighting, I look at every forest in a different way now, noticing all the factors of how and why
- very committed to being a good teacher
- ecology is super!
- interested in subject
- teaching style uses good details & explanations
- Dr. Johnston has excellent knowledge & experience in the field of forestry. She has a great way about communicating her thoughts on subjects. More than any other instructor here she answers questions in my head before I ask them.
- Very clear and organized, lectures are easy to follow & understand
- You care about your students, are flexible when situations arise, treat students with respect, and you know your subject matter
- Willingness to teach and give additional help
- Ability to work with students, is able to solve unexpected events, ability to meet challenges and improve on lacking skills, curriculum

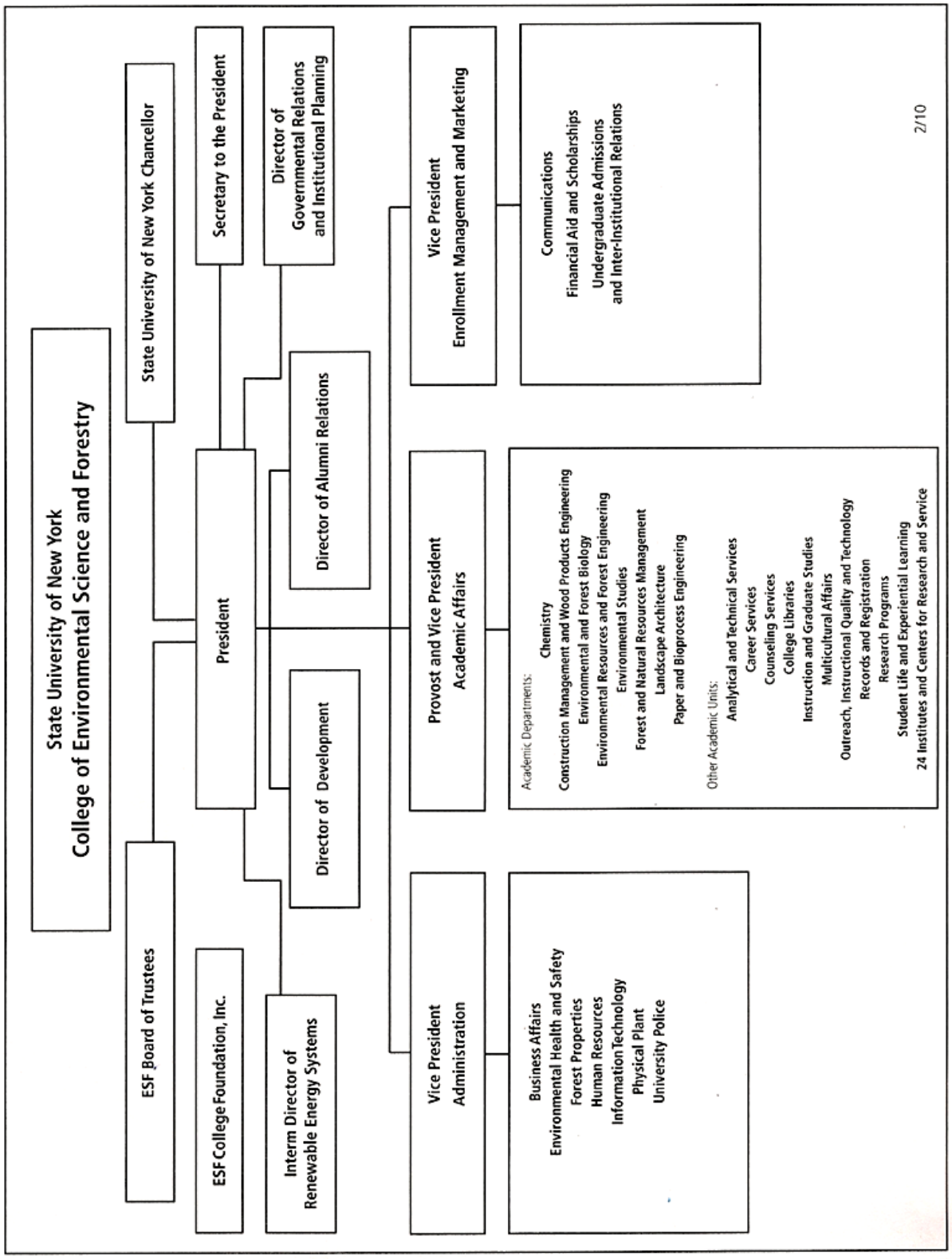
- Always around if help was needed, plenty of time to complete exercises
- Approachability, available for help, is flexible with student needs
- Availability outside of class for help, and answering students questions Enthusiastic about course material, scheduled many field trips & guest speakers to get points across
- Knows a lot & is honest when she doesn't know
- Forest management is an applied learning process that takes years of field work to fully develop and is continuously changing
- FM is more complicated that just telling someone what to do with their land!
- better knowledge of management practices and what must be taken into consideration
- knowledgeable of material, will address student concerns and questions
- readily available to help students, very caring teacher, provides helpful study material and gives fair tests and quizzes
- PP are really good - well organized and well presented. Effective methods of teaching pathogens
- the handouts are good. I find them to be very beneficial. I like the study guides, they helped me focus on key points in the readings
- did like the 2 labs (conk cruise)(cull deduction)
- she performs and dictates course material exceptionally well considering time constraints due other less important classes
- for the short amount of time given this was a great intro to pathology, thanks
- examples, makes sure the material is understood
- enthusiastic, charismatic, things are arguable, fastest grader ever, always willing to help, goes beyond the call
- extensive knowledge, gives what he expects to receive. (Doesn't live by double standard)
- he is excited about and knowledgeable about the subject matter making it interesting and fun to learn. He weaves stories and scenarios into the lectures making it easy to listen to him
- very good at relating information to what we may use it for, interesting examples, real life experiences make the information easier to absorb
- good lecture giver, keeping things interesting and relevant
- makes class entertaining, easy to follow and understand
- enthusiasm
- very knowledgeable, loves trees and air photos
- knowledgeable, humor, explains things thoroughly, wants everyone to be successful, sometimes makes it easier to remember certain things
- enthusiastic about the subject matter and if he doesn't know the answer will tell you that he doesn't know, keeps lectures interesting and informative
- experience, knowledge of material, clarity of instruction
- he is able to give information clearly, it isn't all read off of a sheet, this clearly shows that he is knowledgeable about the subject matter
- knowledge and enthusiastic, always seems energetic and excited about subject matter
- a very good instructor because of the info in conveyed in an interesting manner and instructor is more than willing to help every student
- understanding the material and can teach it to us effectively

- his humor and knowledge brought to every class, because humor is very important when trying to teach effectively
- you know the subject matter and give helpful hints to remember the material
- helping you through material that you don't understand
- dedication, willing to stay after or come in on a weekend to help students
- is enthusiastic about his work, made learning dendrology fun!
- very knowledgeable, easy going, willing to help
- your lectures aren't dull
- you are enthusiastic and crack a few jokes once and a while
- one of my favorite classes is Dendro
- I liked being called in to meet with him when my dendro lab quizzes were low
- He pointed out my weakness and offered me a way to improve
- catches students attention w/jokes, provides new experiences field trips, food, (chestnut)
- effective presentation of new material in most areas
- good organization of new material
- lightening the mood from a strict lecture to adding humor, this encourages students through interest
- very knowledgeable
- knows what he's talking about
- laid back, effective presenter
- excellent speaker
- very knowledgeable
- enthusiastic about teaching and handing down information
- very knowledgeable
- brings work experience to class lecture
- easy to talk to
- interested in subject matter
- makes it more interesting
- enthusiastic about subject matters
- knowledgeable
- presents material effectively to get students involved and interested
- Entertaining teaching (not dull)
- fun makes class fun so I want to show up and learn

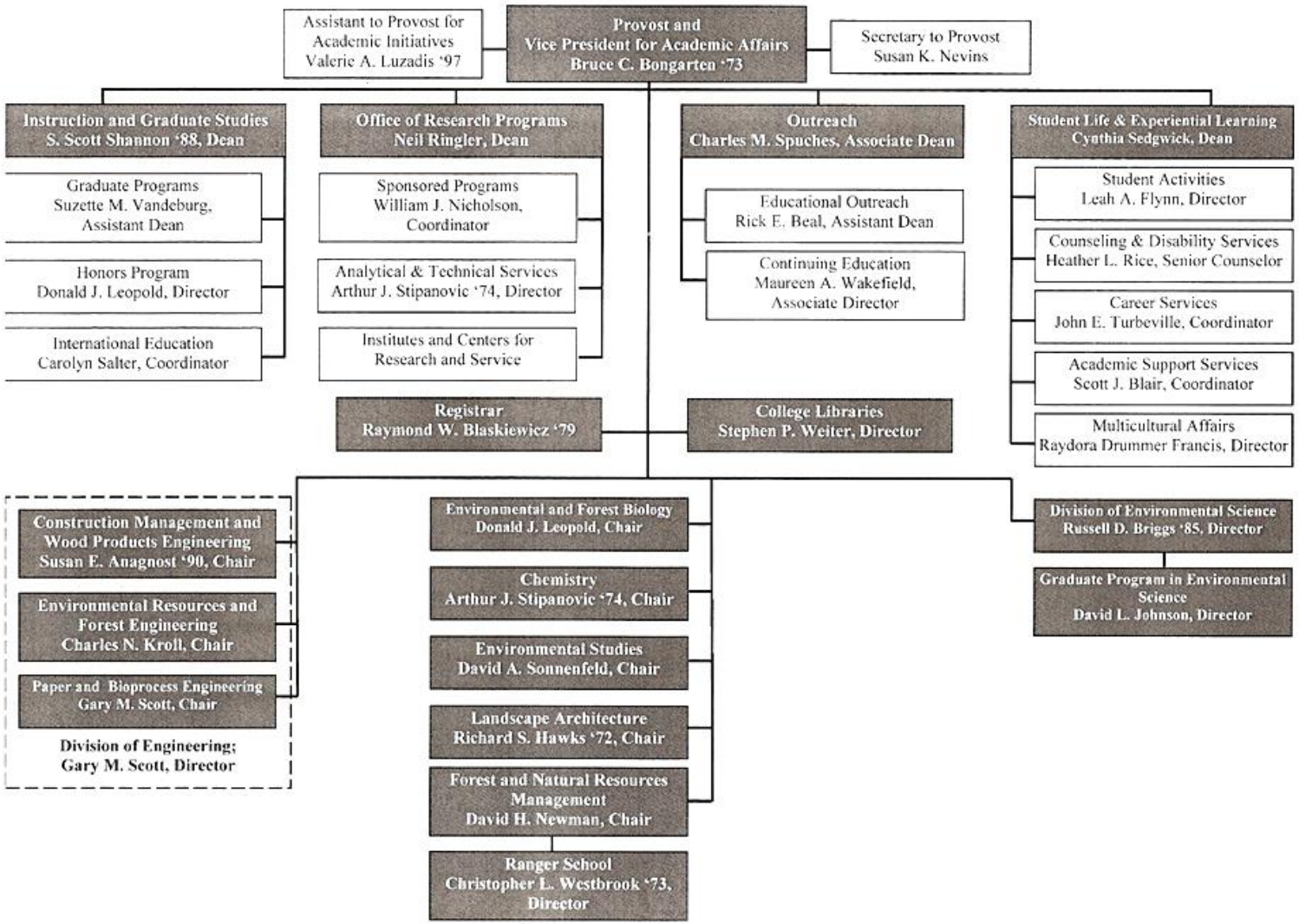
APPENDIX E
Documents for Standard V Program

Appendix E 1

Organizational Chart



SUNY College of Environmental Science and Forestry
Office of the Provost



Appendix E-2

Ranger School Advisory Committee

SUNY ESF RANGER SCHOOL
ADVISORY BOARD MEMBERS

Marty Candee
Forest Ranger
9432 Furman Road
Boonville, NY 13309
315-942-3439

Timothy Baxter
Forester
370 Chapel Hill Road
Colton, NY 13625
315-265-5705

Thomas W. Gilman
Area Forester
Fountains Forestry
80 Park Street, Suite 4
Tupper Lake, NY 12986
(518) 359-3089

Les Benedict
St. Regis Mohawk Tribe
Environment Division
412 St. Rt. 37
Hogansburg, NY 13655
518 358-5937

James Lemyre
Director of Forestry – Bronx
City of New York
Parks and Recreation
One Bronx River parkway
Bronx, NY 10462
(718) 430-1820

Peter O'Shea
Environmentalist
PO Box 15
Fine, NY 13639
315-848-2178 home

David Smith
Regional Forester
623 John St.
Clayton, NY 13624
315-785-2263

Herb Boyce
ACF, CF
HCR 2, Box 1-A
Jay, NY 12941
518-946-7040

Terrance Lasher, Forester
Rt. 1, Box 714
Tappahannock, VA
22560

Ron Higgins
Procurement Forester
PO Box 1467
Richfield Springs, NY 13439
315-858-2420 (home)
315-723-7392 (cell)

Appendix E-3

Advisory Meeting Minutes

Ranger School Forest Technology Advisory Committee Meeting

October 8, 2010 ~ Wanakena, NY

RS Faculty & Staff Attending: Chris Westbrook, Mike Bridgen, Jamie Savage, Mariann Johnston, Tim O'Mara,
Advisory Committee Members Attending: Tim Baxter, Ron Higgins, Dave Smith, Marty Candee, Herb Boyce, Les Benedict, Terry Lasher
Minutes by: J. Savage
Start time: 9:35 am
End time: 2:00 p.m.

I. Welcome and Introductions (Bridgen)
   a) Brad Woodworth (Food Service Manager) was introduced to group, as was Tim O'Mara (Resident Hall Director)

II. Minutes of October 23, 2009 meeting – approved.

III. Updates of Activities at the Ranger School (Bridgen)
   a) 44 in class of 2010
   b) Staffing changes – Kathie Nevil has retired. She is on contract for a limited time to help with fall recruitment activities and with the transition. Her replacement starts later this month. Wayne Allen retires at end of December. A new Instruction Support Associate has been hired and begins in January (Greg Vaverchak '2002). There is a good chance that a search will be started soon for a faculty replacement for Wayne.

IV. ABET and SAF Accreditations (Westbrook)
   a) Next week the ABET team is here to review Ranger School's surveying program. This will be a very detailed analysis, for which months of prep have been conducted. We won't know results for many months. Only 3 other technical college programs are accredited by ABET in NY at this time. This accreditation is very expensive, but it means that our students will get 2 years of education experience in other states towards their license (instead of just 1).
   b) SAF now '*accredits*' forest technology programs (in addition to 4-year forestry programs), and the Ranger School will undergo its first review for *accreditation* this winter and spring. This will mean a visit from a review team in the spring. In the past, such reviews did not take place for '*recognition*.' We discussed the need for SAF accreditation. The Committee members responded: It sets a minimum standard of education…it's almost like a third party audit on individuals. The SAF is the largest, most recognized professional forestry body, so it's widely recognized. Lawyers relate to these standards in any kind of dispute.

We'll also want to think about diversifying the Advisory Committee. The SAF will look for this.

V. New Program – Environmental and Natural Resources Conservation (Johnston, Savage, Bridgen)
   a) New program being implemented August 2011. Mariann and Jamie discussed the rationale for the new program, and some of the differences between the new program and the existing forest tech program (see handout developed by Mariann). The group seemed supportive and excited about the new program.
   b) Recruiting new faculty member. We will begin a national search soon, as discussed above. This will not be to replace Wayne Allen, per se, but for someone to teach in the new ENRC program.
   c) Do we use this same advisory committee?
   d) Do we add a wildlife specialist as a member of this committee?
      a. Yes…we agreed to use this advisory committee for time being, but will try to augment and diversify it. Some suggestions for new members:
      b. Tim B. recommended Angie Ross (Potsdam DEC, spruce grouse expert)
      c. Tim B. also recommended Vicki (Shorey) Cross (Forester with DEC in Stamford, NY)
      d. Aaron Earl? Bob Brower? Dawn Howard, Alexis Nelson (Forest Service connection)
      e. If we seek accreditation for the program, we may eventually need an advisory committee specific to this curriculum.

VI. Discussion of the Ranger School Alumni Association (Gail Simmons). Gail discussed the Association in general and provided some interesting 'alumni facts.' Briefly, there are nearly 4,000 graduates, including 240 women. Currently, there are about 2,400 alive and known as to their whereabouts.

VII. Changes to Geographic Information Technology, including new courses in ENRC (Johnston)

   a) This course used to be called Spatial Analysis. The new GIT course covers aerial photogrammetry, mapping and graphics, and GIS. We dropped basic computer use (word processing and spreadsheets, etc), and the hand drafting and inking. We do still teach Reinhart hand lettering for use in surveying and other field notes. We introduce ARCGIS to the students in this course, mostly for map-making purposes. Dave S. says they're using the Allegro field computers in conjunction with GIS technology. Tim B. has used GIS a lot in his work with DEC. Marty says they (Rangers) use GIS for search and rescue and other activities…It's been an increasingly important skill to have…They can map and attribute things that don't appear on the standard topo maps. Terry uses GPS and GIS every day, for boundary work, fire control activities, planting, etc. Herb employs a GIS specialist at his office.

Some commented that it's getting harder to get recent aerial photos. But they're great for historical work.

VIII. Discussion of course material (Savage)
   a) Wildlife techniques: What specific techniques do you suggest we cover in this new course???
      a. Terry L. - incorporate some nutrition info for wildlife, mast vs. browse, population density measurement (and how do you manage densities?); deer exclosure studies; knowing how to determine/quantify amphibian habitat; pond management; Tim B. says go to DEC in Watertown for fish and duck-banding experts. Health and disease of animals (pathology) would be good topic to cover, says Les B. Could we do some kind of lab associated with this? Personal safety is a major concern (Lyme disease, etc). (hunting-dogs are spreading ticks?!). Warm season grass management for wildlife objectives (anything going on at Fort Drum that we could look at/discuss?). What wildlife skills would be important for our students to have if they move into a BS program at ESF or elsewhere???

   b) Protocols for carbon and/or biomass measurements: are there particular inventory protocols that we should teach in the Natural Resources Measurements course???
      a. Talk to Matt Smith about inventory techniques (he's with Finite Carbon).
      b. Talk to Tim McAbee in Florida about carbon
      c. Lab comparing industry standards for carbon inventory might be good, Terry suggests.
      d. Look into current FIA/FHM protocols
      e. Green Certification requires certain amounts of downed woody materials left behind. Look at these specs.
      f. Ask Will or Wayne about measurements they are doing in fire course…

IX. Lunch with students 12:00 noon (Committee members intermingled with students)

X. Discussion - "What are the key skills or talents which you believe are necessary for a newly-hired forest technician"? Committee members submitted ideas before meeting -
   a) Navigating through forest, tree/plant identification, basic silviculture (marking and cruising skills), written communications, public presentation skills, electronic media, comfort working independently in woods.
   b) Other thoughts were shared at this meeting: knowledge of how to navigate with GPS (regardless of model). "We need to keep putting out 'field warriors'" says Tim B…"students who can handle working in

the field in any conditions." Graduates need to be willing and able to learn, to build on their basic skill set, offered Les.

c) Marty emphasized the need for students to learn the importance of deadlines, and that there will be consequences for not meeting those deadlines. Personal responsibility.
d) Terry - Developing and disseminating press releases for even simple things. Professional emailing skills. Maybe students should have to write emails for a grade??!!
e) Leadership/personnel skills. Working with loggers, landowners, public agency officials, etc.
f) We discussed the student logging operation. Is this a good use of time??? Herb commented that modern logging jobs involve feller-bunchers, forwarders, and/or grapple skidders, not chainsaws and cable skidders. Many said that being around an active logging job and the associated heavy equipment is an experience that the students need to have. There are still lessons to be learned by using the 'old fashioned' equipment. However, from a private industry perspective, Ron says that his employer did not want foresters or forest techs using chainsaws, skidders, etc: that is the job of the professional loggers. He thinks that time would be better spent visiting, discussing, analyzing active logging jobs in the region. Maybe we can compromise…There is definitely consensus that today's forest techs are often involved with *supervising* logging operations.

XI. Open discussion/conversation/questions between Committee Members and Ranger School Faculty
    a) The committee members enjoyed sitting among the students during lunch today.

XII. Other items
    a) Signage/advertising: Herb suggested we take better advantage of our exposure along Route 3. The new sign is great, but can we add to this, advertise our website, sell ourselves better, etc??? Chris explained that we will have 2 new signs at property boundaries along Route 3 in time for the Centennial. The college also will be developing some new advertising/marketing materials for new curriculum and in association with the Centennial. There is an official Ranger School Facebook page now. All current students have a Facebook page!
    b) RS Centennial celebration starting summer 2012!!! Stay tuned for events/activities.

XIII. Wrap-up/summary
    a) Next meeting: this time next year seems to work well. We will also set up a meeting in the spring as part of the SAF accreditation review (discussed earlier).

Appendix E-4

Prescribed Burn Plan

Prescribed Burn Plan for the Period March 15, 2011-March 14, 2016

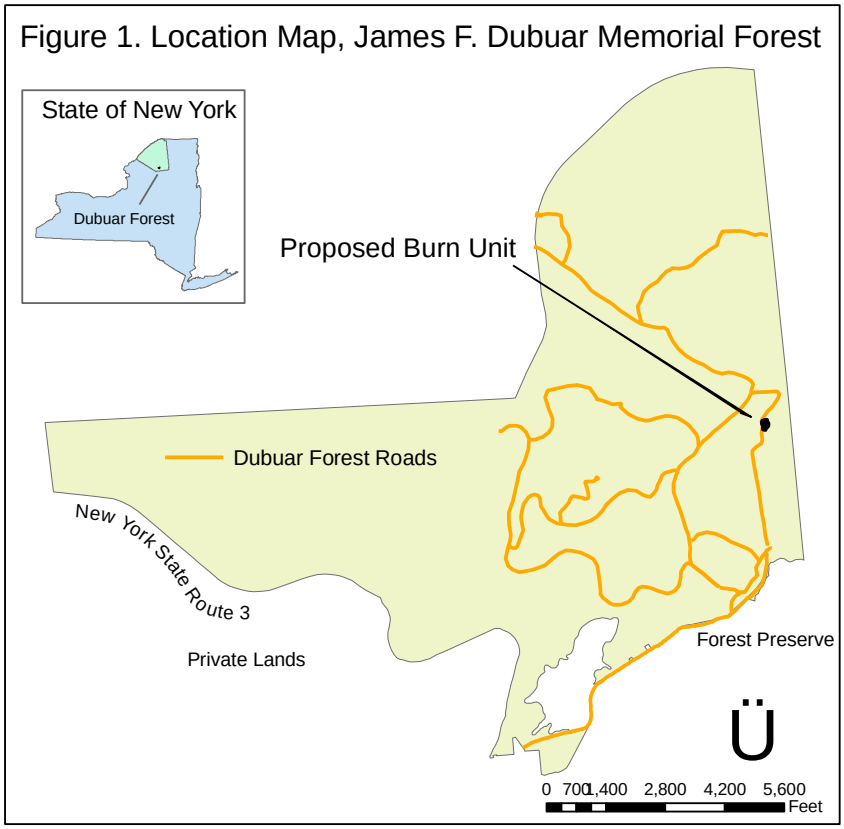
A. Landowner or Prescribed Burn Manager Qualifications

Name	Position	Qualifications
NYS Forest Ranger Jim Prunoske	Prescribed Fire Burn Boss	RXB2

B. Prescribed Burn Unit Description

The James F. Dubuar Memorial Forest is a 2,850 acre property owned and operated by the State University of New York, College of Environmental Science and Forestry. The Dubuar Forest is located in the northwestern corner of the Adirondack Park, in the Towns of Clifton and Fine, St. Lawrence County (Figure 1). The property consists of planted softwood stands intermingled with naturally-regenerated mixed northern hardwood stands. The property is bounded by NYS Forest Preserve to the east and southeast, and by private lands around the remainder. The primary management objectives for the Dubuar Forest are education and research. Educational activities are centered around training students in the Ranger School's degree track programs in land surveying, forest technology, and (starting Fall 2011) environmental and natural resources conservation. Each spring semester, the forest technology students receive training in wildland firefighting (S130-S190). As part of this training, a small patch of switchgrass, approximately 0.6 acres in size, has been established on the Dubuar Forest to provide a demonstration area and practical experience with firefighting in a controlled setting.

Figure 1. Location Map, James F. Dubuar Memorial Forest



The proposed burn area is approximately 0.6 acres in size. The site is dominated by switchgrass, with a small amount of bracken fern along the southwestern edge. Raspberry and other invading shrub and tree seedlings occur around the northern and eastern boundaries. The soils are Potsdam-Tunbridge complex, consisting of glaciolacustrine deposits and loamy till, with a very bouldery component over 30% of the area. These soils are well-drained to very well-drained, and range from 16 to 40 inches in depth to a root restrictive layer.

The proposed burn unit is bounded by a road on the western side, and is in close proximity to a small reservoir and feeder stream that provide a water source (Figure 2). The elevation of the burn unit is approximately 640 feet above sea level, with slopes of 5-30%. The unit will be burned in two parts, with a hand-constructed fire line dividing the unit into an eastern and western half.

Figure 2. Prescribed Burn Unit
James F. Dubuar Memorial Forest
Wanakena, NY

C. Goals and Objectives

The proposed action is to implement a prescribed burn in an open grass unit approximately 0.6 acres in size.

The primary objective of the prescribed burn is to provide prescribed fire management and wildland fire suppression training to Ranger School forest technology students and NYS DEC Forest Rangers. This project is intended to give trainees exposure and experience in prescribed fire management, utilizing skills learned in the classroom. This prescribed burn will also give trainees an opportunity to maintain currency of their State and Federal fire qualifications, and potentially to gain additional qualifications.

The secondary objective of the prescribed fire is to maintain the unit in switchgrass for future training use. The fire is expected to eliminate 100% of the encroaching brush and hardwood species. This will also expose more of the seed bed with a long-term effect of rejuvenating the switchgrass.

Figure 3. Photo taken from north end of the proposed burn unit, looking southeast across the proposed burn area.

D. Cover and Fuel Loads

The vegetation on this site is represented by Fuel Model 1 – Short Grass. Rate of spread is estimated to be approximately 18 chains/hour with 4 ft flame lengths. These values are based on fine dead fuel moisture of 8%, and midflame windspeed of 5 miles/hour.

Table 1. Fuel Loading for Project Fuel Models.[A]

Fuel Model	Fuel Complex	Fuel Loading (Tons/acre)				Moisture of Extinction
		1 Hr	10 Hr	100 Hr	Live	
1	Short Grass	0.74	0.00	0.00	0.00	12%

(A) As taken from NWCG Fireline Handbook, Appendix B, Fire Behavior, October 1993 edition, TABLE 1. Description of Fuel Models.

Table 2. Fire Behavior Fuel Model Descriptions for Project Fuels [B]

Fuel Model 1	(1.0 Feet Deep) Fire spread is governed by the fine herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through cured grass and associated material. Very little shrub or timber is present, generally less than 1/3 of the area. Grasslands and savanna are represented along with stubble, grass-tundra, and grass-shrub combinations that meet the above area constraint. Annual and perennial grasses are included in this fuel model.

(B) As taken from NWCG's "Aids to Determining Fuel Models for Estimating Fire Behavior", by Hal E. Anderson, General Technical Report INT-122, April 1982.

E. Timing and Weather Conditions

The fire is planned to occur between March 15 and May 30 annually for the plan period. The Fire Weather Forecast for the burn day shall be obtained from the National Weather Service the morning of the burn. If required a Spot Weather Forecast may also be requested through the fire weather focal point at NWS, Burlington, VT for Southeastern St. Lawrence County (Fire Weather Zone NYZ029). Other forms of fire weather and fuels information may be obtained from NICC and EACC Predictive Services on the internet.

On site weather shall be monitored by a handheld Kestrel or Skymaster, belt weather kit, or the QD-RAWS. 10 and 100 hour Fuel moistures may be measured with a handheld protimeter if appropriate. Acceptable fuel and weather parameters are shown in Table 3.

Table 3.	*FIRE PRESCRIPTION*	*PBB*
The description of the acceptable range of fire weather, fuel and soil moisture, fuel quantity and fire behavior conditions to achieve the desired effects.		
ACCEPTABLE FUEL AND WEATHER PARAMETERS		
	Acceptable Range	**Optimum**
Air Temperature F	**40-90**	**70**
Relative Humidity %	**10-70**	**35-40**
Mid-flame Windspeed mph	**0-15**	**5**
1 Hour Fuel Moisture %	**3-15**	**7**
10 Hour Fuel Moisture %	**x**	**9**
100 Hour Fuel Moisture %	**x**	**11**
Live Woody Fuel Moisture %	**< 30%- 150%**	**< 30%**

F. Intensity and Duration of Burn

Activity fuels in this plan are grass fuel models with little to no duff layers present, and the cumulative effects of drought will have little to no effect on activity fuels. Due to the small size of the unit (0.6 acres, which will be divided approximately in half for ignition at two separate times) it is not anticipated that there will be much resistance to control. We anticipate the burn to be of high intensity (up to 7-foot flame lengths in jackpotted pools) and, given the small size of the burn unit, of short duration.

G. Logistics

Firing Operations

The Firing Boss will thoroughly describe the firing plan and safety considerations to all burn personnel at the pre-fire briefing. The burn unit will be hand ignited with drip torches and fusees. Ignition patterns will be adjusted according to surface wind direction to minimize radiant heat along control lines and to also minimize firebrand production. Black line will be established at the lee side of the burn unit, flanks will then be ignited in conjunction with strip head firing if utilized. Width of strips will be adjusted to weather conditions to maximize results of the burn and minimize the production and transport of fire brands.
Each crew member will be given a briefing prior to any test fire or other ignition (Table 4). This briefing will include: project objectives, project procedures, reporting structure, current and expected fire weather, contingency plans, escape routes & safety zones, and project area hazards. The Burn Boss will complete a pre-fire briefing checklist and crew briefing. Additionally, the Burn Boss will have the responsibility of issuing the “Go/No Go” command.

Table 4.	*BRIEFING GUIDELINES AND "GO" OR "NO GO" CHECKLIST*
A description of the project procedure which should be reviewed with those conducting the prescribed fire to make sure all involved personnel are familiar with them. The following checklist describes the conditions beyond which the prescribed fire must not be ignited. **See appendix 1.) "Go"or "No go" Checklist"**	
Pre-fire review to be completed by: Burn Boss	

H. Suppression

Control lines will be by hand-line constructed around the perimeter of each half of the burn unit prior to ignition. The unit will be divided in half with a hand-line constructed north to south across the unit. A holding crew, adequately staffed by students, will patrol the unit boundary to suppress any spot fires that may ignite outside of the prescribed unit. The fire will be patrolled until declared out by the Prescribed Fire Burn Boss..

I. Notification

The St. Lawrence County 911 center will be notified the day of the burn regarding prescribed burn time and location.

J. Communications

Contact Person, Title	Agency Name	Telephone Number
Star Lake Fire Dispatch	St. Lawrence County 911	315-379-2431
Gary Lutz, Fire Chief – Star Lake	Star Lake Fire Department	315-848-3621
Martin Hassett, St. Lawrence County Fire Coord.	St. Lawrence County Emergency Services	315-379-2240
Fire Weather Focal Point – Eric Evenson	NWS, Burlington VT	802-862-2475

K. Smoke Management

No smoke sensitive areas will be impacted because of the size and duration of the project.

Mitigation strategies to minimize degradation of air quality:

Minimum degradation to air quality will occur as the burn unit contains a Grass Fuel Model, with relatively light fuel loadings (<2.0 tons/acre). The short duration of the flaming and smoldering of activity fuels, with little to no mop-up required, and only short term (<5 hours) burning time, mitigation should not be a factor. Transport winds should dissipate the relatively light smoke column.

I. Required signatures and approvals

Prepared By	Typed Name	Signature	Date
Ranger School Course Coordinator	Mariann Johnston		
NYS DEC Forest Ranger	William Benzel		
NYS DEC Forest Ranger/RXB2	Jim Prunoske		
Reviewed By			
Approved By			
SUNY-ESF Lands Manager			
NYS DEC Regional Lands Manager			

APPENDIX 1. PRESCRIBED FIRE OPERATIONS "GO" OR "NO GO" CHECKLIST

Yes	NO	Initials/Date	
☐	☐		Are *all* fire prescription specifications met?
☐	☐		Are *all* smoke management prescription specifications met?
☐	☐		Has *all* required current and projected fire weather forecast(s) been obtained and are they favorable?
☐	☐		Are *all* personnel required in the prescribed burn plan on-site and operational?
☐	☐		Have *all* personnel been briefed on the prescribed fire project objectives and their assignment?
☐	☐		Have *all* personnel been briefed on safety hazards, escape routes and safety zones?
☐	☐		Have *all* fire personnel been provided standard wildland firefighting personal protective clothing?
☐	☐		Is *all* of the required equipment in place and in working order?
☐	☐		Are available (including backup) resources adequate for containment of escapes?
☐	☐		Have *all* adjoining property owners and other interested parties been notified?
☐	☐		Are traffic control measures in place if smoke reduces visibility along roadways?
☐	☐		Have *all* crew members been provided a map of the fire unit?
☐	☐		Can the burn be carried out according to plan and will it meet the planned objectives?
☐	☐		Are all personnel qualified for their assigned positions?
☐	☐		Has the Forest Ranger Central Office Duty Officer been contacted?
☐	☐		There are no extenuating circumstances that preclude successful completion of this project?

IF ALL BOXES HAVE BEEN CHECKED "YES" THEN YOU MAY PROCEED WITH THE TEST FIRE.

Yes	No	
☐	☐	Is observed fire behavior within prescription?
☐	☐	Was the test fire successful?
☐	☐	Are all prescription parameters in the burn plan favorable for implementing the project?

IF THE LAST THREE BOXES HAVE BEEN CHECKED "YES" THEN PROCEED WITH PRESCRIBED FIRE.

APPENDIX F
Documents for Standard VI
Parent Institution and Supporting Areas

Appendix F-1

Periodicals

Periodicals Received in Print at Ranger School, As of January 2011.[1]

1. ACSM Bulletin
2. Adirondack
3. Adirondack Explorer
4. Adirondack Life
5. American Assoc. for Higher Education Bulletin
6. Arborist News
7. Audubon
8. Chronicle of Higher Education
9. Clearwaters
10. Empire State Surveyor
11. Forest Landowner (former Forest Farmer)
12. Forest Products Equipment
13. Journal of Forestry
14. Journal of Higher Education
15. National Geographic
16. National Woodlands
17. New York Game and Fish
18. Northern Woodlands
19. NYS Conservationist
20. Newsweek
21. Northern Logger
22. Outdoor Life
23. PE &RS
24. P.O.B. (Point of Beginning)
25. Professional Surveyor
26. Rolling Stone
27. Sports Illustrated
28. Timber Harvesting
29. Time
30. Tree Farmer

[1] Ranger School students have access to 2,691 *electronic* serials titles via the internet.

Appendix F-2

Ranger School Library Collection

Acquired Volumes, 2009 – 2010.

Title	Date	Call #
Silas Strong: Emperor of the Woods	1906	PZ 3 B123 Si2
Adirondack Forest Owner's Manual	2007	SD 387 L33 B53
The Economy of Nature	2000	QH 541 R54
Climate Change in the Adirondacks: The Path to Sustainability	2010	QC 984 N7 J46
Stories from the Town of Fine	n/a	F 129 F55
Adirondack Guides from the Town of Fine	2003	F 129 F55 A357
A History of the Schools in the Town of Fine	2002	F 129 F55 H5
Hotels & Churches in the Town of Fine	2004	F 129 F55 H5
More Stories from the Town of Fine	2000	F 129 F 55 M6
Murder & the Miscellaneous: News clippings from the Town of Fine	2001	F 129 F 55 M8
Boats and Boating on Cranberry Lake	2009	GV 766 N72 S65
Mountaineering First Aid	1996	RC 88.9 M6 C37
Wilderness Management, 4th Edition	2009	QH 76 H46
The State of America's Forests	2004	SD 387 W6 M36
Terminology of forest Science, Technology, Practice and Products	1971	SD 126 M83
DVD: Managing Your Woodlot (the complete 9-part series)	2004	SD 387 W6 M36
Radical Ecology: The Search for a Livable World	1992	QH 540.5 M48
Green: Radical Environmentalism and the Unmaking of Civilization	1990	HC 79 E5 M353
Communication Skills for Conservation Professionals	1999	QH 75 J335
Intelligent Courage: Natural Resource Careers that Make a Difference	2007	S930 F687
Earth in Mind: On Education, Environment, and the Human Prospect	1994	GE 70 O77
2009 State of the World: Into a Warming World	2009	HC 59 S734
Adirondack Fire Towers: Their History and Lore	2005	SD 421.375 P6
The Great South Woods II	2005	GV 199.42 N652 A3458
Tree Disease Concepts, 2nd Edition	1991	SB 761 M22
Teaching the Trees: Lessons from the Forest	2005	QK 115 M155
Interpreting Our Heritage	2007	SB 482 A4 T53
The Second Atlas of Breeding Birds in NY State	2008	QL 684 N7 S43
Interpretation for the 21st Century	2002	GV 181.18 B43
Signs, Trails, and Wayside Exhibits, 3rd Edition	2006	TT 360 T73
Interpretation of Cultural and Natural Resources	2003	CV 181.18 K68
Snakes	2006	QL 666 O6 M34
Forest Management to Sustain Ecological, Economic & Social Value	2001	SD 431 D36
Walden and Other Writings of Henry David Thoreau	1992	PS 3042 A7
The Bristlecone Pine	2007	QK 494.5 P66 L35
The Facts on File Dictionary of Environmental Science	2001	TD 9 F33
Adirondack Trails: High Peaks Region	2004	GV 199.42 N652 A343

Appendix F-3

On-line Library Resources

Ranger School Online Library Resources

The Moon Library's mission is to support the college in meeting its educational research and public service goals. This includes serving the ESF campuses at Wanakena, Cranberry Lake, Newcomb , and other remote locations. A written Mission Statement, which the staff reviews regularly, is posted on the Library website. The library staff responds to the specific needs and requests of the campus community. Books, periodicals, and other media are selected in accordance with written collection development guidelines found at the Library website: http://www.esf.edu/moonlib/about/documents/collectiondevelopment.pdf .

Specific requests from faculty and staff for library purchases are filled. Interlibrary loan provides materials for the community that are not available in the college library. All electronic and internet based resources are available to students, faculty and staff at all locations, and all print materials are available for delivery to faculty and students at all locations upon request. Collection Development and Collection Management Policies are linked to the Library website: http://www.esf.edu/moonlib/policies/collectionmanagement.htm

Current Resources at Moon Library:

Volumes Held:	139,580
Volumes added 2009-10:	1,239
Current Serials Titles	2,691
Print Serials Titles	853
Audiovisual Materials	512
Cataloged Internet Resources	7,051
Microforms	2,634
Print Volumes by Location: Moon Library	135,276
AEC	1,579
Cranberry Lake Biological Station	1,468
Ranger School	1,257

Through a careful and judicious use of existing staff and budgetary resources the library meets its goals and is able to support the academic mission and goals of the educational programs at SUNY-ESF. We also leverage the cooperative agreements we have with other libraries and other institutions to the best advantage of our campus community.

In addition, we strive to maintain a very high level of engagement with our professional and paraprofessional staff, and reinforce that engagement through continuing education opportunities, continuous assessment and evaluation, quality control measures and a consistent stream of feedback from the faculty and students.

All academic libraries are asked to do more with less in this economic climate and we all face the same difficult choices. At the Moon Library we are proactively moving to face these challenges by adopting a "just in time" model for meeting information needs as opposed to the traditional "just in case" model. We are attempting to make wise decisions and careful use of resources by utilizing cooperative tools such as the IDS Project www.idsproject.org, patron-demand based acquisitions, and use of the latest tools and technology to be more effective and efficient in serving the information needs of the campus community.

Ranger School

The reading room at the Wanakena campus has approximately 1,257 volumes related to the studies of students in the Ranger School Program. In addition the students have access to over 135,000 volumes of library material held in print at the Moon Library on the Syracuse Campus, and 2,691 current electronic serials titles. Access to electronic materials is obtained through the library catalog, http://www.esf.edu/moonlib/default.asp, and includes some materials shared with Syracuse University.

Access to materials not held by the SUNY-ESF libraries can be obtained through InterLibrary Loan (ILL) using ILLIAD: http://esf.illiad.oclc.org/illiad/firsttime.html .

Access to print materials held on the Syracuse ESF Campus is also obtained by filling out an ILLIAD request. This is necessary because Ranger School students do not have an ID card giving them access to accounts through the online library management system (catalog). If the ILLIAD software is down or inaccessible, a phone call (315.470.6723) or email (jlwmson@esf.edu) to Jim Williamson at the Moon Library will also generate a request for needed materials.

Delivery of requested materials will be in electronic (Adobe pdf) format where possible, although print resources will be shipped to the Wanakena campus when necessary.

A Library Research Guide http://researchguides.library.syr.edu/quickstart for the Ranger School Students and Faculty is under development and will be posted to the Library website when complete.

Appendix F-4

Placement Services

RANGER SCHOOL JOB ANNOUNCEMENTS
EMAIL LISTSERV INSTRUCTIONS

Name of the list: rangerschooljobs
Purpose: To notify Ranger School students and alumni of current job opportunities
Owners: Ranger School Program Aide and assigned Faculty
Host: Syracuse University ITS
Who can post: Owners, plus additional moderators may be designated
Who can subscribe: Current and former Ranger School students

To SUBSCRIBE to the Ranger School Jobs list:

- Start a new email from your preferred email program
- Type listserv@listserv.syr.edu in the To: box.
- Leave the Subject box blank.
- Include ONLY the following line in the body of the message (no signature lines, etc):
  subscribe rangerschooljobs Your Name
  Example: if your name is Susan Smith, to subscribe to the "rangerschooljobs" list type
  subscribe rangerschooljobs Susan Smith
  Note: you may omit your name **if** your email program automatically includes it in your email header. Be sure it's in one place or the other, though, so we can verify that you are a Ranger School student or alumnus

To UNSUBSCRIBE from the Ranger School Jobs list:

- Start a new email using the e-mail program you use with the subscribed email address.
- Type listserv@listserv.syr.edu in the To: box.
- Leave the Subject line blank
- Include ONLY the following line in the body of the message (no signature lines, etc):
  unsubscribe rangerschooljobs

To CHANGE the address where you receive messages (after you are subscribed):

- Start a new email using the e-mail program for the currently subscribed email address.
- Type listserv@listserv.syr.edu in the To: box.
- Leave the Subject line blank
- Include ONLY the following line in the body of the message (no signature lines, etc):
  change rangerschooljobs newaddress
  Example: if your preferred address is name@domain.com, to change type:
  change rangerschooljobs name@domain.com

Appendix F-5

Placement Reports 2006, 2008, 2009

2006 Placement Report

	A.A.S Degree Forest Technician		A.A.S Degree Forest Technician – Surveying	
Number	#	%	#	%
Graduated	15		4	
Responded	7	47	3	75
Employed In	5	17	3	100
Employed Out				
Advanced Study	2	29		
Volunteer/Public Service				

Average Starting Salaries:
$35,000

Typical Titles of jobs related to program of study

Utility Forester	Forester	Field Crew Supervisor
Arborist	Plant Healthcare Specialist	DGPS Survey Tech
Surveyor	Surveying Technician	

Typical employers of graduates related to program of study

Bartlett Tree Co.	Maple Valley Hardwoods	Timber Marketing & mgt.
Fort Drum	US Forest Service	Saratoga Land Management Corp.
Sava Tree	MJ Engineering & Land Surveying	

Colleges attended in programs of advanced study

- SUNY ESF

Geographic locations of employment and advanced study

- New York
- Massachusetts
- Vermont
- Pennsylvania
- Michigan
- Connecticut

2008 Placement Report

SUNY-ESF Graduating Senior Survey: Summary Report for 2008

Department of Forest & Natural Resources Management

Overall Responses

Respondents by Degree	*Total Degree Recipients*	*Total Respondents*	*Respondents % of Total*	*% of Respondents*
AAS Degree	37	19	51.4%	40.4%
BS Degree	36	21	58.3%	44.7%
MPS	11	6	54.5%	12.8%
MS Degree	2	0	0.0%	0.0%
PhD Degree	3	1	33.3%	2.1%
Total	**89**	**47**		**100%**

Gender	*Total Degree Recipients*	*Total Respondents*	*Respondents % of Total*	*% of Respondents*
AAS Degrees	**37**	**19**	**51.4%**	**40.4%**
Female	3	2	66.7%	4.3%
Male	34	17	50.0%	36.2%
Undergraduate Degrees	**36**	**21**	**58.3%**	**44.7%**
Female	6	4	66.7%	8.5%
Male	30	17	56.7%	36.2%
Graduate Degrees	**16**	**7**	**43.8%**	**14.9%**
Female	9	4	44.4%	8.5%
Male	7	3	42.9%	6.4%
Total	**89**	**47**		**100%**

Undergraduate Major	*Total Degree Recipients*	*Total Respondents*	*Employed F/T*	*Employed P/T*	*Still Seeking*	*Continuing Education*
Forest Ecosystem Science	1	0				
Forest Resources Mgt	15	8	4	1	3	
Dual Major w/ EFB	1	1	1			
Natural Resources Mgt	10	8	5	2	1	
Recreation Resources Mgt	5	3	2			1
Water Resources Mgt	4	1	1			

*One dual major student was counted in EFB as well as FNRM.

Employment Information

AAS Degrees

Degree Recipients	*# of Respondents*	*% of Respondents*
Employed/Full-Time	9	64.3%
Employed/Part- Time	1	7.1%
Still Seeking Employment	4	28.6%
Total	**14**	**100%**

** 2 F/T employed are F/T students & 1 P/T employed is F/T student

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2009 Placement Report

SUNY-ESF Graduating Senior Survey: Summary Report for 2009

Department of Forest & Natural Resources Management

Overall Responses

Respondents by Degree	*Total Degree Recipients*	*Total Respondents*	*Respondents % of Total*	*% of Respondents*
AAS Degree	32	24	75.0%	44.4%
BS Degree	24	16	66.7%	29.6%
MF	2	2	100.0%	3.7%
MPS	7	4	57.1%	7.4%
MS Degree	6	4	66.7%	7.4%
PhD Degree	6	4	66.7%	7.4%
Total	**77**	**54**		**100%**

Gender	*Total Degree Recipients*	*Total Respondents*	*Respondents % of Total*	*% of Respondents*
AAS Degrees	**32**	**24**	**75.0%**	**44.4%**
Female	6	4	66.7%	7.4%
Male	26	20	76.9%	37.0%
Undergraduate Degrees	**24**	**16**	**66.7%**	**29.6%**
Female	2	1	50.0%	1.9%
Male	22	15	68.2%	27.8%
Graduate Degrees	**21**	**14**	**66.7%**	**25.9%**
Female	11	8	72.7%	14.8%
Male	10	6	60.0%	11.1%
Total	**77**	**54**		**100%**

Undergraduate Major	*Total Degree Recipients*	*Total Respondents*	*Employed F/T*	*Employed P/T*	*Still Seeking*	*Continuing Education*
Forest Ecosystem Science	2	1	1			
Forest Management & Operations	1	1	1			
Forest Resources Management	12	9	4		5	
Forest Technology	24	17			1	16
FRM Envrn & Natural Resource Policy	2	2	2			
FRM Forest Ecosystem Science & Appl	3	1	1			
FRM Forest Management	1	1	1			
FRM Natural Resources Mgt	7	5	3	1	1	
FRM Quant Methods/Forest Sci & Mgt	2	2	1	1		
FRM Recreation & Resource Management	1	0				
FRM Watershed Mgt & Forest Hydrology	4	2	2			
Land Surveying Technology	8	7	2	1		4
Natural Resources Management	7	3	2		1	
NRM Recreation Resources	2	2	1			1

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2009 Placement Report con't

NRM Water Resources Mgt	1	1	1

Employment Information

AAS Degrees

AAS Degree Recipients	*# of Respondents*	*% of Respondents*
Employed/Full-Time	2	50.0%
Employed/Part- Time	1	25.0%
Not Employed/Not Seeking	1	25.0%
Total	**4**	**100%**

Position Related to Major (AAS)	*# of Respondents*	*% of Respondents*
Yes - Full-Time Position	1	100.0%
Total	**1**	**100.0%**

* out of 3 respondents, employed F/T or P/T, 1 answered this question

When Position was Obtained (AAS)	*# of Respondents*	*% of Respondents*
0-3 months after graduation	1	100.0%
Total	**1**	**100%**

* out of 3 respondents, employed F/T or P/T, 1 answered this question

Position Obtained Through (AAS)	*# of Respondents*	*% of Respondents*
Department/faculty referral	1	100.0%
Total	**1**	**100%**

* out of 3 respondents, employed F/T or P/T, 1 answered this question

Undergraduate Degrees

Undergraduate Degree Recipients	*# of Respondents*	*% of Respondents*
Employed/Full-Time	9	75.0%
Not Employed/Still Seeking	3	25.0%
Total	**12**	**100%**

Position Related to Major (Undergraduates)	*# of Respondents*	*% of Respondents*
Yes - Full-Time Position	6	100.0%
Total	**6**	**100.0%**

* out of 9 respondents, employed F/T or P/T, 6 answered this question

When Position was Obtained (Undergraduates)	*# of Respondents*	*% of Respondents*
Before graduation	5	71.5%
3-6 months after graduation	2	28.5%
Total	**7**	**100%**

* out of 9 respondents, employed F/T or P/T, 7 answered this question

Appendix F-6

Other than Personal services Expenditures

THE STATE UNIVERSITY of NEW YORK

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28550 ENVIRONMENTAL SCIENCE & FOREST - Account Transaction Detail

780055-00 RANGER SCHOOL-INSTRUCTION - Fiscal Year 09 - 10

290235	14-Aug-09	0	0	0.00	MALONE OFFICE PRODUCTS	290235	119317R
290235	14-Aug-09	0	200.88	0	MALONE OFFICE PRODUCTS	0000571	119317R
290800	02-Nov-09	0	0	0.00	CNY LASER SERVICES	290800	120237R
290800	02-Nov-09	0	140.00	0	CNY LASER SERVICES	0001780	120237R
291064	08-Dec-09	0	468.08	0	MALONE OFFICE PRODUCTS	0002327	121046R
291064	08-Dec-09	0	0	0.00	MALONE OFFICE PRODUCTS	291064	121046R
292139	14-Sep-10	0	0	0.00	J.L. DARLING CORP	292139	123802R
	22-Jul-09	0	69.00	0	STAPLES INC., AND SUBSID	0000259	
	05-Aug-09	0	31.98	0	TODD SUPPLY INC	0000430	
	24-Aug-09	0	74.59	0	STAPLES INC., AND SUBSID	0000700	
	10-Sep-09	10,000.00	0	0	LEGISLATIVE BUDGET REQUEST	9022NP	
	23-Sep-09	0	236.70	0	MALONE OFFICE PRODUCTS I	0001137	
	29-Sep-09	0	53.20	0	COPYCENTER RECHARGES 7/09	0002719	
	16-Oct-09	0	65.50	0	STAPLES INC., AND SUBSID	0001460	
	02-Nov-09	0	87.80	0	FLEET RECHARGES 8/09	0002734	
	02-Nov-09	0	1.84	0	COPYCENTER RECHARGES 8/09	0002736	
	02-Nov-09	0	97.91	0	GASOLINE RECHARGES 7/09-8/09	0002730	
	18-Nov-09	0	38.76	0	JAMES SAVAGE	0002036	
	20-Nov-09	0	303.00	0	FOOD SERVICE CHGS PER J.LATRAY 1	1009025	
	20-Nov-09	0	344.00	0	TRF PER J.LATRAY 11/10/09	1009024	
	23-Nov-09	0	78.00	0	MALONE OFFICE PRODUCTS I	0002115	
	14-Dec-09	0	12.65	0	FLEET RECHARGES 9/09	0002796	
	15-Dec-09	0	26.48	0	MALONE OFFICE	0002423	

				PRODUCTS I	
18-Dec-09	0	29.94	0	MALONE OFFICE PRODUCTS I	0002463
21-Dec-09	0	241.16	0	GASOLINE RECHARGES 10/31	0002810
21-Dec-09	0	1.64	0	COPYCENTER RECHARGES 11/09	0002811
26-Jan-10	0	-45.00	0	NOV 09 MEALS @ RANGER SCHOOL	0110033
26-Jan-10	0	-70.00	0	DEC 09 MEALS @ RANGER SCHOOL	0110034
28-Jan-10	0	54.46	0	MIKE BRIDGEN	0002893
10-Feb-10	0	19.50	0	DUTY NIGHT DINNERS (WEBB/ALLEN)	0210038
18-Feb-10	0	26.97	0	TODD SUPPLY INC	0003213
18-Feb-10	0	59.16	0	MALONE OFFICE PRODUCTS I	0003211
19-Feb-10	0	28.68	0	GASOLINE RECHARGES 12/09	0002830
19-Feb-10	0	174.32	0	GASOLINE RECHARGES 11/09	0002829
19-Feb-10	0	36.77	0	GASOLINE RECHARGES 1/10	0002831
22-Feb-10	0	73.80	0	COPYCENTER RECHARGES 1/10	0002849
25-Feb-10	0	100.00	0	CHRISTOPHER WESTBROOK	0003342
08-Mar-10	0	332.38	0	STAPLES INC., AND SUBSID	0003514
02-Apr-10	0	82.50	0	COPYCENTER RECHARGES 2/10	0002878
05-Apr-10	0	256.68	0	MALONE OFFICE PRODUCTS I	0003883
05-Apr-10	0	122.22	0	MALONE OFFICE PRODUCTS I	0003884
08-Apr-10	0	105.00	0	WAYNE ALLEN	0004017
09-Apr-10	0	143.40	0	STAPLES INC., AND SUBSID	0004046
20-Apr-10	0	399.00	0	MALONE OFFICE PRODUCTS I	0004164
20-Apr-10	0	225.00	0	CNY LASER SERVICES	0004174
22-Apr-10	0	352.00	0	STAPLES INC., AND SUBSID	0004226
22-Apr-10	0	74.25	0	FLEET RECHARGES 3/10	3599
26-Apr-10	0	25.51	0	GASOLINE RECHARGES, 3/10	0002885
27-Apr-10	0	164.79	0	TODD SUPPLY INC	0004284
11-May-10	0	162.10	0	S&K WOODWORKING	0004489
21-May-10	0	70.00	0	LETTERHEAD RECHARGE	0510059
21-May-10	0	160.00	0	ENVELOPE RECHARGE	0510062
21-May-10	0	478.63	0	WANANKENA BOOKSTORE SUPPLIES	0510053

26-May-10	0	89.54	0	GASOLINE RECHARGES 4/10	0002923
26-May-10	0	63.25	0	FLEET RECHARGES 4/10	0002933
01-Jun-10	0	179.75	0	FOOD SERV TRF MARCH 2010	0510066
01-Jun-10	0	9.75	0	FOOD SERV TRF MAY 2010	0510068
01-Jun-10	0	37.50	0	APRIL 2010 FOOD SERV TRANSFERS	0510065
08-Jun-10	0	48.41	0	S&K WOODWORKING	0004919
11-Jun-10	0	10.00	0	WANAKENA CAMPUS PETTY CA	0004982
24-Jun-10	0	10.60	0	LITTLE RIVER SALES AND S	0005210
25-Jun-10	0	14.36	0	TODD SUPPLY INC	0005249
30-Jun-10	0	442.20	0	FLEET RECHARGES 5/10	0002964
29-Jul-10	0	72.50	0	GAOLINE CHARGES MAY 2010	0002980
29-Jul-10	0	19.80	0	FLEET CHARGES JUNE 2010	0002973
03-Aug-10	0	22.30	0	FUEL CHARGES JUNE 2010	0002988
	10,000.00	**7,235.19**	**0.00**	***** Actual Total *****	
	10,000.00	**7,235.19**	**0.00**	***** Account Total *****	

Appendix F-7

Alumni Newsletter

WINTER NEWSLETTER 2010–2011

Ranger School Alumni Association, Inc.

257 Ranger School Rd. Box 48 Wanakena, NY 13695

Phone 315-848-2566 or 315-848-2858 ext 112 Fax 315-848-3249

Gail Simmons, Office Manager Email: rsaagail@esf.edu

From the Office Manager:

It is a sad, cold and snowy December day in Wanakena. We recently received word that one of our best friends has died. Gordon T. Hughes passed away November 29, 2010, six months after being diagnosed with melanoma. Gordon was the RSAA Treasurer for over 25 years, a member of the Class of 1956, a mentor, and a good friend to many, not only to me, but to my family, to many alumni and to the Ranger School.

Shortly after I got word of his death, I came across this quote:

"Be true to your work, your word and your friend."
-Henry David Thoreau

That pretty well sums up Gordon Hughes. He will be greatly missed. *gail*

Calendar of Events

January 19, 2011
Alumni Reception - NYSAPLS Conference to be held at the Marble Hill Inn, Oneida, NY 7:30 - 9:30 PM.

March 12, 2011
Annual RS Student-Alumni Hockey 1 - 3 PM in Syracuse, NY

April 29, 2011
RSAA Bd of Directors' Spring meeting

April 30, 2011
Ranger School Spring Open House

April 30 - May 1, 2011
Spring Work Weekend at the Spaulding Memorial Alumni House

May 21, 2011
Class of 2011 Graduation

Aug. 5 & 6, 2011
Fri. & Sat.
77th Annual RSAA Reunion

Dear RS Alumni, Families and Friends,

The holidays are upon us, and this is the time of the year that families congregate to celebrate life and love. As you make your way through the woods, don't forget to stop, change your perspective and listen to the sounds of the forest. I know for me, it is soothing. As I absorb the essence of the woods, I often think of my time at the RS and the people that have come into and out of my life. It's amazing to me how the pine needles under my feet from one small forest connect me to so many other forests and people who have come before and after me. That narrow margin of life, the Tamarack needles on the snow, the tracks of your dogs leading you out of the woods, or the gaze of an owl as you pass too close to his perch and he glides effortlessly through the trees and out of view are some of the things that tie us all together. The next time you are walking, hunting, gliding, riding, or just being in the woods, remember that the pine needles tie you and the rest of us together, no matter where we are, no matter what we're doing, those pine needles are a part of the fabric of you, and me, and all who came before and after us, through the woods at the Ranger School.

Happy Holidays and a safe winter for us all.

Bob Diehl '97, President RSAA

From the Director's Desk

As I reflect on all of the activities that have be happening here at the Ranger School, I realize that it has been a hectic but very productive time for us. The faculty and staff have been working on a number of important activities to keep the Ranger School a premiere educational institution. I am excited and energized by the many things that have been completed as well as those that are soon to be completed. I will try to capture some of the highlights for you.

The Class of 2011 has been working hard and doing extremely well thus far. It is very interesting to note that in August forty-four students arrived on opening day and as I write this, we still have 44 students here.

I am very pleased to report that in the fall of 2011 we will be offering a new A.A.S. degree program in Environmental and Natural Resources Conservation. This new program broadens our current course offerings and gives students an opportunity to focus on some other natural resources areas including wildlife and recreation. Initial response from prospective students has been extremely positive. Check out the Ranger School web site for more details on this new program.

Our Land Surveying Technology program is in the process of being accredited by the Accreditation Board for Engineering and Technology (ABET). A comprehensive self-study report was completed this summer and a 4 member visiting team from ABET was on campus for 2-1/2 days in October. The site visit seemed to go very well and we anxiously wait ABET's final determination which is expected in August 2011.

We are now in the process of preparing for accreditation of our Forest Technology program by the Society of American Foresters (SAF). We plan to have the self-study report completed early in the spring semester and the site visit will occur in April.

Associate Professor Wayne Allen will be retiring at the end of the fall semester. Wayne has been teaching since 1995. Prior to that Wayne worked for the forest properties unit on the Dubuar Forest. We thank Wayne for his years of service to the college and the Ranger School. Kathie Nevil, Program Aide and Barb Szlamczynski, Food Service Worker have also retired and we thank both of them for their years of dedicated service to the Ranger School.

It is with great pleasure that I welcome and introduce a number of new staff members of the Ranger School Community. In July Mr. Timothy O'Mara was hired to serve as our Residence Hall Director. In October Ms. June McWharf began work as our Program Aide to replace Kathie Nevil. In January Mr. Gregory Vaverchack '02 will begin work here as an Instructional Support Specialist.

We are in the process of conducting a search for a new faculty member and it is planned that this person will begin teaching in August 2011. This faculty member will focus on teaching courses in the new Environmental and Natural Resources Conservation Program.

Plans are moving forward with the Ranger School Centennial Celebration. The Centennial Committee under the leadership of Brad Woodward has been preparing for this milestone and plans call for kicking off the celebration at the reunion in August 2012.

Your generous financial support of the Ranger School continues to be extremely important and helpful. The James F. Dubuar Scholarship and the Class of 1968 scholarship continue to grow and when they reach the $25,000.00 mark, they will be endowed to provide scholarships for deserving students. Thanks to the members of The Class of 1955 who supported the Dubuar Scholarship in recognition of their 55th Anniversary.

A special thanks to those who support the Ranger School Program! If you would like to provide financial support to the Ranger School, gifts can be sent directly to me at the Ranger School. Please make your check payable to "ESF Foundation" and let me know how you would like your donation put to use.

Best wishes for a happy and prosperous 2011!

Christopher Westbrook '73

From the Treasurer: Greetings, Fellow Alumni.

We come, yet again, to the end of a very interesting year.

Back in August, I notified the Board that the burden of the Treasurer's position was beginning to overwhelm my available time. I tendered my resignation which, at first, was to be effective on the Saturday of our membership's 2010 general meeting. The fact that I have no desire to create a situation of burden for our association, I extended my resignation. During the Board meeting the previous day, I presented my concerns and some of the possible solutions to those concerns. The Board decided to pursue the possibility of having a tax preparer assist the association with necessary paper work. Many of you may not be aware that the treasurer has been responsible for filing all state and federal tax documents. The fact that I am not an accountant has caused me concerns about proper filing procedures and the constantly changing regulations regarding those documents. After some extensive research by the finance committee, we will begin working shortly with a local tax preparation person who will assist our association with the state and federal tax paper work, as well as some other accounting tasks. The cost of these services will be minimal, approximately $100 per month. Our Board is currently working on ways to establish the necessary funds to pay for these services.

The Board and the Alumni Office continue to do their very best to help reduce expenses, as well as seek out new forms of generating income.

In closing, any donation, no matter how small, is always greatly appreciated. Be sure to specify whether your donation is for General Operating, Special Projects, Other or split between all.

Everyone have a joyous holiday season and we'll see you soon!

Respectfully submitted, John M. Adams, '82

Wanakena Church Nearing 50% of Goal

In an effort to raise funds for desperately needed structural repairs to the Western Adirondack Presbyterian Church in Wanakena, built in 1903 and placed on the National Register of Historic Places in 2007, we are accepting minimum donations of $25.00 per pane of colored replacement glass. A permanent plaque will be placed in the church listing donor names and/or "In Memory Of _____".

If funds in excess of project costs are received, they will be used for other building restoration projects, and donor names will still be placed on the plaque. Donations may be mailed to:

WAPC
c/o Raymond Keith (Class of '67)
PO Box 3
Wanakena, NY 13695

(If your donation is "in memory of", please clearly print name of person(s) being memorialized.)

Thanks for helping preserve our heritage!

Kathie Nevil's Retirement

After twenty-six years of service to the Ranger School, Mrs. Kathie Nevil has retired. We wish her and Bill a happy retirement at the home in Wanakena.

HAROLD L. SPAULDING MEMORIAL ALUMNI HOUSE

****** This new policy seemed to work the last two years, so we will keep it in place for 2011******

Reservations for the Spaulding Alumni House **2011** season can be made beginning Tuesday February 1 through Monday February 28 **in writing**.

Donation Schedule:

$60.00/person/night **$80.00**/family*/night **Family is defined as immediate family only.*

$250/Group rate*/night **Extended families qualify as a group- groups of 4 or more get group rate*

Guidelines for Reservations

Maximum 1 Weekend per stay - Additional days may be added for a maximum of 7 night stay.
Arrival time is after noon on first night of stay Departure time is 11:00 AM following last night stay.

1) Reservations for the lottery shall be made in writing using the bottom of this page. When making reservation requests **please include a self addressed stamped envelope** for notification of lottery results. No E-mail or Phone Calls for Alumni House Lottery Reservations.
2) Lottery Drawing will be held on March 7, 2011. Reservation notifications will be mailed out between March 10 and March 15, 2011. Contact the Alumni Office after March 15, 2011 for any remaining dates available.

2011 Alumni House Lottery Reservation Form

Reservation Types:

(**WK**) Week Stay: check in on Friday at noon through checkout the following Friday at 11:00am
(**WD**) Weekend Stay: check in on Friday at noon through check out on Sunday at 11:00am
(**AD**) Additional day (s), if available
(**HD**) Holiday Weekend Stay: Check in at noon Friday through check out Tuesday at 11:00am

Availability of Alumni House for the 2011 Season begins Fri. May 13, 2011 through Mon. October 31, 2011.
The Alumni House is unavailable during Alumni Reunion, Thurs. Aug. 4 - Sunday Aug. 7, 2011.

Name: _____ Class:_____ *Are your 2011 dues paid?* _____

City: _____ State: _____ Zip: _____

Telephone: _____ EMAIL: _____

Number of people staying? _____ Rate: Individual_____ Family _____ Group _____

1st. Choice

Reservation type: WK ( ) WD ( ) HD ( ) AD ( )

Dates Requested: Arrive after noon: _____ Depart 11:00am _____

2nd. Choice

Reservation type: WK ( ) WD ( ) HD ( ) AD ( )

Dates Requested: Arrive after noon: _____ Depart 11:00am _____

3rd. Choice

Reservation type: WK ( ) WD ( ) HD ( ) AD ( )

Dates Requested: Arrive after noon: _____ Depart 11:00am _____

Mail completed form before February 25, 2011 to: RSAA, PO Box 48, Wanakena, NY 13695

Ranger School Hockey

Hockey continues to be a popular activity at Wanakena. Already this year, twenty-two students have taken up the game, playing Saturday nights at an arena in Canton, NY. They are hoping to take on the Alumni on **March 12, 2011**, 1 – 3 PM in Syracuse. Please contact Mike Bridgen (bridgen@esf.edu) if you'd like to play in the alumni game.

Scholarship Awards

Logan Buckmaster and Tracy Parmenter received a scholarship from Setanta O'Ceillaigh, Ranger School Class of '08, during a fall presentation at the Ranger School.

Tony Sparacino (left) and Jeremiah Jessman received scholarships from Stillwater Number Four Fish and Game Club.

Summer Bridge Program

For the fourth year running, the summer bridge program was held at the Ranger School. It is a four-week program offering freshman courses in trigonometry and biology. Students use this program to complete some needed pre-requisites for the fall semester.

Veteran's Day Presentation

November 10, 2010. During a special presentation, with their classmates, faculty, and college staff, Ranger School students were recognized for having served in the US Military. These are (left to right) Jim Stewart, Angelo Hamm (kneeling), Chris Chesmore, and Tony Fendick. Tim O'Mara, (right) the current Resident Hall Director, was also recognized.

Wood-chip Burning Boiler

Some new construction is happening on campus. A wood-chip fueled boiler is being added to the Maintenance Shop to replace an oil-burning boiler. The College plans to demonstrate this as the use of "green" technology".

Instructional Support Associate

During the summer of 2010, we received approval to hire an "Instructional Support Associate". This individual would assist faculty members in the forest technology program, especially in field work. Thirty-five candidates from across the country applied for the position, including a number of Ranger School alumni. Mr. Greg Vaverchak, RS '2002, was selected for the position and is expected to start work in January 2011.

The Status of the Ranger School Sugaring Operation 2010

The sugaring operation got a start this year in the Marshall Lot behind the Pavilion up at the ball-field. It is hoped that this operation will continue into the near future. This area will provide the students with an easy access area to learn about many aspects of Maple Syrup production. This area seems to promising, but you might recall that I had also hoped to develop the Cathedral Rock area as the predominant future sugar-bush and syrup production area. I still hope to see this accomplished, but this area still needs work setting it up and documentation. Whatever happens anywhere on the Ranger School property, it has become apparent to me that the boiling system currently in the sugar house on campus is too large for anything that can be handled by the current staff.

I have determined that our boiling system may be worth trade-in value for a smaller system that could handle up to 500 trees instead of the current 1000 tree+ system we have. I have begun working with a local maple syrup supply business in locating a smaller system that would suit the needs of the Ranger School. Recently, this business has begun making arrangements to take a two pan 2 X 6 ft. boiling system in from a former customer who had bought the pans new but now wants to trade up to a larger size. The supply business owner will be making arrangements to meet with me soon to determine what value our old system might have in trade-in.

It is my fervent desire to see our school back into the syrup production that it once had. This effort has educational value in addition to supplying many people, many of them folks such as you, with a natural product that tastes good. This is a strong reason to have the sugaring operation going again, not to mention the income it could provide to the Ranger School.

There is a hitch to this however. Removing the old system, which has and will be done, then replacing it with a smaller one will take time and money. The Ranger School no longer has the staffing it once had to make this labor intensive operation happen. The Ranger School also doesn't have necessary funds to buy the equipment needed out right to convert to a smaller system. I have had to rely on the generosity of this local sugaring supply business, who believes in what we do at the Ranger School, to help me get started. What will be needed in the coming months is a willingness of those of you to help me get us going again. I plan on doing this as a volunteer after I have officially retired from the Ranger School Faculty. Are there any of you out there who might have the time and interest to help me with the labor? Are there any of you out there who might have sugaring equipment kicking around, not being used, that might prove useful to the Ranger School? Are there any of you who might feel like helping the Ranger School by making a donation through the Alumni Association to help get us back on our feet so that maple syrup would be available for your purchase?

If you answered yes to any of these questions, please indicate how you might be willing to help by making a note of it the next time you contact Gail Simmons. I would be grateful for any help in any form. I am sure the future students of the Ranger school will appreciate it. Maybe even some of you would be happy to buy your syrup from us instead of somewhere else. Thank you all in advance for your help.

Sincerely,
Wayne G. Allen. '79 and Life Member of the Ranger School Alumni Association

Reunion 2010

The 2010 Annual Reunion was another success, thanks to all who helped! One of the highlights again this year was the climbing wall from RockVentures in Rochester. We are in hopes to have the climbing wall return, since it was such a hit for all ages.

The attendance continues to grow, and expenses go up. The raffle, silent auction and auction are needed to make ends meet. The tent, tables & chairs, workers, and entertainment are just some of the visible costs of the reunion. We have cut out some entertainment to save money, and many people just want to come back and visit with people. If you or anyone you know might be interested in leading tours, giving demonstrations, or helping in any way, we welcome that!

As mentioned, the raffle helped us make ends meet. If you know of any items special to your area, or items your company may be willing to donate, we would appreciate it along with the many wonderful items from our talented and generous alumni. Together we make it all work and have a wonderful time!

NOW YOU KNOW:

NYS Ranger School Alumni Association, Inc.

Fact sheet:

Although the school began in 1912, the Alumni Association wasn't formed until August 25th, 1928. The object was *"To keep in touch with and hold together the members in an association of common interest."*

Among the alumni ranks of the nearly 4000 (*3997*) graduates (240 women included), we know the whereabouts of close to 2400 that are alive. (Not all keep in touch, but we do mail to them.) They are scattered all through the US. (*every state now, as of Aug. 2010*). We also have alumni in Canada, Switzerland, Germany, Ecuador and Sweden. We have not only rangers, game wardens, foresters, surveyors etc. but we have military, police officers, firemen, teachers, attorneys, judges, medical doctors, nurses, ministers, farmers, white collar executives, blue collar workers, musicians and an ex-soap opera star. Our oldest living alumnus will be 102 next month.

We have an annual reunion for our alumni, their families and friends with close to 500 people attending. The reunion is always the first Friday and Saturday of August, a 2-day event with a huge tent and entertainment for every age (Golf tournament, forest tours, and hikes, boat rides, and games). On Sat. morning a business meeting with the general membership is held, and every two years, new officers are nominated and voted on. We close the reunion with award ceremonies and a large raffle and auction to help with the expenses. Many people camp with tents all over the campus, dorm rooms are rented out, and all the motels are filled in the area. It is a fun time.

Dues paying and life members get a copy of the annual book (240 pages) that we publish telling the whereabouts and news of all the members that send in their information sheets.

Our motto is:

"TO KEEP IN TOUCH"

Communications

How to "keep in touch" with the Ranger School Alumni Association.

With the rising cost of postage, we need to keep our records current. It costs us to have mail returned. Please keep us notified of any address changes. And if you are sending mail, please mark who or what department it should be directed to. Send alumni mail to "RSAA" or the Ranger School Alumni Association, or to Gail Simmons, RSAA Office Mgr. (email: rsaagail@esf.edu)

Also, if you call the school, (315-848-2566 or 848-2858) you may get a menu directing you to dial an extension. The Alumni Office extension is 112. Thanks.

ALUMNI NEWS BOOK

This is the beginning of the 2011 ALUMNI NEWS. Please feel free to contribute articles, stories, artwork, poetry, news etc. that are informative, entertaining and interesting to other alumni. These articles may not necessarily be the views or opinions of the RSAA Board of Directors, or the editor, but this is YOUR book.

Even with the donated paper, the cost of publishing the book is **$6000.** Boosters are again available. This helps defray the costs of publishing and it is a good place to advertise. Wouldn't you or your company like to be included?

If interested fill out the order form below and send it back with your donation. Attach how you would like your ad listed and enclose the check payable to: **"RSAA"**. The rates are:

_____ Whole page @ $75 _____ 1/2 page @$40

_____ 1/4 page @ $25 _____ one line listing @ $15

Name:_____Class: _____

Address:_____

City:_____State: _____ Zip: _____Phone:_____

Philip J. Haddock Award for Excellence

Please take a minute to fill in your nominations and reasons for choices for both these awards on the back of the information sheet. Criteria for these awards are listed on the back of the information sheet.

Previous P. J. Haddock Award Winners:

1980 Clyde Powell '16
1981 Lucian Plumley '31
1982 C. Eugene Farnsworth
1983 J. Wayne Morrow '33
1984 F.B. "Dinty" Moore '32
1985 Orrin L. Latham
1986 Barry D. Nehr '60
1987 Arthur E. Kopp '31
1988 Michael Salato '29
1989 Daniel Castagnozzi '50
1990 Mary Ann Remele '53
1991 David G. Anderson '50
1992 Francis M. LaDuc '47
1993 James E. Coudal '57
1994 Kermit E. Remele '43
1995 Gordon T. Hughes '56
1996 Richard W. Miller '53
1997 Hal Bush '27
1998 John Peck '43
1999 Lawrence Rathman '72
2000 Gail Simmons
2001 Thomas D. Martin '76
2002 Christpher L. Westbrook '73
2003 Stephen B. Coulthart '53
2004 Dick Thomas '54
2005 Ken Myers '52
2006 Lawrence Hill '50
2007 Charles Hartnett '51
2008 Lee Berry '68
2009 Bruce Williams '76
2010 Gerald L. Kniskern '50

"The person selected does not have to be (or have been) an officer of the RSAA or a member of the Executive Committee, but neither should such persons be excluded. The person selected should be one who has made an outstanding contribution of some kind (not monetary). This contribution may be in the nature of a single, noteworthy act or a lower-keyed, but long-term commitment to the School and/or the RSAA or for alumni in general."

Kermit E. Remele Award of Meritorious Service

The intent of this award is to recognize groups of people whose combined efforts have gone beyond the norm to have a positive lasting influence on the Ranger School. This honor was first awarded to the "Class of 1950" in the year 2000 and to the "Surveying Friends Committee in the year 2003. In 2005, the award was presented to the "Class of 1955", and in 2008, it was awarded to the "Class of 1968". In 2009, the award was presented to "The Residents of Wanakena"

If you know of any group that you believe worthy of this honor, jot it down with justification and forward it to this office.

Ranger School Alumni Association

Box 48
257 Ranger School Road
Wanakena, NY 13695

Phone: (315) 848-2566 or 848-2858 ext. 117
FAX: (315) 848-3249
email: rsaagail@esf.edu

2011
News & Information

Dear Alumni, Greetings from Wanakena! Do you enjoy reading the *ALUMNI NEWS*? Well, this is where it all starts. Please complete both sides of this form and return it along with your dues payment. **PLEASE DO IT NOW** - so it does not get put aside and forgotten and you miss being in your class write-up. An annual membership card is enclosed which is valid when you send your annual dues. (This does not apply to Life Members, you should have a Life Member card already. *Let me know if you need a new one.*) Yes? _____

- Gail Simmons, RSAA Office Mgr.

Name: _____ Class: _____

Address: _____

_____

_____

If your address has changed, check here ( ) If you have a different address during part of the year, please note it, and the dates you are there.

Birth date: _____

Phone# _____

Email address: _____

Do you object to having your phone number or email address published in the ALUMNI NEWS _____

Family: Married? _____ years

spouse's name _____
Children (& ages)

_____

_____

_____

_____

Occupation:

Forestry _____ Surveying _____ Other _____ Retired _____

Title & Employer: _____

_____

_____

Date:

News: _____

Continue on back or separate page, if necessary.

DUES SCHEDULE

To receive the annual "ALUMNI NEWS", to make reservations for the Spaulding Memorial Alumni House and get lower Reunion registration fee, you must be current with your dues.

You don't have to pay back dues. WE WANT YOU BACK!!

LIFE MEMBERS: *Check here if you are already a Life Member:* _____

ANNUAL DUES:
Classes of 2008, 2009, & 2010 - pay 1/2 price $20.00
All others (except Life members) -pay $40.00

$_____

DONATIONS: ***All donations are appreciated.***

(Please specify) General Operating _____ or Special Projects _____ $_____
The RSAA donor list is usually not published.

TOTAL ENCLOSED $ _____

Please make checks payable to : ***"RANGER SCHOOL ALUMNI ASSOCIATION, INC." or "RSAA"***

(CONTINUED ON BACK)

PHILIP J. HADDOCK AWARD NOMINATIONS:

One who made contributions as Mr. Haddock exemplified: *"excellence in dedication to the Ranger School, its alumni and its ideals."* Nominations must be in by **April 15th, 2011** to be considered. Please list your nomination and reasons why your nomination should be considered. Previous award recipients listed in the newsletter.

KERMIT E. REMELE AWARD OF MERITORIOUS SERVICE

The Ranger School Alumni Association presents this award in honor of Kermit E. Remele. Professor Remele, a 1943 graduate of the Ranger School, served on the Ranger School faculty for over 30 years. As an active member of the Ranger School Alumni Association, he served as Editor of the Alumni News and held the office of Secretary for many years. Kerm passed away August 24, 2006. One of his greatest strengths was his ability to mobilize and motivate people to work for the betterment of the Ranger School. The intent of this award is therefore to recognize groups of people who have combined efforts have gone beyond the norm to have a positive lasting influence on the Ranger School. If you know of any group that you believe worthy of his honor, jot it down with justification and forward it to this office.

JOBS:

Do you have a job in forestry or surveying that can be filled by a Ranger School graduate? Or do you know of one with another company or agency? (Now or by graduation time next May?)

PROSPECTIVE STUDENTS:

We have always had some of our best prospective students recommended by Ranger School alumni. Do you have any good prospects? If so, please give us their names and addresses. Would you like to contact prospective students in your area or visit schools in your area?

VOLUNTEERS:

Do you have any time and talents you would like to volunteer to the Association? We need help for Special Projects, Reunion, and Recruitment for prospective students (see above) and RSAA membership enrollment. Do you want to be notified of the Spring Cleanup weekend (April 30 & May 1st, 2011) for the Spaulding Memorial Alumni House?

SUGGESTIONS:

Is there any way we could serve you better? This space (or use additional page if needed.) is open for suggestions you may have for improving the Reunion, newsletters, the ALUMNI NEWS, Special Projects, etc.? We want your ideas!

APPENDIX G
Documents for Standard VII
Physical Resources and Facilities

Appendix G-1

Computers and Software

Student Computers – 27 total

Computer lab (Room 221)

24- Dell Optiplex GX 620

1- Dell Optiplex 745 (for Instructor use)

Library (Room 220)

2- Dell Optiplex GX 620

Operating Systems:

Windows XP

Software:

Microsoft Office Version 2007: Word, Excel, PowerPoint
ArcGIS Version 9.3
DNR Garmin Version 5.3.2
Silvah Version 6.0
Carlson Survey Software Version 2008
Two-Dog inventory software

Printers:

HP3005 black/white laserjet
HP2800 color inkjet printer
HP800ps large-scale plotter

Appendix G-2

Equipment Inventory

Ranger School Equipment Inventory

Room 143

Aerial Photogrammetry	#
Light Tables:	
18x24	5
24x36	2
Planimeters:	
Digital	6
Manual	24
Stereoscopes:	
Pocket	70
Table	2
Mirror w/Parallax Bar (Leitz)	1
Ecology / Soil & Water	#
Barometers / Altimeters:	
Handheld	2
Recording	3
Current Meters:	
Head Phones	4
Large Current Meter	1
Mini - Current Meter	7
Sounding Weight	1
Wading Rods	6
HOBO Dataloggers:	
Weatherproof - RH &Temp.	7
RH,Temp. $ Light External	7
Submersible Cases	9
HOBO Shuttle	1
Hygrothermograph	2
Hygrotherms (pen - type)	10
Increment Borers (4")	14
Increment Borers (6")	10
Increment Borers (8")	2
Psychrometric Slide Rule	2
Rain Gauges (Standard)	4
Shigometer	1
Sling Psychrometers	2
Soil pH Test Kit	4
Soil pH & Humidity Test Kit	2
Stop Watches	2
Thermometers:	
Citrus	4
Mercury	14
Soil	9
Water Level Recorders:	
Stevens, Type F	1
Belfort, Type FW - 1	1
Weather Kit (Belt)	1
Fire / Timber Harvesting	#
Adze Hoe	1
Chain Saw Chaps	15
Chain Saw Toolboxes w/tools	9
Chain Saw Toolbox (Main)	1
Felling Levers:	
Long	3
Short	7
Hammer	7
Fire Rakes	4
Fire Shovels	6
Fire Swatters	2
Freighter Frames	2
Fuel Load Gauges	15
Indian Fire Pump (Collapsible)	1
Loggers Tapes	2
McLeod Fire Tool	1
Peltor Lite-com Hardhat	4
Pulaski	10

Increment Borers (10")	2
Increment Borers (12')	7
Increment Borers (14")	9
Increment Borers (16')	1
Mechanical Weather Station	1
Moisture Meter (Portable)	1
Moisture Meter (Speedy)	1

Room 143 Cont.

Fire / Timber Harvesting Cont.	#
Textbooks:	
Eastern Timber Harvesting	36
Logging and Pulpwood Production	11
Prescribed Burning	19
Manual for Forest Fighters	35
Forest Improvement / Trails	#
Backpacks	1
Carpenters Level	1
Cordless Drill (18.0V)	1
Crow Bars	5
Deck Sprayer	1
Draw Shaves	6
Engraver	1
Grass Trimmers	3
Hachets	5
Igloo Water Cooler (5gal.)	1
Hammers:	
Carpenters	1
2.5 lb. (Sledge)	1
3.0 lb. (Sledge)	2
4.0 lb. (Sledge)	1
6.0 lb. (Sledge)	1
Hand Pruners	7
Ice Crampons w/bindings	2
Loppers	11
Machettes	13
Power Drills	2
Sickles	1
Sodering Kit	1
Splitting Maul	3
Splitting Wedges	7
Saws:	
Bow	29
Pulp Hooks	5
Rescue Kit	1
Rescue Gurney	1
Spade (Sharpshooter)	1
Spring Rake	3
Weather Meters (Skymaster)	2
Drop - Bow Compass	20
Leroy Lettering Sets	2
Magnifying Glass	1
Protracters	13
Rapidograph Compass Adapter	30
Rolling Straightedge	1
Sribers	40
Templates:	
Radius curve	20
Arrow & Circle	36
Mensuration	#
Abney Levels:	
Topograghic	46
Percent	13
Altimeter (Haga)	2
BAF-Scope/Dendrometer	1
Biltmore Sticks:	
25" Reach	49
23" Reach	1
21" Reach	2
Calipers:	
Pentaprism	1
Wooden	6
Clinometers:	
% / Topo.	25
Degree / Topo.	8
Digital	23
Data Collectors (Husky)	10
Hip Chain	1

Pole Pruner	15
Hand Pruner	4
Dual - Edge Pruner	1
Swedish Brush Axe	1
Woodsmen's Pal	2
Graphics	#
Doric Lettering Sets	20

Room 143 Cont.

Mensuration Cont.	#
Rules:	
Decimal "C" (Log)	14
Doyle (Log)	10
Folding Doyle (Log)	31
International (Log)	8
Lumber	2
Pulp	2
Tally Registers	45
Tapes:	
Diameter (Standard)	37
Diameter (Metric)	1
Loggers	2
Cased (Fiberglass,100ft.)	8
Cased (Fiberglass,50ft.)	3
Cased (Woven, 100ft.)	13
Cased (Woven,50ft.)	5
Cased (Steel, 100ft.)	9
Cased (Steel, 50ft.)	2
Miscellaneous Equipment	#
AC Traveler, Portable Power Inverter	1
Camera Tripods	5
Digital Cameras:	
Canon, SD 100	1
Casio, QV-10A	1
Kodak, DC 210	1
Kodak, DC 220	2
Kodak, Cameo, 35mm	2
Motorola 2950, Mobile Phones	2

Prisms:	
BAF 10	43
BAF 20	15
Rangefinders:	
Pocket (Endscorp)	2
DME 201(w / Tripod)	1
Relaskops:	
Speigal	18
Telerelaskop	2
Personal Floatation Device	68
Respirators	7
Rescue Backpacks	3
Surveying	#
Alidade (Expedition)	1
Chaining Clamps	53
Compasses:	
Hand (Silva)	2
Staff	54
Surveyor's	4
Data Collectors:	
Topcon FC 2000	4
Carlson	3
TDS-Ranger	1
TDS-Recon	1
EDM's:	
Beetle 1000	1
Hewlett Packard	2
Topcon DM S2	2
Wild T1000	2
GPS Units:	
Garmin 60CXs(Handheld)	25
Topcon HiPer Lite	1
Jacob Staffs	39
Levels:	3
Automatic (Kern,w/tripod)	10
Automatic (Leica)	10
Automatic (Nikon,w/tripod)	3
Automatic (Sokkia)	4
Hand	3
Rod	10
Leveling Rods:	

Portable Loud Speaker (Megavox)	1
Safety	#
Caution Flags	5
Hardhats	29
Traffic Cones	8
Traffic Signs	2
Vests	18
Radios:	
Motorola,HT 90 w/charger	2
Motorola HT 600 w/charger	4
Motorola HT 750 w/charger	6

Room 143 Cont.

Surveying Cont.	#
Measuring Wheels (Rolatape)	6
Plumb-bobs:	
Cases	19
Plumb-bobs (w/Case & Gammon Reel)	25
Plumb-bobs (w/Gammon Reel)	5
Plumb-bobs (w/Case)	9
Plumb-bobs	42
Prisms:	
Peanut	7
Right Angle	3
Single Reflecting	14
Triple Reflecting	5
Prism Poles	10
Spring Balances	12
Surveyor's Ropes (200ft.)	32
Tapes:	
Steel, 2-Chain w/Trailer	17
Steel, 2-Chain w/Trailer on reel	2
Steel, 1-Chain	7
Steel, 100ft.	15
Steel, 100ft on reel.	2
Steel, 200ft on reel.	7
Steel, 300ft on reel.	2
Fiberglass (Crane)	15
Philadelphia	46
Line Staffs (4, 6 & 8ft.)	52
Magnetic Locators	5
Manuals:	14
Carlson	28
Garmin GPS 12	7
Leica NA 728	2
Leitz Set 4A	1
Topcon ET 1	2
Topcon 210 Series	1
Topcon 220 Series	3
Wild Distomat	1
Wild Theodolite	

Room 151

	#
Alidades:	16
Plane Table	14
Peepsight	10
Telescopic	
Barometers (Hand)	5
Camera (Pentax w/accessories)	1
Clipbords (Double)	80
Compasses (Box)	13
Compasses (Military)	20
Compasses (Drafting)	14
Data Cards (SMI)	6
Data Recorder (Leitz)	1
GPS Units (Magellan)	2
Instrument Rain Bonnets	50
Levels (Engineer)	26
Manuals:	
SMI, Version 6 (HP48GX)	8
HP48GX	1
Sight Survey	3
Plane Tables w/tripods	20
Redy Mappers	70
Slide Rules	50
Solar Attachments	3
Starshot Reflectors (K&E Transits)	6
Tatum Holders	37
Timber Scribes	28

Total Stations:

Leitz Set 4A	1
Topcon 213	5
Topcon ET-1	1
Topcon GTS 229	1
TopconGTS 825A	1
Topcon GTS 30002W	1
Topcon GPT 7005	1
Nikon DTM-520	1
Tribrachs (Optical Plumb)	15
Tribrach Adapters	15

Tripods (Adjustable Legs):

Aluminum	2
Syracuse Blueprint (Wood/Fiberglass)	5
Keystone (Fiberglass)	4
Crane (Wooden)	6
Dutch Hill	5
Topcon	5

Room 233 Cont.	#
Millipore, Fecal Coliform Test Kit	1
Millipore, Total Coliform Test Kit	1
Moisture Tester	1
Particle Size Analysis	1
Porosity - Moisture Determination	1
Specific Gravity	1

Room 221A	#
HP Inkjet Plotter	1

Nursery Tool-Shed	#
Bark Spuds	5
Brush Hooks	17

	#
Room 233	

Balances:

Field Test Scale (16kg. - 35lb.)	2
Industrial Laboratory (5kg.)	1
Triple Beam (2610g.)	1
Beckman, Conductivity Meter	1
Beckman, pH Meter	1
Density, Moisture (Compaction Test)	1
Fisher Scientific pH Meter (Model 810)	1
Hach, 2100 Turbidimeter	1
Hach, Fishing Water Quality Test Kit	1
Hach, Tannic Acid Test Kit	1
Mechanical Drying Oven (50c - 210c)	1

Microscopes:

Accuscope, 3000 Series	1
American Optical, Model 40	3
Swift, SM 80	2
Roundpoint	6
Soil Augers	6
Splitting Maul	1
Sprayer (Model T, Back Pack)	1
Tillers (Hand)	7
Tripods	20
Vertical Sketchmaster (Gordon)	2
Zoom Transfer Scope (B&L)	1

	#
Horse Barn	
Iron Horse, Jonsered 5.5 Hp w/trailer and sulky	1
Sawmills:	
Jonsered, Chainsaw Sawmill	1

Calipers	30
Chaining Pin (Sets)	40
Drip Torches	2
Hoes:	
Adze	18
Garden	8
Hoedad	1
Line Staffs	3
Log Carriers	5
Log Jacks	5
Mattock Tools	25
McLeod Fire Tool	1
Peavies	8
Pick Axe	2
Planting Bars	15
Pry Bar	1
Pulp Hooks	3
Pulp Tongs	1
Rakes:	
Garden	2
Fire	26
Refuse Hooks	3
Saws:	
Bow	3
Crosscut	12
Pole	7
Scythe	2
Sickle	2
Shovels:	
Flathead	1
Woodmiser, Bandmill	1
Snowmobile(1986 Ski-Doo, Tundra)	1
Woodsplitter (Honda GX240, 8.0 Hp)	1
	#

Maintenance Building

Brushsaws:	
Efco, 8753	1
Jonsered, RS51	7
Jonsered, RS45	1
Jonsered, RS44	1
Chainsaws:	
Jonsered, 2054	14
Jonsered, 2153	3
Jonsered 2056	1
Jonsered 2052	1
Jonsered, 2095	1
Chainsaw Gas Cans:	
Smart Fill (2.5gal.)	10
Safety Can, Metal (3.0gal.)	5
Safety Can, Metal (5.0gal.)	2
Power Pruner (Technic)	1

Appendix G- 3

Ranger School Renovation Details

Design/Construction Teams:

- *Project Funding and Management* – State University Construction Fund
- *SUNY Campus* – College of Environmental Science and Forestry, Ranger School,
- Wanakena, New York
- *Architectural Engineering Consultant* – Beardsley Design Associates, P.C.
- *Construction Contractor* – Murnane Building Contractors, Inc.

Cost:

- Construction cost - $5,368,500
- Total project cost - $6,031,500

Schedule:

- Design started – September 1999
- Bid opening – March 2001
- Construction started – May 2001
- Construction completed in three phases – July 2002 – May 2003

Building Square Footage:

- 1928 Main Building – 22,800 sq. ft.
- 1960 Addition – 12,400 sq. ft.
- New Addition – 11, 040 sq. ft.
- Total: 46,240 sq. ft.

New Addition:

- Distance learning lecture hall (92 seats)
- "Smart" classroom (40 seats)
- Conference room
- Dining center (96 seats)
- Kitchen/serving/food storage

Renovated Spaces (1928 Main Building and 1960 Addition)

- Dry lab/drafting (40 stations)
- Computer lab (30 stations)
- Fitness/games rooms
- Dormitory space (22 beds added)
- Office space

- Library
- Toilet/shower facilities
- Mechanical rooms
- Student lounge
- Miscellaneous (laundry, student kitchenette, recycling)

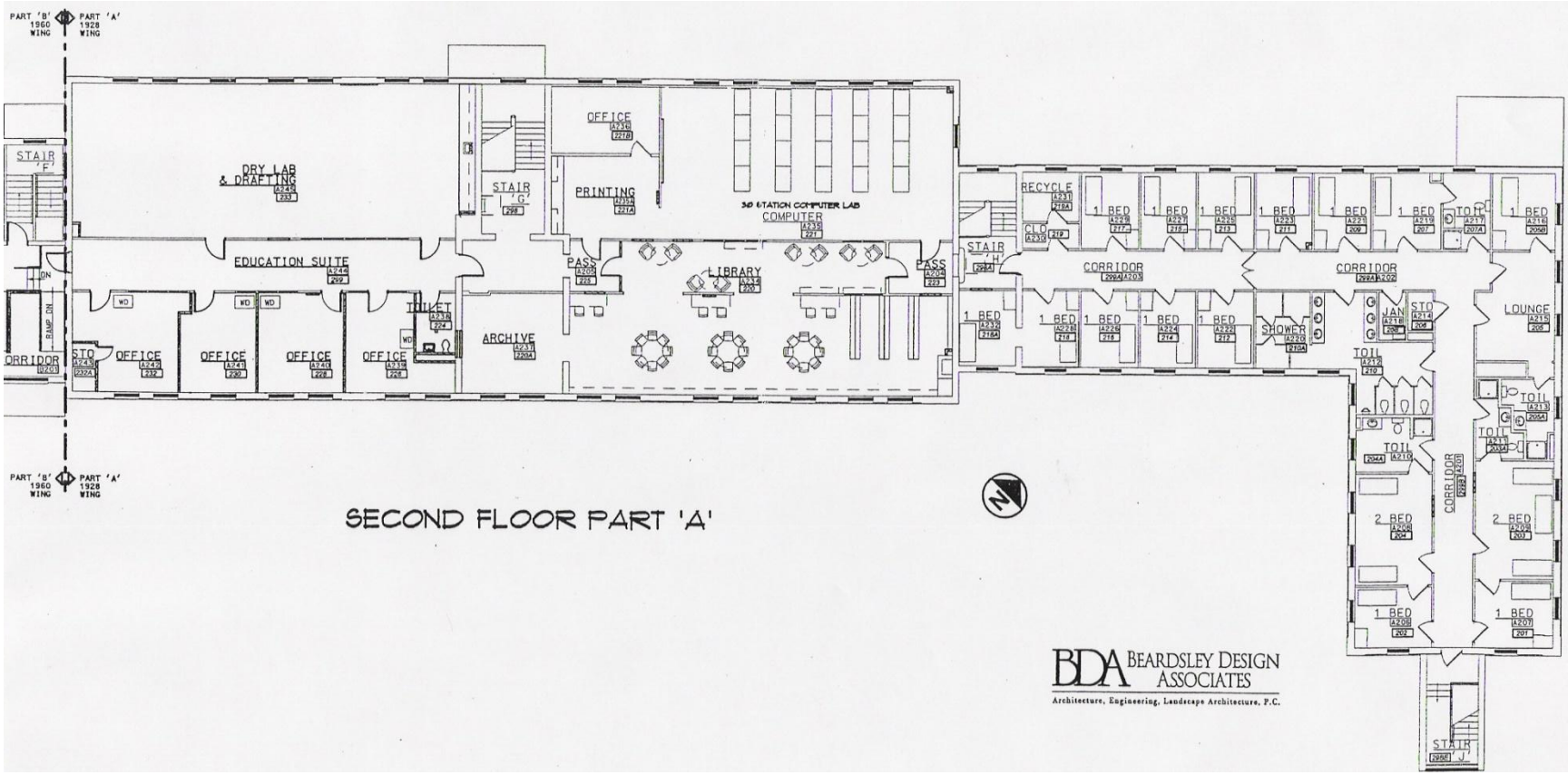
Also Included in Scope of Work

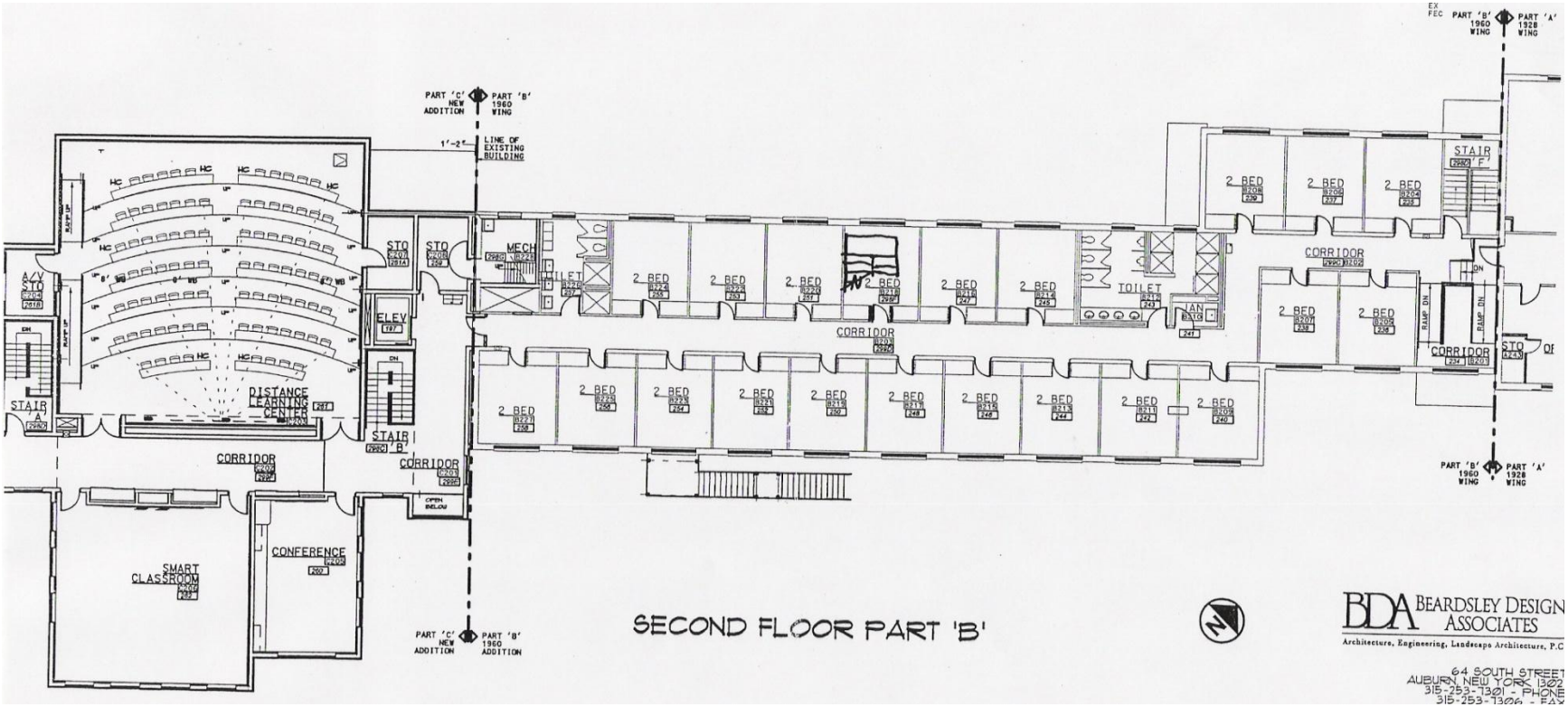
- Roof and window replacement
- Exterior façade rehabilitation
- Hot water heating conversion (from steam)
- Structural repairs
- Asbestos abatement
- Fire protection improvements
- Emergency generator replacement
- Underground fuel oil storage tank replacements
- Plumbing rehabilitation
- Electrical service upgrade
- Parking/site improvements
- New elevator
- Building code improvements
- Accessibility (ADA) improvements

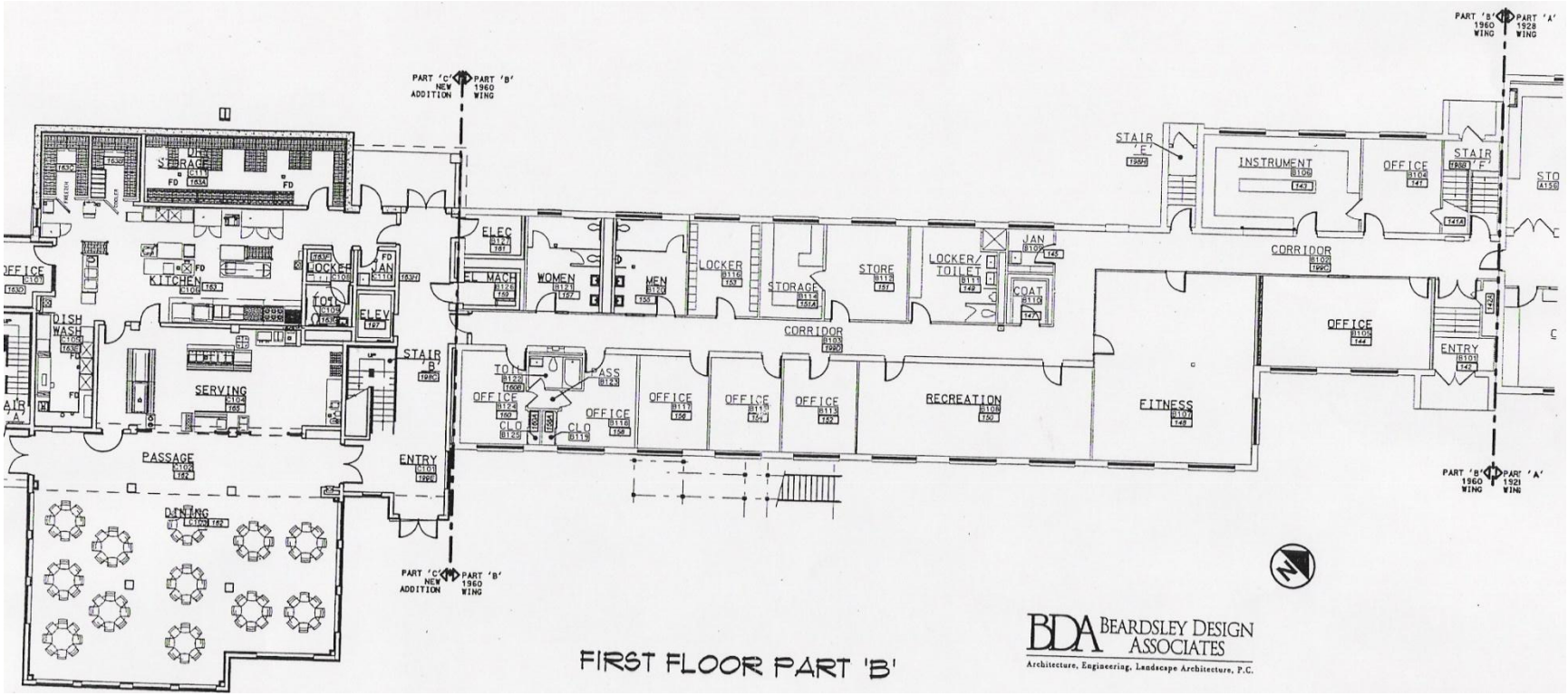
Appendix G-

Appendix G-4

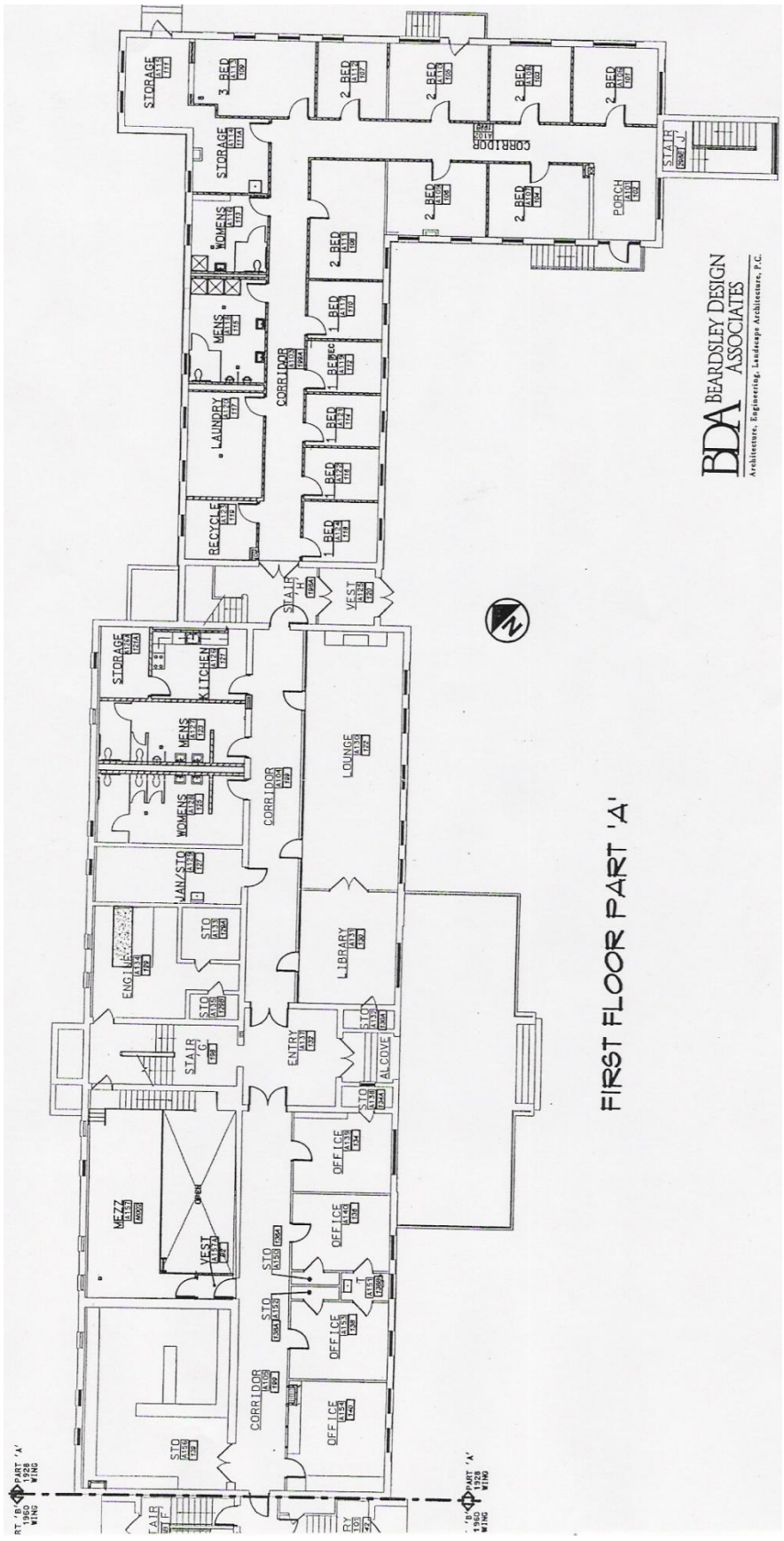
Ranger School Floor Plans


PART 'B' 1960 WING
PART 'A' 1928 WING
STAIR 'F'
DRY LAB & DRAFTING
EDUCATION SUITE
STAIR 'G'
OFFICE
PRINTING
30 STATION COMPUTER LAB
COMPUTER
LIBRARY
PASS
STAIR 'H'
RECYCLE
CLG
CORRIDOR
1 BED
SHOWER
TOIL
JAN
STO
LOUNGE
TOILET
ARCHIVE
OFFICE
RAMP DN
2 BED
STAIR 'J'
SECOND FLOOR PART 'A'
BDA BEARDSLEY DESIGN ASSOCIATES
Architecture, Engineering, Landscape Architecture, P.C.


PART 'C' NEW ADDITION
PART 'B' 1960 WING
1'-2" LINE OF EXISTING BUILDING
EX FEC
PART 'B' 1960 WING
PART 'A' 1928 WING
STAIR 'F'
2 BED
CORRIDOR
TOILET
JAN
STO
MECH
ELEV
A/V STO
STAIR 'A'
STAIR 'B'
DISTANCE LEARNING CENTER
SMART CLASSROOM
CONFERENCE
RAMP UP
RAMP DN
OPEN BELOW
PART 'C' NEW ADDITION
PART 'B' 1960 ADDITION
SECOND FLOOR PART 'B'
BDA BEARDSLEY DESIGN ASSOCIATES
Architecture, Engineering, Landscape Architecture, P.C.
64 SOUTH STREET
AUBURN, NEW YORK 13021
315-253-7321 - PHONE
315-253-7306 - FAX



FIRST FLOOR PART 'B'


FIRST FLOOR PART 'A'
BDA BEARDSLEY DESIGN ASSOCIATES
Architecture, Engineering, Landscape Architecture, P.C.
STORAGE
3 BED
2 BED
CORRIDOR
STAIR
PORCH
WOMENS
MENS
LAUNDRY
1 BED
RECYCLE
VEST
KITCHEN
LOUNGE
VAN/STO
ENG
LIBRARY
ENTRY
AL COVE
OFFICE
MEZZ
OPEN
STO
PART 'A' 1928 WING

Appendix G-5

Dubuar Forest Map