

SYLLABUS FOR 322/522 (FOREST MENSURATION)**Fall 2020**

Instructor	Nilesh Timilsina Office: TNR 327 Office Phone: 715-346-2446 (Due to COVID-19, I might not be in the office regularly, please leave a message with a call back number) Email: ntimilsi@uwsp.edu
Zoom office hours	Tuesday (2:00 to 3:00 pm) Thursday (2:00 to 3:00 pm) By appointment.
Learning objectives	<p>Students in this course will learn forest mensuration principles and how to properly apply them in solving/addressing natural resource-based problems/needs. FOR 322/522 is one of the classes that contains materials you will be tested on during the Forestry Basic Skills exam (the junior-level exam and the FOR 449 course). Students will learn the following skills from FOR 322/522, these skills are also relevant for the basic skills exam. After the course, students will be able to:</p> <ol style="list-style-type: none">(1) apply basic sampling designs for forest inventory,(2) collect spatial data, map forest area to be sampled, and lay out and navigate to sampling points,(3) apply both fixed radius plot sampling and variable radius plot sampling (point sampling) concepts and analyze inventory data therein,(4) identify/use/define terminology commonly used in forest measurements,(5) identify/describe/employ measures of site index, stocking, and stand density(6) apply 1-inch and 2-inch DBH classes and height classes,(7) describe proper use of common forestry equipment (diameter tape, merritt hypsometer, prism, clinometers, Biltmore stick, laser equipment),(8) determine volume of standing trees and logs,(9) describe, use and convert measures of volume, weight, length, and area,(10) describe or compare stem form/taper via Girard form class,(11) Identify merchantability standards for hardwood and softwood sawtimber and pulpwood, and

12) apply basic concepts about growth and yield

Prerequisite

MATH 109 Math. for the Social and Mgmt. Sciences or MATH 111 Appl. Calculus; FOR 232 Dendro. and Silv.; MATH 255 Elem. Stat. Methods or FOR 321 Natural Resources Data Analysis; CNR major or instructor consent

Required text

Burkhart, H. E., T. E. Avery and B. P. Bullock. 2019. Forest Measurements. 6th ed. Waveland Press Inc. Long Grove, IL. 434 p.
ISBN-10: 1-4786-3618-1
ISBN-13: 978-1-4786-3618-2

Reference text

Husch, B., T. W. Beers and J. A Kershaw, Jr. 2003. Forest Mensuration. 4th ed. John Wiley & Sons, Hoboken, NJ. 443 p. ISBN:0471018503

Reed, D. D., and G. D. Mroz. 1997. Resource Assessment in Forested Landscapes. John Wiley & Sons, Inc., 386 p.

**Class locations and times
(Please read this, very important)**

Lecture (50 minutes):
Asynchronous Online (Two fifty-minute lectures a week; see table 1 below for lecture schedules)

Lab (2 hrs and 50 minutes a week)*:
Some labs will be asynchronous online only, some labs will be hybrid, meaning asynchronous/synchronous online instructions with some field components (see the lab schedules in the table 2 below). For hybrid labs, I will provide all the instructions online, you will review the online instructions and meet me in the field sites (mostly Schmeckle Reserve) for the hands-on part. Please review the online lab instructions before you come to the field. You might have to print some data sheets. I will send an email with each week's tasks as a reminder. If we meet in the lab classrooms, we will meet as a cohort, meaning I will break each lab sections into smaller groups with each group rotating every other week for the same lab exercise. If we decide to do as a cohort, again I will send an email with the cohort information.

Some labs must be done in computer labs, due to COVID-19 restrictions, a lab that would fit 28 students normally can fit only 8 students, therefore, i might not be able to fit all the students in one lab. For the purpose, we must utilize “Remote Computer Lab”, please follow the link below to understand what remote lab is and how to use “UWSP Standard Remote Lab” and “GIS Remote Lab”. Remember, for GIS exercises, you must use “GIS Remote Lab”
<https://www.uwsp.edu/infotech/Pages/ComputerLabs/Remote-Lab.aspx>

Lab 1 (Section 1): Wednesday, 9:00-11:50 (TNR 361 and TNR 360). We will use TNR 322 as a computer lab, only fits 7 students. Other labs are not available currently due to high demand.

Lab 2 (Section 2): Thursday, 9:00-11:50 (TNR 361 and 360). We will use TNR 356 as a computer lab, only fits 7 students. Other labs are not available currently due to high demand.

Lab 3 (Section 3): Friday, 12:00-14:50 (TNR 361 and 360). We will use TNR 356 and 322 as a computer lab, fits 8 and 7 students, respectively. Other labs are not available currently due to high demand.

Lab 4 (Section 4): Wednesday, 13:00-15:50 (TNR 361 and 360). We will use TNR 356 and 322 as a computer lab, fits 8 and 7 students, respectively. Other labs are not available currently due to high demand.

Quizzes, exams, project

This class will have several quizzes (I will have random quizzes just to make sure that you are following the materials for each week), three exams, lab reports, and occasional homework. Grades will be distributed among these different tasks. Quizzes will be no more than 10 minutes. Exams will be 50 minutes (regular class hour). Each homework and lab reports will be due a week from the assigned date. The final exam will be comprehensive.

The table below show the tentative schedules for Lectures. The schedules might change depending on what we achieve in prior classes or discovery of other interesting topics and future COVID-19 situation. LECTURES ARE ALL ASYNCHRONOUS ONLINE

Table 1: Lecture schedules with chapters from the textbook			
Week	Dates	Lecture 1	Lecture 2
1	Sep 2-4	Introduction, Course Overview and Syllabus Distribution/ Description, Introduction to Mensuration (Chapter 1)	Review Basic Stats and Measurement Concepts (Chapter 1 and 2)
2	Sep 7-11	Review Basic Stats and Measurement Concepts (Chapter 1 and 2)/ Measuring Standing Trees (Chapter 6)	Measuring Standing Trees (Chapter 6)
3	Sep 14-18	Measuring Standing Trees (Chapter 6)	Measuring Standing Trees (Chapter 6)
4	Sep 21-25	Measuring Standing Trees (Chapter 6)/Log and Tree Volume (Chapters 4,5, and 7)	Log and Tree Volume (Chapters 4, 5, and 7)
5	Sep 28-Oct 2	Log and Tree Volume (Chapters 4,5 and 7)	Log Scaling and Log Rules (Chapter 4 and 5)
6	Oct 5-9	Log Scaling and Log Rules (Chapter 4 and 5)	Log grading (Chapter 5)
7	Oct 12-16	ONLINE EXAM 1	Weight Scaling (Chapter 4,5, and 7)
8	Oct 19-23	Standing Tree Volume (Chapter 7)	Standing Tree Volume (7)
9	Oct 26-30	Sample size/Intro to Forest Inventory/Sampling Design (Chapters 8, 9, 11, 12)	Sample size/Intro to Forest Inventory/Sampling Design (Chapters 8, 9, 11, 12) Summarizing data/Fixed Area Plot (Chapter 11)
10	Nov 2-6	Fixed area plot (Chapter 11)	Fixed area plot (Chapter 11)
11	Nov 9-13	Variable Radius Plot (Chapter 12)	Variable Radius Plot (Chapter 12)
12	Nov 16-20	ONLINE EXAM 2	Site Quality, Stand Density and Stocking (Chapter 14)
13	Nov 23-27	Site Quality, Stand Density and Stocking (Chapter 14)	THANKSGIVING

14	Nov 30-Dec 4	Tree Growth (Chapter 15)	Growth and Yield (Chapter 16)
15	Dec 7-11	Growth and Yield (Chapter 16)	Review
16	Dec 14-18 Final Exam Period		Comprehensive Online Final Exam (Anytime on Dec 15 and 16)

The table below shows the tentative schedules for the labs and their mode of instruction. This is just a guide; the schedules and mode of instruction might change depending on how we accomplish things and future COVID-19 situation. I might decide not to do a lab or add additional materials.

Table 2: Lab schedules with mode of instruction			
Week	Dates	Labs	Mode of Instruction
1	Sep 2-4	General Overview of lab, Excel software (Assignment)	Asynchronous online
2	Sep 7-11	GPS and GIS lab (Assignment)	Asynchronous online
3	Sep 14-18	GPS and GIS lab* (Assignment)	Hybrid (Asynchronous online and some field data collection)
4	Sep 21-25	Measuring tree diameter and height (Lab report)*	Hybrid (Asynchronous online instructions with some field data collection)
5	Sep28-Oct2	Reading Maps (Land Survey, Topo Maps)	Hybrid (Asynchronous online instruction with some in class map work)
6	Oct 5-9	Scaling lab (Volume and Weight Estimation) (Lab report)*	Hybrid (Asynchronous online instruction with field data collection)
7	Oct 12-16	Basic Statistics /Preparing for the sampling lab (Boundary Delineation and Generating Grids)	Asynchronous online
8	Oct 19-23	Fixed Area Plot Sampling (Lab report)*	Hybrid (Asynchronous online instruction with field data collection)
9	Oct 26-Oct 30	Variable Radius Plot Sampling (Lab report)*	Hybrid (Asynchronous online instruction with field data collection)
10	Nov 2-6	Fixed Area Plot/Variable Radius Data Analysis	Asynchronous online
11	Nov 9-13	Stratified Sampling (Homework)*	Asynchronous online

12	Nov16-20	Growth Lab (Lab Report)*	Hybrid (Asynchronous online instruction with field data collection)
13	Nov 23-27	THANKSGIVING (No Labs)	
14	Nov 30-Dec 4	Growth and Yield Lab (Lab report)	Asynchronous online
15	Dec 7-11	Coarse woody debris and snags sampling (Lab report)*	Hybrid (Asynchronous online instruction with field data collection)

Labs

Labs marked with asterisks indicate outdoor labs. For such labs, you are expected to dress appropriately for the weather/conditions so that you will be comfortable while working in the field. Be prepared for mosquito activity in early to late Fall. Watch the weather forecast and be prepared for cold, rain, and snow. A warm hat, gloves, and layered clothing are important for cold weather. Rain gear is important for rainy weather. You are strongly encouraged to wear field shoes/boots of some kind for all outdoor labs. **Hard hats will be required for these labs.**

**Announcements/
E-mail**

I will post announcements each week in CANVAS regarding tasks for the week, I will also send an email with all the tasks for the week. Please regularly follow announcements and e-mails.

Readings/Videos

You are expected to read the assigned readings (book chapters and other posted documents, I might not explain everything in Labs and Lectures) and watch the instructional videos. It is important that you watch the lab instructional videos before coming to the field lab. Assigned readings are in the syllabus and will be posted in CANVAS.

Exam policy

If you miss an exam or quiz without informing the instructor beforehand, there will be no make-up exam/quiz in that case. You will get zero for that exam/quiz. If you miss the exam/quiz because of medical reasons, family emergency, or University sponsored activities, you should provide written evidence of so. If the instructor is satisfied with your reasoning, you may be allowed a makeup task.

Attendance policy

Attendance is a very important requirement for this class. You are not allowed to miss a field lab unless there is a genuine reason (for e.g. Medical emergency, Family Emergency, or University sponsored activities). If you have to miss a field lab class, you should inform the instructor beforehand with genuine reason and evidence of so. If you miss lab classes and did not submit the required assignments, you will not receive grade for that lab/assignment. **I WILL TAKE ATTENDANCE DURING EVERY FIELD LAB.** I reserve the right to deduct points for unexcused lab absences and lack of professionalism.

Grading

There will be several random quizzes, each with variable points (**Total 40 points**). Exams 1, 2, and 3 are 50 points each (**Total 150 points**). Furthermore, there will be a series of lab assignments (individual and group assignments) throughout the semester (Total 120 points), as well as a group lab report based on the plot/point sampling labs, worth **25 points**. I may also offer extra credit assignments as I see fit. Finally, attendance and professionalism will be worth **15 points**.

Grades will be distributed among the following:

Total – 350 points

Attendance/Professionalism points –15 points

Quizzes - 30 points

Exams – 150 points

Lab reports and assignments – 145 points

I will round the cumulative percentages to the nearest tenth and assign letter grades as follows:

91.1% or higher	A
89 % to 91 %	A-
87 % to 88.9 %	B+
81.6% to 86.9%	B
79.6% to 81.5%	B-
77.6% to 79.5%	C+
71.6% to 77.5%	C
69.6% to 71.5%	C-
67.6% to 69.5%	D+
61.6% to 67.5%	D
59.6% to 61.5%	D-
Less than 59.6%	F

Student code of conduct

You should be familiar with rules of academic misconduct and University of Wisconsin System Code. You should not claim somebody else's work as yours without authorization or citation. The work you submit should be your original. You should not consult with others during exams or homework unless in cases where the instructor grants permission of consultation. Be aware of plagiarism. Read **“Professionalism Statement”** below

For students with disabilities

The university has a legal responsibility to provide accommodations and program access as mandated by Section 504 and the Americans with Disabilities Act (ADA). The university's philosophy is to not only provide what is mandated, but also convey its genuine concern for

one's total well-being. If accommodations are needed, please contact the instructor as well as the Disability and Assistive Technology Center, Room 609 in the Albertson Hall. You can also call at 715 346 3365.

For more information about the law and Regency policy, see:
<https://www.uwsp.edu/datc/Pages/law-regency-policy.aspx>

Additional information is available at:
<http://www.uwsp.edu/special/disability/>

Tips for success

Regular reading, regularly watch instructional videos, asking questions, and timely submission of lab reports and homework are some of the tips for success in this class. Do not hesitate to consult your instructor about any confusion; my priority is to help you succeed in this course. Please come to the Zoom office hours with questions, if you cannot come to the assigned time, please make an appointment at your convenient time.

CANVAS

It is important to regularly follow course CANVAS. Many important announcements, readings, homework and labs will be available on CANVAS.

Face Coverings:

At all UW-Stevens Point campus locations, the wearing of face coverings is mandatory in all buildings, including classrooms, laboratories, studios, and other instructional spaces. Any student with a condition that impacts their use of a face covering should contact the Disability and Assistive Technology Center to discuss accommodations in classes. Please note that unless everyone is wearing a face covering, in-person classes cannot take place. This is university policy and not up to the discretion of individual instructors. Failure to adhere to this requirement could result in formal withdrawal from the course.

Other Guidance:

Please monitor your own health each day using this screening tool. If you are not feeling well or believe you have been exposed to COVID-19, do not come to class; email your instructor and contact Student Health Service (715-346-4646).

- As with any type of absence, students are expected to communicate their need to be absent and complete the course requirements as outlined in the syllabus.
- Maintain a minimum of 6 feet of physical distance from others whenever possible.

- Do not congregate in groups before or after class; stagger your arrival and departure from the classroom, lab, or meeting room.
- Wash your hands or use appropriate hand sanitizer regularly and avoid touching your face.
- Please maintain these same healthy practices outside the classroom.

Forestry Anti-harassment Statement

Introduction

In adopting this statement, the forestry discipline within the College of Natural Resources (CNR), at the University of Wisconsin-Stevens Point (UWSP) has expectations for professional behavior of its students, staff, faculty, and other associated parties. Anyone who has a reasonable belief that they, or another student, staff, faculty or guest, have been the victim of harassment, bullying, or discrimination, or any other violation in the statement herein, are encouraged and expected to report the conduct. See reporting options and guidelines at the end of this document.

The forestry discipline within the College of Natural Resources is committed to creating a safe, inclusive, and professional environment. The forestry discipline operates under the UWSP harassment, discrimination, and retaliation prevention guidelines, copied here:

“The University of Wisconsin-Stevens Point (UWSP) is committed to fostering an environment that is safe, respectful, and inclusive to all and to educate all employees on these important issues. In addition, we are obligated, under Regent policy and federal regulations, to ensure our employees are informed on the issues of unlawful discrimination, harassment, and sexual violence.”

Statement

The forestry discipline, following the lead of the Society of American Foresters which accredits the B.S. forestry degree, believes we all have a responsibility in creating a safe, inclusive, professional environment in all forestry-related activities and events. All forms of discrimination, harassment, and bullying are prohibited. This applies to all participants in all settings (online and in-person) and locations (on- and off-campus) where forestry classes and associated activities are conducted, including student organization events and activities, committee meetings, workshops, conferences, and other work and social functions where employees, volunteers, sponsors, vendors, or guests are present.

Discrimination is prejudicial treatment of individuals or groups of people based on their race, color, creed, religion, age, sex, sexual orientation, gender identity or expression, national origin, ethnicity, ancestry, disability, pregnancy, marital or parental status, veteran status, or any other category protected by law.

Sexual harassment is unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature that creates an intimidating, hostile, or offensive environment. Sexual harassment constitutes discrimination and is illegal under federal, state, and local laws.

Bullying is unwelcome, aggressive behavior involving the use of influence, threat, intimidation, ridicule, hazing or coercion to dominate others in the professional environment. Bullying behavior may go beyond characteristics protected by applicable laws, including but not limited to, political views, dress, or other outward physical appearances.

Other types of harassment include any verbal or physical conduct directed at individuals or groups of people because of their race, ethnicity, color, national origin, sex, sexual orientation, gender identity, age, religion, disability, veteran status, or any other characteristic protected by applicable laws, that creates an intimidating, hostile, or offensive environment.

The following list, while not exhaustive, includes examples of unacceptable behavior: slurs, jokes, threats, or derogatory comments relating to the characteristics noted above. Examples of inappropriate physical harassment that violate this statement include, but are not limited to: assault, unwanted touching, or impeding or blocking movement. In addition, no individual may be denied admission to, or participation in or the benefits of, any UWSP-associated events. Similarly, the display or circulation of derogatory or demeaning posters, cards, cartoons, emails, texts, videos, and graffiti which relate to characteristics noted above violate this statement.

Reporting

Students, staff, faculty, or guests associated with Forestry-related programming who experience or witness incidents of harassment are strongly encouraged to report the incident. The Forestry discipline strongly urges the prompt reporting of complaints or concerns so that rapid and constructive action can be taken.

Reporting can be done online or in person, to a faculty or staff member, and/or the UWSP Dean of Students. Anonymous reporting is available.

The UWSP Title IX Website is the home for all information related to harassment and discrimination, including reporting options, student and employee resources, and information about what happens after a report is submitted:

<https://www.uwsp.edu/titleix/Pages/default.aspx>

Professionalism Statement (UWSP Community Bill of Rights and Responsibilities)

Be aware of plagiarism. Respect ideas generated by others and give due credits. Cheating is strictly prohibited. Please read the following links regarding UWSP policies.

UW-Stevens Point values a safe, honest, respectful, and inviting learning environment. In order to ensure that each student has the opportunity to succeed, we have developed a set of expectations for all students and instructors. This set of expectations is known as the Rights and Responsibilities document, and it is intended to help establish a positive living and learning environment at UWSP. Click here for more information:

<http://www.uwsp.edu/acadaff/HLCSelfStudy/Community%20Rights%20and%20Responsibilities%202011.pdf>

Academic integrity is central to the mission of higher education in general and UWSP in particular. Academic dishonesty (cheating, plagiarism, etc.) is taken very seriously. Don't do it! The minimum penalty for a violation of academic integrity is a failure (zero) for the assignment. For more information, see the UWSP "Student Academic Standards and Disciplinary Procedures" section of the Rights and Responsibilities document, Chapter 14, which can be accessed here:

<http://www.uwsp.edu/acadaff/HLCSelfStudy/Community%20Rights%20and%20Responsibilities%202011.pdf>

Some excerpts from Chapter 14 of Rights and Responsibilities document

UWSP 14.03 ACADEMIC MISCONDUCT SUBJECT TO DISCIPLINARY ACTION.

(1) Academic misconduct is an act in which a student:

- (a) Seeks to claim credit for the work or efforts of another without authorization or citation;
- (b) Uses unauthorized materials or fabricated data in any academic exercise;
- (c) Forges or falsifies academic documents or records;
- (d) Intentionally impedes or damages the academic work of others;
- (e) Engages in conduct aimed at making false representation of a student's academic performance; or
- (f) Assists other students in any of these acts.
- (g) Violates electronic communication policies or standards as agreed upon when logging on initially (See uwsp.edu/it/policy).

- (2) Examples of academic misconduct include, but are not limited to: cheating on an examination; collaborating with others in work to be presented, contrary to the stated rules of the course; submitting a paper or assignment as one's own work when a part or all of the paper or assignment is the work of another; submitting a paper or assignment that contains ideas or research of others without appropriately identifying the sources of those ideas; stealing examinations or course materials; submitting, if contrary to the rules of a course, work previously presented in another course; tampering with the laboratory experiment or computer program of another student; knowingly and intentionally assisting another student in any of the above, including assistance in an arrangement whereby any work, classroom performance, examination or other activity is submitted or performed by a person other than the student under whose name the work is submitted or performed.

UWSP 14.04 DISCIPLINARY SANCTIONS.

(1) The following are the disciplinary sanctions that may be imposed for academic misconduct in accordance with the procedures of s. UWSP 14.05, 14.06 or 14.07:

- (a) An oral reprimand;
- (b) A written reprimand presented only to the student;
- (c) An assignment to repeat the work, to be graded on its merits;
- (d) A lower or failing grade on the particular assignment or test;
- (e) A lower grade in the course;
- (f) A failing grade in the course;
- (g) Removal of the student from the course in progress;
- (h) A written reprimand to be included in the student's disciplinary file;
- (i) Disciplinary probation; or
- (j) Recommendation of Suspension or expulsion from the university.

(2) One or more of the disciplinary sanctions listed in sub. (1) may be imposed for an incident of academic misconduct.

Forestry Basic Skills Exam Topical Areas

FOR 322 is one of the classes that compose the knowledge base tested as part of the Forestry Basic Skills exam (the junior-level exam and the FOR 449 course). Therefore, many students enrolled in this class take these exams. Basic skills from FOR 322 covered on these exams focus on one's ability to correctly:

- (1) apply both fixed radius plot sampling and variable radius plot sampling (point sampling) concepts, respectively, and analyze inventory data therein,
- (2) identify/use/define terminology commonly used in forest measurements,
- (3) identify/describe/employ measures of site index.
- (4) apply 1-inch and 2-inch DBH classes and 10-foot height classes,
- (5) describe proper use of common forestry equipment (diameter tape, prism, clinometers, Biltmore stick)
- (6) determine cubic foot volume of logs,
- (7) describe, use and convert measures of volume, weight, length, and area,
- (8) describe or compare stem form/taper via Girard form class, and
- (9) identify merchantability standards for hardwood and softwood sawtimber and pulpwood.

Additionally skills utilized in FOR 322 and also covered in the Basic Skills exam include correctly: using map scales to determine distances or areas, identifying features as found on air photos and topographic maps, and converting between azimuths and bearings.

Cell Phone Policy

Please do not use cell phones during the class or the lab.

Emergency Procedures

“In the event of a medical emergency, call 911 or use red emergency phone located outside TNR 151 and 172 . Offer assistance if trained and willing to do so. Guide emergency responders to victim.

In the event of a tornado warning, proceed to the lowest level interior room without window exposure at TNR 170, 159, 157, 120, 122, Corridor 150 (corridor in front of TNR 157 and 159 on south side of TNR building).

See <https://www.uwsp.edu/rmgt/Pages/em/procedures/other/floor-plans.aspx> for floor plans showing severe weather shelters on campus. Avoid wide-span rooms and buildings.

In the event of a fire alarm, evacuate the building in a calm manner. Meet at west/north side of TNR building at parking lot D or E (stay at least 200 yards away from the building). Notify instructor or emergency command personnel of any missing individuals.

Active Shooter – Run/Escape, Hide, Fight. If trapped hide, lock doors, turn off lights, spread out and remain quiet. Follow instructions of emergency responders.

See UW-Stevens Point Emergency Management Plan at www.uwsp.edu/rmgt for details on all emergency response at UW-Stevens Point.”