

Biology and Identification of Woody Forest Plants

Syllabus

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Course Outline and Objectives

The basic biological principles of the taxonomy, physiology and regeneration ecology of trees, shrubs and vines provide the foundation for the study of forest ecosystems. This indoor- and field-based course stresses the natural relationships among biotic and abiotic forest ecosystem components in North America. The ability to identify and classify major woody species is a vital skill needed when examining and managing temperate forest ecosystems.

The learning outcomes for this course are:

- To identify woody plant species (major trees, shrubs and vines) in temperate forest ecosystems based on knowledge of their primary characteristics;
- To apply the classification skills necessary to identify any woody plant species using the proper key;
- To recognize basic woody plant morphology, reproduction and growth responses in relation to physical environmental factors and disturbances.

Course Format

Mode of delivery: In-person participation in all lectures and field trips is expected. This three-credit-hour course will meet for lectures in **Plumb Hall 220** on Thursdays from 08:00 – 09:10 am. The four lab sections are:

- Mondays from 12:30 – 5:00 pm
- Wednesdays from 07:30 am – 12:00
- Wednesdays from 12:30 – 5:00 pm
- Fridays from 07:30 am – 12:00

Lab sections will be posted on Carmen to indicate the dates each student has a field trip. For field trips, we will meet at the **Ag Admin Building parking lot, NW corner**. Vans will leave promptly at the start of class so be sure to arrive early. For labs on campus, we will meet in **Kottman Hall 460**. If you cannot attend a lab, please notify the SIA in advance.

According to Ohio State bylaws on instruction (go.osu.edu/credithours), students should expect around 3 hours per week of time spent on direct instruction in addition to 6 hours of homework to receive a grade of C average.

Class announcements: I will send all important class-wide messages through the Announcements tool in CarmenCanvas. Please check your notification preferences (go.osu.edu/canvas-notifications) to ensure you receive these messages.

Instructors:

Course Instructor	Kirsten Packer	412A Kottman Hall Email: packer.77@osu.edu Mobile: 614-254-1924 Office hours: Tues and Thurs 11:00 am – 12:00 (in-person or Zoom) pronouns: she/her
Lab Instructor	Prof Bob Klips	Email: klips.1@osu.edu pronouns: he/him
Course SIA	Samuel Stachler	Email: stachler.35@buckeyemail.osu.edu pronouns: he/him

Lab Description

Lab companion website for ENR 3321: <https://dendro.ohioplants.org/>

The purpose of the lab is to build skills in the identification of woody plants of temperate forest ecosystems. This will be accomplished by spending time in the field observing plants at sites around Columbus and noting the distinctive characteristics of each species or genus, while being introduced to dichotomous keys.

Field trips will introduce you to a gradient of forest ecosystem types from dry-mesic through to wet swamp. Each field trip will have an assigned list of plant species characteristic of one of these forest ecosystem types, posted on Carmen in advance. At the site, we will introduce you to the listed plant species and note their identifying and distinguishing characteristics (including leaves, fruits, bark, winter twigs and natural history, where appropriate). At the end of each field trip, students will take an identification quiz (see Evaluation Policies).

What to wear and bring – be prepared

Lab field trips will take place in any weather except for electrical storms and tornados. We will be walking over uneven terrain and potentially through dense vegetation, including plants with thorns, and poison ivy. It is **STRONGLY** recommended to dress appropriately for these trips. Long pants and hiking boots are important as well as being prepared for rain or other inclement weather. Students are allowed to bring food and beverages; it is recommended to at least bring a water bottle. Also, **writing in pencil** is highly recommended because it won't run in the rain.

To aid in plant identification **a field guide is required** and can be purchased for a reasonable price at the OSU Barnes and Noble: *A Field Guide to Trees and Shrubs* by George A. Petrides (1998), Houghton Mifflin, Boston. ISBN 0-395-35370-X. We will learn to use the keys from this book to identify unknown plants. Additional items to consider bringing include binoculars for observing branching patterns, a 10x hand lens for magnifying small diagnostic characters, and a camera.

Study Resources

To prepare for field trips, read the descriptions in your reference field guides and consult the ENR 3321 lab companion website (dendro.ohioplants.org). Conscientious preparation in advance will maximize your opportunity to make further observations during the lab (especially of characters such as bark, tree size and habitat) and will also allow you to develop your identification skills.

In **Kottman Hall 366**, samples of the plants from each lab's list will be laid out in trays to assist your study. The specimens are replaced to coincide with each lab session. This room will be open Monday through Friday during regular working hours.

Required Reading

The **required field guide** that can be purchased at bookstores or online is:

A Field Guide to Trees and Shrubs by George A. Petrides (1998), Houghton Mifflin, Boston. ISBN 0-395-35370-X. We will learn to use the keys from this book to identify unknown plants.

Other recommended field guides that may also be purchased are:

- *The Woody Plants of Ohio* by E. Lucy Braun (1989), OSU Press, Columbus. ISBN 0-814-20497-X
- *Bark: A Field Guide to Trees of the Northeast* by Michael Wojtech (2011), University Press of New England, Hanover, NH. ISBN 978-1-58465-852-8
- *Fruit Key & Twig Key to Trees & Shrubs* by William M Harlow (1959), Dover, NY. ISBN 978-0-486-20511-3

One copy of each book will be placed on reserve at the CFAES Library. Additional readings from the literature may be recommended, and these publications will be placed on Carmen.

Tentative Lecture Schedule

Week	Date	Subject	Recommended Reading Assignment
August			
1	24	Introduction to the study of woody plants of forest ecosystems	pp. xvi-xxx in Petrides (1986); pp. 7-18 in Braun (1989)
2	31	Woody plant nomenclature and taxonomy	
September			
3	7	Morphology and growth of woody forest plants	
4	14	Reproduction and establishment of woody forest plants	
5	21	Woody plant pests and diseases (Prof Bob Klips)	
6	28	Ecosystem concepts and forest community types	
October			
7	5	Disturbances and forest successional dynamics	
8	12	AUTUMN BREAK – No classes	
9	19	Photosynthesis and carbon metabolism	
10	26	Soil water and nutrient relations I	
November			
11	2	Soil water and nutrient relations II	
12	9	Woody plant adaptations to fire	
13	16	Woody plant adaptations to animals	
14	23	HAPPY THANKSGIVING! – No classes	
15	30	Forest ecosystems maintained by key ecological factors, including plant trait dynamics	

Tentative Lab Schedule

Date	Lab Subject	Location
Aug 28, 30; Sep 1	Lab introduction and dichotomous keys	KH 460
Sep 4 (Labor Day), 6, 8	No lab	—
Sep 11, 13, 15	* Dry-mesic & mesic hardwood forest ecosystems	Slate Run Metro Park
Sep 18, 20, 22	* Unglaciaded Allegheny Plateau	Wahkeena Nature Preserve
Sep 25, 27, 29	* Wet prairie and calcareous woodlands	Battelle Darby Creek Metro Park
Oct 2, 4	No lab (Friday's group see Oct 6)	—
Oct 6, 9, 11 (13 th is Autumn Break)	* Mesic & wet-mesic hardwood forest ecosystems	Alum Creek State Park?
Oct 16, 18, 20	* Wet swamp forest ecosystems	Stratford Ecological Centre
Oct 23, 25, 27	Gymnosperms	KH 460 and Chadwick Arboretum
Oct 30; Nov 1	No lab (Friday's group see Nov 3)	—
Nov 3, 6, 8 (10 th is Veterans Day)	Woody plants in winter	KH 460
Nov 13, 15, 17	Final identification exam	TBC
No more labs after final identification exam		
* Lab subjects with asterisks indicate identification quiz days		

Evaluation Policies

In-person participation in all lectures and field trips is expected. Due dates for all online lecture quizzes and group discussions will be strictly observed. The final grade for the course will be based on this system:

	%
Participation in group discussions	5
Lecture quizzes	25
Final theory exam	10
Lab assignments	10
Identification quizzes	30
Final identification exam	20

Description of Major Course Assignments

Group discussions 5%: In small discussion groups you will be posed a weekly question/conversation topic on Carmen to which you must contribute by submitting a short paragraph of your ideas. You are expected to reply to at least one peer's post. The aim of this task is to think broadly about woody plant biology beyond the classroom and to learn something from your peers, including identification tips & tricks! Each discussion post is worth 10 points and grades are largely based on participation.

Lecture quizzes 25%: A short quiz will be posted on Carmen following each week's lecture. These are designed to check you've grasped key concepts and will help you prepare for the final theory exam. Your lowest two scores will be dropped.

Final theory exam 10%: After the final lecture in Week 15, a theory exam will be posted on Carmen. It will consist of multiple choice and short-answer essay questions, covering the entirety of the course lecture material. You will have a one-week period in which to take the exam, and a time limit of 3.5 hours once opened.

Lab assignments 10%: Three campus-based labs will have assignments associated with them that are not ID quizzes. These may include question sets on specific woody plant species and botanical drawing; further details will be provided during the semester. The aim of these tasks is to further develop your observational skills and understanding of botanical natural history.

Identification quizzes 30%: In the field quizzes will consist of the correct identification of ~10 woody plant species. Each identification is worth 5 points. To receive full credit for an identification, the correct species, genus, family and common name must be written without any misspelling or capitalization error. Incorrect spelling or capitalization will result in half credit for that individual. Plant lists are cumulative throughout the semester, meaning that any plants from preceding weeks may appear on an identification quiz. Each quiz counts ~50 points and your lowest score will be dropped. There are no makeup ID quizzes.

Final identification exam 20%: The final field-based identification exam will comprise ~40 species to identify and is worth up to 200 points. Rules for identification follow the ID quizzes, as described above. There are no makeup ID exams.

All concerns about quiz grades must be presented in writing within fourteen days of when you are informed of the grade. Please contact us in advance if you know you will not be present for the field-based identification exam. If you miss the exam, contact the instructor as soon as possible, which usually means within 24 hours. Only written proof of either a medical (health) problem or a death in the family will be accepted as an excused absence. An excused absence applies only in the case of the exam. Following University rules, we are required to check on your absence.

Grading Scale:

A (100-93%); A- (92.99-90%); B+ (89.99-87%); B (86.99-83%); B- (82.99-80%); C+ (79.99-77%); C (76.99-73%); C- (72.99-70%); D+ (69.99-67%); D (66.99-60%); E (below 60%).

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.

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 (go.osu.edu/coam)
- Ten Suggestions for Preserving Academic Integrity (go.osu.edu/ten-suggestions)

Technology Support

For help with your password, university email, CarmenCanvas, or any other technology issues, questions or requests, contact the IT Service Desk, which offers 24-hour support, seven days a week.

Website: it.osu.edu/help

Self Service and Chat: go.osu.edu/IT

Phone: (614)-688-4357 (HELP)

Email: servicedesk@osu.edu

Disability Accommodations

The university strives to make all learning experiences as accessible as possible. 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 (SLDS). After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. As per SLDS policy, accommodations will be implemented on the date provided in a student's accessibility letter and do not apply retroactively.

In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process (slds.osu.edu/covid-19-info/covid-related-accommodation-requests/), managed by SLDS.

SLDS contact information:

Website: slds.osu.edu

Phone: (614)-292-3307

Email: slds@osu.edu

Address: 098 Baker Hall, 113 W. 12th Avenue

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.

24-hour emergency help is also available through the 24/7 National Prevention Hotline at 1-(800)-273-TALK or at suicidepreventionlifeline.org. The Ohio State Wellness app (go.osu.edu/wellnessapp) is also a great resource.

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.

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:

1. Online reporting form at equity.osu.edu,
2. Call (614)-247-5838 or TTY (614)-688-8605,
3. 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 go.osu.edu/principlesofcommunity. For additional information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (cfaesdei.osu.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 studentlife.osu.edu.