



SYLLABUS

ENR 3323

Forest Biometrics

Spring 2024 (full term)

3 credit hours

COURSE OVERVIEW-DESCRIPTION

This course is a **professional practice** course and will give the student knowledge of forest measurements as well as sampling methods used in the profession of forestry. These measurements will build upon themselves and be presented from those for individual trees to stand-level variables. The main focus of this course will be on measurements related to forest resources and management, including the techniques used in determining the volume and quality of logs, trees, and stands of trees

The basic tenets of sampling designs and statistical approaches will be explored during the semester. It focuses on the statistics and theory of sampling forest resources for management, including topics such as simple random sampling, stratified random sampling, ratio estimation, and multiphase sampling. The course will also cover sampling designs for specialty forest products, fuels management, and rare populations. A major objective of the course is not only for students to learn the basics of sampling design, but to instill the importance of appropriate designs and what they mean for the standard error of the mean.

Instructor

Instructor: H. Alexis Londo

Email address: Londo.4@osu.edu, Please text 614-495-6738 if you need a faster response

Phone number: 614-495-6738

Office hours: To Be Posted in Announcements on Carmen

Prerequisites

Prereq: 2000 (222), Stat 1450 (145), HCS 2260 (260), or AnimSci 2260 (260).

Course learning outcomes

- Students will be able to demonstrate competency in using equipment and technology used in forest measurements.
- Students will be able to calculate individual tree metrics as well as estimate the corresponding stand parameters.
- Students will demonstrate the skills needed to produce summaries of forest inventory data collected with different sampling techniques.
- Students should be able to analyze forest inventory data they produce as well as project future stand conditions.
- Students will be able to communicate the results of the above skills in written and tabular fashion.
- Students will be integrating technologies and techniques gained from previous classes to meet these learning outcomes.

Course Mode

Mode of delivery: This lecture portion of this course is in person. Lecture is from 10:20-11:15 am W and F in Kottman 370. Lab is from 1:00 to 5:00 pm in Kottman 460 unless otherwise specified. Please see modules for further details.

Lab will be held at Watterman Woods located on the NW corner Waterman Farm (NW corner of the intersection of Lane and Kenny), Camp Lazarus in Delaware county, or in room 460 Kottman Hall. Other locations will be specified. You may drive yourself or you can ride the vans provided. **Lab attendance is MANDATORY.**

Pace of online activities: This course is divided into **weekly modules** that will be released as we go. Assignments will be given in lecture with no more than one a week assigned. Each and every lab will have an assignment due before the next lab period. It may be necessary to push back due dates which will cause two (or more) assignments due in one week.

Credit hours and work expectations: This is a **3-credit-hour course**. According to Ohio State policy (go.osu.edu/credithours), students should expect around 3 hours per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of (C) average.

Attendance and participation requirements: Attendance is necessary as well as participation in lecture in order to achieve the specific learning outcomes. Attendance will not be recorded but on low attendance days there will be quizzes given.

- **Participating in Lecture:**

You will be expected to be at class during lecture. In the case you are not able to make

lecture, please email or text the instructor ahead of time. This is a professional practice class and you should think of this as alerting your supervisor to missing a day of work.

- **Lecture Format:** Notes on the board.
- **Office hours:** Monday and Wednesdays 8:00 am to 10:00 am as well as BY APPOINTMENT! If you need to talk to me or need help, I will meet with you!!!!
- **Lab Attendance is Mandatory:** Missing lab without prior notice to the instructor will result in a 25% deduction. You are responsible to make up the lab activities you miss and this will be necessary to complete the exercise. This will be very difficult. Please prioritize attendance at lab. However, due to these extraordinary times, accommodations will be made for covid-9 related absences as well as all other excused absences. Keeping our community well is the top priority with lab attendance being a close second.

COURSE MATERIALS AND TECHNOLOGIES

Textbooks

Required

- REQUIRED Forest Measurements by Avery and Burkhart
- OPTIONAL Forest Mensuration By Kiershaw, Duvey, Husch and Beers
- Additional readings and materials will be made available via Carmen.

Course technology

Technology support

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at ocio.osu.edu/help/hours, and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** ocio.osu.edu/help
- **Phone:** 614-688-4357(HELP)
- **Email:** servicedesk@osu.edu
- **TDD:** 614-688-8743

Technology skills needed for this course.

- Basic computer and web-browsing skills
- Navigating Carmen (go.osu.edu/canvasstudent)
- CarmenZoom virtual meetings (go.osu.edu/zoom-meetings)

Required software

- Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Full instructions for downloading and installation can be found at go.osu.edu/office365help.
- QGIS 3.22.10 or other working version.

Carmen access

You will need to use BuckeyePass (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the BuckeyePass - Adding a Device help article for step-by-step instructions (go.osu.edu/add-device).
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the Duo Mobile application (go.osu.edu/install-duo) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357(HELP) and IT support staff will work out a solution with you.

GRADING AND FACULTY RESPONSE

How your grade is calculated

ASSIGNMENT CATEGORY	PERCENTAGE
Exam 1	15%
Exam 2	20%
Lab Reports/Homework	40%
Final Exam	25%
Total	100%

Descriptions of major course assignments

Description: Deliverables will be described when assigned although no rubric will be given. Most assignments will be given through oral instructions much like employers give instructions to employees. This is a professional practice class and most assignments will be metered out as if a task given in the working setting. You will be expected to create a deliverable based upon the objective assigned. Sometimes details will be minimal, but you are allowed

(ENCOURAGED) to ask many questions upon arriving to your submission. As an employer I want my employees to succeed. Feedback will be given, but as long as you adequately met the given instructions, your grade will reflect positively. This is designed to mimic duties metered out in a work setting. Sometimes your supervisor will not be sure of what exactly they want but will want you to take the initiative to create a solution worthy of a raise.

Lab assignments will be required to be submitted in the appropriate format. Please see Carmen for the lab report template.

Academic integrity and collaboration: You will be in groups in lab and must learn to work with all types of personalities. These will change periodically throughout the semester. You will be working on assignments and deliverables for your assignments together, but there will always be parts of the assignment which will be required to be your own. See academic integrity below. When in doubt, ask. If done by text or email, we will have a written indisputable record of the solution.

Exams: All exams will be in person with an optional take home component and will be open book. They will be time limited. Don't fool yourself, studying will help you with time management on the exam. The notes and book should help you remember a few forgotten points, not provide the direction for each question. If you look up each question you will not have enough time to complete the exams. These will be similar to the exams that have been given in class pre-covid-9.

Late assignments

Late submissions will be penalized 10% per day. Please refer to Carmen for due dates.

Grading scale

93–100: A	80–82.9: B-	67–69.9: D+
90–92.9: A-	77–79.9: C+	60–66.9: D
87–89.9: B+	73–76.9: C	Below 60: E
83–86.9: B	70–72.9: C-	

Instructor feedback and response time

I am providing the following list to give you an idea of my intended availability throughout the course. (Remember that you can call **614-688-4357(HELP)** at any time if you have a technical problem.)

- **Grading and feedback:** For large weekly assignments, you can generally expect feedback within **7 TO 14 days**. Sometimes this is delayed mainly due to the cumbersome task of grading on CARMEN. If you feel that a late graded assignment affected your grade on a subsequent assignment, please contact me and I will adjust your grade accordingly if indeed this has happened. We are in this together and I pledge to work with you

- **Email:** I will reply to emails within **24 hours on days when class is in session at the university**. IF NOT REWSPONSE PLEASE TEXT ME. But texting is a much better way to contact me **614-495-6738**.

OTHER COURSE POLICIES

Discussion and communication guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Writing style:** While there is no need to participate in class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation. A more conversational tone is fine for non-academic topics.
- **Tone and civility:** Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online.
- **Citing your sources:** When we have academic discussions, please cite your sources to back up what you say. For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.
- **Backing up your work:** Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.

Academic integrity policy

See **Descriptions of major course assignments**, above, for my specific guidelines about collaboration and academic integrity in the context of this online class.

Ohio State's academic integrity policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the university's *Code of Student Conduct* (studentconduct.osu.edu), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the university's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the university or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the university's *Code of Student Conduct* is never considered an excuse for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by university rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the university's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- Committee on Academic Misconduct web page (go.osu.edu/coam)
- Ten Suggestions for Preserving Academic Integrity (go.osu.edu/ten-suggestions)
- Eight Cardinal Rules of Academic Integrity (go.osu.edu/cardinal-rules)

Copyright for instructional materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Safe & Healthy Buckeyes

Health and safety requirements: All students, faculty and staff are required to comply with and stay up to date on all university safety and health guidance (<https://safeandhealthy.osu.edu>), which includes wearing a face mask in any indoor space and maintaining a safe physical distance at all times. Non-compliance will result in a warning first, and disciplinary actions will be taken for repeated offenses."

Creating an environment free from harassment, discrimination, and sexual misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Office of Institutional Equity:

Online reporting form at equity.osu.edu,

Call 614-247-5838 or TTY 614-688-8605,

Or Email equity@osu.edu

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Office of Institutional Equity to ensure the university can take appropriate action:

All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.

The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

This course adheres to The Principles of Community adopted by the College of Food, Agricultural, and Environmental Sciences. These principles are located on the Carmen site for this course; and can also be found at <https://go.osu.edu/principlesofcommunity>. For additional information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (<https://equityandinclusion.cfaes.ohio-state.edu/>). If you have been a victim of or a witness to a bias incident, you can report it online and anonymously (if you choose) at <https://studentlife.osu.edu/bias/report-a-bias-incident.aspx>.

Your mental health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life Counseling and Consultation Services (CCS) by visiting ccs.osu.edu or calling (614) 292- 5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on-call counselor when CCS is closed at (614) 292-5766 and 24 hour emergency help is also available through the 24/7 National Prevention Hotline at 1-(800)-273-TALK or at suicidepreventionlifeline.org.

David Wirt, wirt.9@osu.edu, is the CFAES embedded mental health counselor. He is available for new consultations and to establish routine care. To schedule with David, please call 614-292-5766. Students should mention their affiliation with CFAES when setting up a phone screening.

ACCESSIBILITY ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

Requesting accommodations

The university strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to

discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Accessibility of course technology

This online course requires use of CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- Canvas accessibility (go.osu.edu/canvas-accessibility)
- Streaming audio and video
- CarmenZoom accessibility (go.osu.edu/zoom-accessibility)
- Collaborative course tools

COURSE SCHEDULE – THIS IS A WORKING SCHEDULE AND IS SUBJECT TO CHANGE

This course has been greatly modified due to the restrictions of Covid-9 and we may need to rearrange some topics due to instructional limitations. Refer to the Carmen course for up-to-date assignment due dates.

Week	Dates	Topics, Readings, Assignments, Deadlines
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1		We will be discussing and reviewing statistical methods in forestry.
2		This week we will learn about land measurement, compass techniques, and how to distribute sampling schemes across the landscape. Class on Jan. 19 will be a recording online.
3		This week we will focus on the individual measurements we will derive in the field from standing trees. These concepts will be expanded to measuring volumes in standing trees and volumes as they are stacked for sale.
4		Forest Inventory and the first exam – Feb 14, 2024.
5		Mapping and Sampling Design in GIS principles and techniques. Lab will be online.
6,7		Strip Sampling concepts and calculations.
8		Plot Sampling concepts and calculations.
9		Review of Sampling calculations and the Second exam – Mar. 29, 2024.
10,11		Point Sampling concepts and calculations.
12,13,14		Site, Stocking, and Stand Density. Tree Growth and Stand Projections. Growth and Yield Models Finish any lingering topics.
	Final	During Lab on April 22, 2024 unless otherwise notified.