Term Information

Effective Term	Autumn 2019

General Information

Course Bulletin Listing/Subject Area	Evol, Ecology & Organismal Bio
Fiscal Unit/Academic Org	Evolution, Ecology & Org Bio - D0390
College/Academic Group	Arts and Sciences
Level/Career	Graduate, Undergraduate
Course Number/Catalog	5480
Course Title	Advanced Plant Ecology
Transcript Abbreviation	Adv Plant Ecol
Course Description	Plants are central to many of the ecological and evolutionary dynamics that drive variation in community structure and ecosystem functioning. In this course we will learn about and critically appraise major themes in plant ecology, covering key topics from ecophysiology, population biology, interspecific interactions, community ecology, and biogeography.
Semester Credit Hours/Units	Fixed: 3

Offering Information

Length Of Course	14 Week, 12 Week, 8 Week, 7 Week, 6 Week, 4 Week
Flexibly Scheduled Course	Never
Does any section of this course have a distance education component?	No
Grading Basis	Letter Grade
Repeatable	No
Course Components	Lecture
Grade Roster Component	Lecture
Credit Available by Exam	No
Admission Condition Course	No
Off Campus	Never
Campus of Offering	Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites	EEOB 3410, Ecology
Exclusions	
Electronically Enforced	Yes

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code	26.1310
Subsidy Level	Doctoral Course
Intended Rank	Senior, Masters, Doctoral

Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Understand fundamental concepts in Plant Ecology, how those ideas have changed over time, and how various ideas within different areas of Plant Ecology relate to each other.
- Appreciate the integrative nature of Plant Ecology, particularly as it relates to evolutionary biology and the study of other (non-plant) organisms.
- Apply and interpret common quantitative methods commonly used in Plant Ecology.
- Critically read the scientific literature and use that information to ask and answer compelling questions in Plant Ecology.
- Effectively communicate scientific concepts with others.

Content Topic List

- Ecophysiology
- Plant reproductive ecology
- Seed ecology
- Life history strategies
- Population ecology
- Interspecific interactions, including plant-animal and plant-microbial interactions
- Plant communities
- Functional trait ecology

Sought Concurrence

Yes

Attachments

- EEOB 5480 AdvPlantEcol syllabus DRAFT.doc

  (Syllabus. Owner: Hamilton,Ian M)
- EEOB 5480 concurrence list.docx

  (List of Depts Concurrence Requested From. Owner: Hamilton,Ian M)
- Concurrence_Form_EEOB 5480_SENR.pdf

  (Concurrence. Owner: Hamilton,Ian M)
- EEOB Curriculum Maps Oct 2018.xlsx: Curriculum Maps

  (Other Supporting Documentation. Owner: Hamilton,Ian M)

Comments

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Hamilton,Ian M	10/12/2018 02:47 PM	Submitted for Approval
Approved	Hamilton,Ian M	10/12/2018 02:48 PM	Unit Approval
Approved	Haddad,Deborah Moore	10/12/2018 03:24 PM	College Approval
Pending Approval	Nolen,Dawn Vankeerbergen,Bernadette Chantal Oldroyd,Shelby Quinn Hanlin,Deborah Kay Jenkins,Mary Ellen Bigler	10/12/2018 03:24 PM	ASCCAO Approval

ADVANCED PLANT ECOLOGY (EEOB 5480; 3 cr.)

COURSE DESCRIPTION

Plants are central to many of the ecological and evolutionary dynamics that drive variation in community structure and ecosystem functioning. Yet, many unique aspects of their biology lead plants to have influences that may not be obvious without studying these topics from a "plant-centric" perspective. In this course we will learn about and critically appraise major themes in plant ecology, covering key topics from ecophysiology, population biology, interspecific interactions, community ecology, and biogeography. There will be an explicit emphasis on reading the peer-reviewed scientific literature, which will be addressed via in-class paper discussions and two longer-term projects that emphasize synthesis of ideas from throughout the literature.

By the end of this course, you should be able to:

1. Understand fundamental concepts in Plant Ecology, how those ideas have changed over time, and how various ideas within different areas of Plant Ecology relate to each other.
2. Appreciate the integrative nature of Plant Ecology, particularly as it relates to evolutionary biology and the study of other (non-plant) organisms.
3. Apply and interpret common quantitative methods commonly used in Plant Ecology.
4. Critically read the scientific literature and use that information to ask and answer compelling questions in Plant Ecology.
5. Effectively communicate scientific concepts with others.

Instructor
Steve Hovick, PhD
Assistant Professor
Dept. of EEOB
316 Aronoff Labs
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Office Hours
TBD

Class Meeting Times
Tues/Thurs, TBD
Location TBD

PREREQUISITE -- Ecology (EEOB 3410).

REQUIRED READINGS

Our readings will come from selected textbook chapters and peer-reviewed papers from the scientific literature, all of which will be accessible in the "Files" section of Carmen. Each week you should review the content posted on Carmen for that week. Content will be listed by date and by topic, which coincides with the schedule in the syllabus. You will be tested over lecture material as well as the material in the required course readings.

COURSE ASSIGNMENTS

There are 700 total points for this course. The following is a list of assignments, the points allocated for each, and tentative due dates. You may view your grades on Carmen. The final grade posted on Carmen will serve as the final grade unless I have indicated otherwise.

Final Grade	Percentage
A	93-100%
A-	90-92%
B+	87-89%
B	83-86%
B-	80-82%
C+	77-79%
C	73-76%
C-	70-72%
D+	67-69%
D	60-66%
E	< 60%

Midterm & Final Exam (28.6%, 200 points total)

This class will have both a midterm and a final exam (100 points each). The midterm exam will be on October 1 and will cover topics from the first half of the class. The final will be comprehensive, covering information from throughout the semester. Our final is scheduled for DATE TBD from TIME to TIME TBD. You will be tested on information from all aspects of the course (readings, lectures and

class discussions) and will be provided with an in-class review to help you prepare. Exams may be multiple choice, true/false and/or short essay.

Research Proposal (28.6%, 200 points total)

Writing a compelling research proposal is an opportunity to couple a synthetic understanding of the scientific literature on some topic of interest along with building a persuasive argument that a compelling problem is worth of study and creativity in coming up with a solution to the problem. As a major component of this class, you will develop a research proposal to address an important knowledge gap in an area of your choosing within the broad field of Plant Ecology. Various components of the proposal will be due throughout the semester to keep everyone on track and to facilitate feedback along the way (from myself and from your peers). The major deadlines are as follows:

1) Potential topic identified (Week 2)
2) Overview and Objectives due (Week 4; 50 points). In this one-page document, you will use the peer-reviewed literature to identify your key problem, justify why it is compelling in the first place, and clearly identify the hypotheses you propose to test. A well-written O&O sets the stage for the rest of the proposal, so this represents a key benchmark in the overall process.
3) Experimental design workshop (Week 10; 25 points). This in-class workshop will be an opportunity to briefly present your chosen problem and the experimental design you're proposing to address it. By this point you should therefore have a fully developed research plan. However, realize this plan may change, as you will receive valuable feedback from your peers (as well as providing similar feedback on their proposed designs).
4) Peer review (Week 15; 25 points). The full proposal should be essentially complete by this time, as you will share it with peers so that they can read and comment in hopes of strengthening the proposal overall.
5) Final proposal due (Week 16; 100 points). After getting feedback from the peer review process, you will have time to incorporate that feedback prior to turning in the final version of the proposal. Proposals will be no more than 4 pages of single-spaced text (12 pt., Times New Roman), excluding the Literature Cited section.

Concept Timeline project and presentation (14.3%, 100 points total)

Scientific knowledge is not static but rather grows and changes over time. Our understanding of the natural world advances cyclically as ecologists develop new hypotheses, perform empirical tests of these hypotheses, and use results to modify old hypotheses and create new ones. In this small-group assignment, you and your fellow group members will research the history of an important hypothesis in plant ecology. This assignment will allow you to practice skills relevant to creating a literature review. You will become experts on your assigned theory and will communicate the knowledge you have gained to your classmates in a 15-20 minute group presentation, an experience that will also allow you to practice communicating scientific information. The slides you present to the class will be made available to your peers following the presentation and will be 'fair game' for questions included on the Final Exam.

Quantitative methods homework (14.3%, 100 points total – 2 instances x 50 points each)

We will have numerous opportunities to discuss quantitative methods in lectures and class discussions, but there is no substitute for hands-on experience running analyses using real datasets. To crystallize some of the quantitative methods that are commonly used in Plant Ecology but that you may not have first-hand experience

with, we will have two class periods in which some time is dedicated to learning how to run a given set of analyses using a particular analytical method or methods. Each days' material will have a problem set associated with it that will be due the following week.

Paper Discussions (14.3%, 100 points total – 5 instances x 20 points each)
On five occasions throughout the semester, we will read papers from the peer-reviewed scientific literature that will be discussed as a large group in class. To encourage everyone to adequately prepare and fully participate in these discussions, you will be asked to fill out a brief Carmen quiz prompting you to summarize key points of the paper and pose at least one relevant discussion question by midnight prior to that class period. The questions can be used to clarify methods or points raised in the paper that did not make sense, but you are *strongly* encouraged to go beyond simple comprehension and think about the readings more deeply. For example: how relevant is some piece of information specific to a given study for other systems? Could the principles tested be used to inform management or conservation? Are the inferences from a particular study sound?

COURSE POLICIES

Attendance & Participation
There are no points for attendance or participation, but you are expected to do both and your grade will almost certainly reflect the degree to which you are present in class, prepared by way of having read the assigned material, and engaged in class discussions and activities. If you miss a class you are responsible for getting notes and information missed from your fellow classmates.

Make-up Exams
Make-up exams will be arranged for university-excused or unavoidable circumstances (e.g., deaths, personal/family illness and emergencies), but only with prior notification and/or written verification within 48 hours of your return. If you are not present in class when the exam is given and do not have the proper documentation, you will not be allowed to make up the exam.

Late Assignments
You will know the due dates for each assignment in advance, thus assignments must be handed in on time. Unless stated otherwise, assignments are due by the end of the day (11:59 pm) on the specified date in the Carmen discussion or drop box. Assignments turned in late are subject to a penalty of 10% off per day submitted past the deadline.

Grade Disputes
Students must wait 24 hours from when a graded assignment is given back before requesting a grade change. Students have **one week** after the graded assignment is returned to challenge grades. After that, grade changes will not be considered. Grade change requests must be sent via email to me. Please outline (be specific) where you believe that you should have received additional points and why. I am happy to revisit grades, but please be sure that your e-mail is written in a clear and respectful manner.

Technology Use
During class meetings, technology is allowed with discretion. I understand the value of having computer access in the classroom; however, I reserve the right to institute a technology policy if usage becomes problematic or

distracting. I also reserve the right to ask everyone to "unplug" or put away technology for the day if I see students using technology for non-class purposes (e.g., texting, shopping, social media, work for other classes)

Plagiarism
Written work and presentations are to be individually developed. Using another person's writing, using large verbatim sections of information from the work of another, or using something you have written for another class is considered plagiarism. If unsure, give credit to your source. Students who have plagiarized will be penalized and reported to university officials. A grade of zero will also be given for the assignment.

Academic Misconduct
It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct (http://studentlife.osu.edu/csc/).

Disability Services

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. 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.

Mental Health Services
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. OSU offers services to assist you with addressing these and other concerns you or someone you know may be experiencing. You can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (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 Suicide Prevention Hotline at 1-800-273-TALK or at suicidepreventionlifeline.org.

CLASS SCHEDULE

This schedule includes a list of topics and tentative assignment due dates. Most readings are not yet included; as they are added they will be made available on Carmen. Please note that this schedule is subject to change. As changes are made, an updated syllabus will also be posted on Carmen.

Week	Class	Date	Course content	Readings[1]
1	1	20-Aug	Ecophysiology: light relations	PPE Ch. 2
	2	22-Aug	Ecophysiology: water relations	PPE Ch. 3
2	3	27-Aug	Ecophysiology: nutrient relations; **PAPER DISCUSSION**	PPE Ch. 6
	4	29-Aug	Ecophysiology: synthesis; *Proposal: O&O Discussion*	PPE Ch. 7
3	5	3-Sep	Plant reproductive ecology: floral biology review, SI systems	
	6	5-Sep	Plant reproductive ecology: mating/breeding systems; **PAPER DISCUSSION**	
4	7	10-Sep	Plant reproductive ecology: plant-pollinator interactions	
	8	12-Sep	Seed ecology I: germination/dormancy; *methods exercise;* **PROPOSAL O&O DUE**	
5	9	17-Sep	Seed ecology II: seed size/number tradeoffs	
	10	19-Sep	Seed ecology III: dispersal, colonization; **METHODS HW #1 DUE**	
6	11	24-Sep	Life history strategies I: classical frameworks **PAPER DISCUSSION**	
	12	26-Sep	Life history strategies II: leaf/root traits spectra	
7	13	1-Oct	**MIDTERM EXAM**	
	14	3-Oct	Population ecology: life stage transitions; ontogenetic shifts	
8	15	8-Oct	Population ecology: population structure and gap dynamics	
		10-Oct	Fall break	
9	16	15-Oct	Interspecific interactions I: Competition**; PAPER DISCUSSION**	
	17	17-Oct	Interspecific interactions I: Facilitation	
10	18	22-Oct	Plant-animal interactions: herbivory, defense chemistry	
	19	24-Oct	*Proposal: Experimental design workshop*	
11	20	29-Oct	Plant-microbial interactions**; PAPER DISCUSSION**	
	21	31-Oct	Plant communities: biogeography/phytogeography; **EXP DESIGN WRITE-UP DUE**	
12	22	5-Nov	Plant communities: diversity patterns/mechanisms	
	23	7-Nov	Plant communities: quantitative methods	
13	24	12-Nov	Functional trait ecology: definition, niche conservatism	
	25	14-Nov	Functional trait ecology: adaptations; **METHODS HW #2 DUE**	
14	26	19-Nov	**CONCEPT TIMELINE PRESENTATIONS**	
	27	21-Nov	**CONCEPT TIMELINE PRESENTATIONS**	
15	28	26-Nov	Functional trait ecology: rarity/invasiveness; **PROPOSAL PEER REVIEWS DUE**	

		28-Nov	Thanksgiving break
16	29	3-Dec	Conservation/restoration of plant communities; **PROPOSAL DUE**

1: Abbreviations for book chapters are as follows

PPE = Lambers et. al 2008. *Plant Physiological Ecology*, 2nd edition. Springer. [eBook, OSU library]

EEOB 5480: Advanced Plant Ecology

List of Units Concurrence Requested From on 9/26/2018 with requested reply by 10/10/2018

Horticulture and Crop Science (no reply by 10/10/2018)

School of Environment and Natural Resources (concurrence received 10/10/2018)

The Ohio State University
College of the Arts and Sciences Concurrence Form

The purpose of this form is to provide a simple system of obtaining departmental reactions to course requests. **An e-mail may be substituted for this form.**

An academic unit initiating a request should complete Section A of this form and send a copy of the form, course request, and syllabus to each of the academic units that might have related interests in the course. Units should be allowed two weeks to respond to requests for concurrence.

Academic units receiving this form should respond to Section B and return the form to the initiating unit. Overlap of course content and other problems should be resolved by the academic units before this form and all other accompanying documentation may be forwarded to the Office of Academic Affairs.

A. Proposal to review

EEOB	5480	Advanced Plant Ecology
Initiating Academic Unit	Course Number	Course Title

New	9/26/2018
Type of Proposal (New, Change, Withdrawal, or other)	Date request sent

School of Environment and Natural Resources	10/10/2018
Academic Unit Asked to Review	Date response needed

B. Response from the Academic Unit reviewing

Response: include a reaction to the proposal, including a statement of support or non-support (continued on the back of this form or a separate sheet, if necessary).

It looks like a great course and fills a significant gap in our offerings at OSU with regards to plant and vegetation ecology. There are a number of us interested in such things distributed throughout SENR, EEOB, HCS, Geography and Environmental Engineering but precious few in-depth courses in this realm. Many existing courses in HCS and SENR have an applied focus (such as ENR5560 or courses on pasture management in HCS) whereas the proposed course covers a range of fundamental issues and aspects of ecological theory. I'm excited to see some explicit coverage of plant traits. It would likely be a course SENR graduate students from at least one lab would be expected to take.
We just note potential overlap with some HCS courses, but are assuming you are aware of those

Signatures

		AAC Chair	SENR	10/10/2018
1.	Name	Position	Unit	Date
2.	Name	Position	Unit	Date
3.	Name	Position	Unit	Date