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## ***Biology and Identification of Woody Forest Plants***

### Syllabus

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#### Course Description and Objectives

The basic biological principles of the taxonomy, regeneration ecology and physiology 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 living and nonliving 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 forest 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 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

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 GTA in advance.

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](https://go.osu.edu/canvas-notifications)) to ensure you receive these messages.

Instructors:

Course Instructor	Kirsten Packer	412A Kottman Hall Email: <a href="mailto:packer.77@osu.edu">packer.77@osu.edu</a> 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: <a href="mailto:klips.1@osu.edu">klips.1@osu.edu</a> pronouns: he/him
Course GTA	MK Klenkar	Email: <a href="mailto:klenkar.1@osu.edu">klenkar.1@osu.edu</a> pronouns: they/them

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.

### Lab Evaluation

Quizzes will consist of the correct identification of 10 species and the exam will comprise 40 species to identify. 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.

All identification quizzes are cumulative throughout the semester, meaning that any plants from the current **and** preceding week's plant lists may appear. Each quiz counts 50 points and your lowest quiz score (of five) will be dropped. There will be a couple of short lab assignments other than the identification quizzes, details of which will be made available during the semester. The final **field-based identification exam** is worth 200 points. There will not be any makeup quizzes or exams.

### 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 (<https://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. It is recommended that you examine the specimens and take notes before attending the lab session.

### Suggested Reading

The lecture reading assignments are for your benefit, to help you learn and better understand the major concepts. Most of the reading assignments will come from the following **recommended textbook**:

*Forest Ecology* (4th edition) by Burton V. Barnes and others (1998), John Wiley & Sons, NY. ISBN 0-471-30822-6

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 Outline

Week	Date	Subject	Recommended Reading Assignment
August			
1	25	Introduction to the study of woody plants of forest ecosystems	pp. xvi-xxx in Petrides (1986); pp. 7-18 in Braun (1989)
September			
2	1	Woody plant nomenclature and taxonomy	
3	8	Morphology and growth of woody forest plants	Chapter 6
4	15	Woody plant reproduction and establishment	Chapter 5
5	22	Landscape ecosystem concepts and forest community types	Chapters 2 & 15
6	29	Disturbances and forest successional dynamics	Chapters 16 & 17
October			
7	6	Photosynthesis and carbon assimilation	Chapter 18 (pp. 486-503)
8	13	AUTUMN BREAK – No classes	
9	20	Soil water and nutrient relations	Chapter 11 (pp. 263-275)
10	27	Woody plant adaptations to abiotic factors	Chapters 8 & 9
November			
11	3	Woody plant adaptations to fire	Chapter 12
12	10	Woody plant adaptations to animals	Chapter 14
13	17	Forest ecosystem types as controlled by key ecological factors	Chapter 22
14	24	THANKSGIVING DAY – No classes	
December			
15	1	Summary lecture	

Tentative Lab Schedule

Date	Lab Subject	Location
Aug 29, 31; Sep 2	Lab introduction and dichotomous keys	KH 460
Sep 5 (Labor Day), 7, 9	No lab	—
Sep 12, 14, 16	* Dry-mesic & mesic hardwood forest ecosystems	Slate Run Metro Park
Sep 19, 21, 23	* Unglaciaded Allegheny Plateau	Wahkeena Nature Preserve
Sep 26, 28, 30	* Mesic & wet-mesic hardwood forest ecosystems	Alum Creek State Park
Oct 3, 5	No lab (Friday's group see Oct 7)	—
Oct 7, 10, 12 (14 <sup>th</sup> is Autumn Break)	* Wet-mesic river floodplain forest ecosystems	Battelle Darby Creek Metro Park
Oct 17, 19, 21	* Wet swamp forest ecosystems	Stratford Ecological Centre
Oct 24, 26, 28	Woody plants in winter	KH 460
Oct 31; Nov 2	No lab (Friday's group see Nov 4)	—
Nov 4, 7, 9 (11 <sup>th</sup> is Veterans Day)	Gymnosperms	On campus (Chadwick Arboretum)
Nov 14, 16, 18	Final identification exam	TBC
<b>No more labs after final identification exam</b> * Lab subjects with asterisks indicate identification quiz days		

Evaluation Policies

In-person participation in all lectures and field trips is expected and strongly encouraged. 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

Final averages will be rounded upwards to the next highest whole number for assigning letter grades. The grading scale below will be used:

Average (%)	GRADE
100 – 92.01	A
92 – 89.01	A -
89 – 86.01	B +
86 – 82.01	B
82 – 79.01	B -
79 – 76.01	C +
76 – 72.01	C
72 – 69.01	C -
69 – 66.01	D +
66 – 59.01	D
Below 59.01	E

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 will mean 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. You must provide documentation that will allow us to verify that an illness, that has been diagnosed and that requires follow-up medical treatment, or a funeral, has resulted in an unavoidable and unplanned absence from class. This is the

procedure that must be followed as required by University policies, as it applies to all students and as stipulated in this course syllabus.

**ACADEMIC MISCONDUCT:** Submitting plagiarized work to meet academic requirements including the representation of another person's works or ideas as one's own; the unacknowledged use of another person's work and (or) paraphrasing of another person's work; the inappropriate or unacknowledged use of another person's ideas; and (or) falsification, fabrication, or dishonesty in reporting research results or during evaluations will be grounds for charges of academic misconduct. Cheating will not be tolerated.

### 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.

### Safe and Healthy Buckeyes

As of May 3, 2022, masks remain optional in most indoor spaces and the COVID-19 vaccine is still required for all students, faculty and staff. Read more on the Personal Safety Practices page. See: <https://safeandhealthy.osu.edu/> for additional guidelines and resources; as well as for any updates from the university regarding changes in policy and procedure. If the situation changes during the AU22 semester I will inform the class through the Announcements tool in CarmenCanvas.

### 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: <https://it.osu.edu/help>

Self Service and Chat: <https://go.osu.edu/IT>



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

Email: [servicedesk@osu.edu](mailto: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) (<https://slds.osu.edu/>). After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process (<https://slds.osu.edu/covid-19-info/covid-related-accommodation-requests/>), managed by Student Life Disability Services.

SLDS contact information:

Website: <https://slds.osu.edu>

Phone: (614)-292-3307

Email: [slds@osu.edu](mailto:slds@osu.edu)

Address: 098 Baker Hall, 113 W. 12<sup>th</sup> 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](https://ccs.osu.edu) or calling (614)-292-5766. CCS is located on the 4<sup>th</sup> Floor of the Younkin Success Center and 10<sup>th</sup> 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 <https://suicidepreventionlifeline.org>.

The Ohio State Wellness app (<https://digitalflagship.osu.edu/handbook/ch3/ohio-state-wellness-app>) is also a great resource.

David Wirt, [wirt.9@osu.edu](mailto: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 <https://equity.osu.edu>,
2. Call (614)-247-5838 or TTY (614)-688-8605,
3. Or email [equity@osu.edu](mailto: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/>.