SFR 106 – Introduction to Forest Land Navigation and Technology
Fall Semester 2022

Monday, Tuesday, or Friday   1:00 – 4:50 pm   254 Nutting & outdoors

Course Description:
A hands-on, in the field introduction to the basics of working with forest land navigation and technology. This course stresses the use of topographic maps and imagery commonly used by natural resource professionals, and how to use them in conjunction with compasses, recreational-grade GPS receivers, and smartphone/ tablet applications. Use of computers and software to manage, analyze, and use data are covered, such as basic skills in Excel and ArcGIS. Cr 2.

Instructor:
Tony Guay
Remote Sensing Specialist
Wheatland Geospatial Lab
Office: 260 Nutting Hall
Mailbox in 253 Nutting Hall
anthony.p.guay@maine.edu
Office hours: by appointment

Course Delivery Method:
face to face

Digital Services:
Brightspace, Google Drive

Instructional materials:

Required textbooks
- Maine Atlas & Gazetteer
- *Wilderness Navigation, Third Edition*. 2015. Mountaineers Books. 190 p. (available in the UMaine Bookstore and as an e-book here)

Optional Reference
- *Basic Land Navigation*. National Wildfire Coordinating Group PMS 475. 172 p.
- *Outdoor Navigation with Map and Compass*. Washington State University Cooperative Extension. 25 p.

Required equipment
- Suunto MC-2 Mirror Sighting Compass (USGS version with 360-degree bezel)
- Protractor (0 - 360 degrees) and measuring scale (ruler) with centimeter units
- Clipboard (with cover preferred or plastic bag for rain events), pen or pencil for lab exercises and notes

Course Objectives:

1. Provide instruction and experience resulting in competent use of maps and tools for forest navigation
2. Learn the skills needed to effectively manage data on computers, conduct basic data analysis, and transfer data across software platforms and computer systems

Learning Outcomes:
Students who successfully complete the course will be able to:
- Understand how to read a topographic map and navigate using one
- Have a basic understanding of map projections, datums, and coordinate systems
- Use a compass in forested situations
- Have knowledge of pacing and the ability to use it over varied terrain
- Be able to discuss and demonstrate proper outdoor preparedness
- Have familiarity with Global Positioning Systems (GPS)
- Have familiarity with Avenza Maps
- Be able to import and export data to a GPS receiver and Avenza Maps on a smartphone or tablet
- Be able to create a computer file structure and nomenclature for organizing data and information
- Utilize Excel for basic data manipulation and analysis using functions, formulas, and pivot tables/ pivot charts
- Import and export data from GPS devices, smartphone/ tablets, computers, and GIS software

Grading and course expectations:

Grading Criteria
In-class activities and weekly assignments will provide hands-on experience and real-world practice with topics covered each week (see Tentative Schedule). Exams and quizzes will be cumulative and cover concepts and skills previously covered based on the Tentative Schedule.

Weekly quizzes	30%
In-class activities/ assignments	30%
Exam	20%
Final project	20%
Total	100%

Note – SFR students earning less than a C- will need to retake this course.

Grading System

93-100	A – Superior quality work
90-92	A-
88-89	B+
83-87	B – Above average quality work
80-82	B-

78-79	C+
73-77	C – Average quality work
70-72	C-
67-69	D – Below average work (has learned some material)
< 67	F – Failure and no credit earned for the course

Attendance Policy
Attendance is **MANDATORY** at all lectures/ labs and will be essential for doing well on quizzes, assignments, the prelim, and final project. Students missing class for a _legitimate reason_ should notify the instructor **prior to lab**, to arrange a make-up lab. Failure to do so will result in a zero for that week's quiz and lab exercise/ assignment. **Two missed class sessions will result in an L grade for the course (a failure for nonattendance)**, unless make-up assignments with the instructor can be arranged in a timely manner.

Teaching Procedures
Labs will follow the published syllabus as closely as possible - a revised syllabus will be provided via Brightspace if needed. There is one lab session scheduled each week. Slide decks or pre-recorded videos of each lecture will be provided via Brightspace when available. **Students will complete weekly quizzes in Brightspace beginning the second lecture/ lab session**.

Laboratory Expectations
Closed-toe shoes must be worn during field labs (no sandals). Students must _arrive promptly for each lab session_. **No labs will be cancelled due to weather; come dressed appropriately for outdoor conditions, including rain or possible snow**.

Materials to bring to lab:
- all field/ safety gear – safety glasses, vest, hardhat
- closed-toe shoes (no sandals) – boots preferred, and a hat, rain jacket, or poncho
- proper tick prevention (long pants, long-sleeved shirt, etc.)
- sighting mirror compass
- clipboard (with cover preferred or plastic bag for rain events), pen or pencil for lab exercises and notes
- protractor (in degrees) and ruler (with centimeter scale)

Required Syllabus Information:

https://umaine.edu/citl/teaching-resources-2/required-syllabus-information

Professional Guidelines and Expectations:

Students are expected to adhere to the "**Professional Guidelines and Expectations for School of Forest Resources Students**" which may be obtained at the following site:

https://forest.umaine.edu/student-resources

Tentative Schedule:

Week of	Lecture / Lab	Reading Assignment
Aug. 29	Course introduction & syllabus review Compass basics Open-field pacing & compass exercise	Wilderness Navigation - Chapters 1 & 2
Sept. 5	**Labor Day—no lecture/ lab this week**	
Sept. 12	Map basics Taking measurements from a map Compass exercise	Wilderness Navigation - Chapters 3 & 4
Sept. 19	Map & compass review Forest navigation exercise	Wilderness Navigation - Chapters 5 & 6
Sept. 26	Introduction to Global Positioning System (GPS) GPS navigation & route planning exercise	Wilderness Navigation - Chapter 7
Oct. 3	Introduction to Avenza Maps & geospatial PDFs Forest navigation exercise	Wilderness Navigation - Chapter 9
Oct. 10	**Indigenous Peoples' Day—no lecture/ lab this week**	
Oct. 17	Introduction to Geographic Information Systems (GIS) & orthophotography Forest navigation exercise	
Oct. 24	Review for exam Lab make-ups	
Oct. 31	**Exam** Final projects overview Digital forest tour	
Nov. 7	Technology overview, computer & project management concepts, tools, strategies, review of spatial & tabular data formats, map making demo & exercise	
Nov. 14	Microsoft Excel basics – importing/ exporting data, data clean-up, organizing worksheets, working with formulas & functions, summarizing data, pivot tables & pivot charts	Final project plans due
Nov. 21	**Thanksgiving Break—no lecture/ lab this week**	
Nov. 28	Bringing it all together – final projects	
Dec. 5	Bringing it all together – final projects	
Dec. 12	**Final Projects Due**	

Course Schedule Disclaimer: In the event of an extended disruption of normal classroom activities (due to COVID-19 or other long-term disruptions), the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.