

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 5340
Course Title Evolution and Taxonomy of Vascular Plants
Transcript Abbreviation Plant Taxonomy
Course Description The course will focus on the diversity and evolution of extant and fossil vascular plants and the features and data that are used to understand their phylogenetic relationships.
Semester Credit Hours/Units Fixed: 4

Offering Information

Length Of Course 14 Week, 12 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 Laboratory, 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 Biology 1114 or permission of instructor.
Exclusions Not open for students with credit for EEOB 672
Electronically Enforced Yes

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 26.1303
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

- Describe key features of vascular plants (structural, chemical, molecular) and explain how they are used to build and interpret phylogenetic patterns
- Identify major groups of vascular plants (to the level of family) and explain their evolutionary relationships
- Identify plant structures (external and internal) and explain their evolutionary significance and distribution among plant groups
- Understand the history of plant taxonomy and its relationship to other historical scientific trends
- Understand and apply the basis for species circumscription in plants
- Explain the transition from wild to domesticated plants as a human-mediated process

Content Topic List

- The diversity of vascular plants and their characters
 - Relationships among fossil and extant vascular plants and the types of data that we use to understand these relationships
 - Monographic and literature methods, nomenclature
 - Biosystematics
 - History of plant classification
 - The origin of cultivated plants
- No

Sought Concurrence

Attachments

- EEOB 5340 Evol Taxonomy of Vasc Plants proposal.doc
(Syllabus. Owner: Hamilton,Ian M)
- EEOB Curriculum Maps Oct 2018.xlsx: Curriculum Maps
(Other Supporting Documentation. Owner: Hamilton,Ian M)

Comments

- Course was originally submitted as a course change request for EEOB 7330, which has been withdrawn. We have made the following updates in response to feedback on that request: the credit hours have been changed to 4 fixed hours, the syllabus has been updated to include more information on the timing of of assessments, and the course has been restricted to 12 and 14 weeks. *(by Hamilton,Ian M on 10/19/2018 12:10 PM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Hamilton,Ian M	10/19/2018 12:11 PM	Submitted for Approval
Approved	Hamilton,Ian M	10/19/2018 12:11 PM	Unit Approval
Approved	Haddad,Deborah Moore	10/19/2018 12:19 PM	College Approval
Pending Approval	Nolen,Dawn Vankeerbergen,Bernadette Chantal Oldroyd,Shelby Quinn Hanlin,Deborah Kay Jenkins,Mary Ellen Bigler	10/19/2018 12:19 PM	ASCCAO Approval

EEOB 5340 Evolution and Taxonomy of Vascular Plants

Instructor: Dr. John Freudenstein
Office: 1350 Museum of Biological Diversity
Phone: 688-0363
Email: freudenstein.1@osu.edu

4 credit hours

Meeting times: 2 x 1.5 hr lectures and 1 x 2-hour lab

Course content: The course will focus on the diversity and evolution of extant and fossil vascular plants and the features and data that are used to understand their phylogenetic relationships. The lecture portion of the course will cover the relationships among fossil and extant vascular plants, the types of data that we use to understand these relationships, history of plant classification, nomenclature, literature and monographic methods, biosystematics, and the origin of cultivated plants.

The course consists of lectures that introduce the topic for the week and labs that allow students to see and analyze plant material that illustrates the diversity and structures of plants as we move through the groups of vascular plants over the semester. Readings from the textbook and some supplementary readings provide background and a chance for students to review details covered in lecture. The project provides students an opportunity to gain an understanding of how species are delimited using sets of specimens with which they are challenged to devise their own species circumscriptions and to produce a small treatment similar to a real revision or monograph.

Required text:

Simpson, M. G. 2019. *Plant Systematics*. Third edition. Academic Press (Elsevier).

Assessment:

4 lab quizzes	20%
2 lecture exams (midterm and final)	40%
Monograph project	20%
1 lab practical (at time of final)	20%

Course Schedule

<u>Week</u>	<u>Topics; Readings in <i>Simpson</i></u>
1	<u>Lecture:</u> Introduction; homology and phylogenetic patterns <u>Lab:</u> Introduction to plant structure
2	<u>Lecture:</u> Plant morphology and anatomy I <i>pp. 452-468, 525-527</i> <u>Lab:</u> Spore plants, <i>Chapter 4</i>
3	<u>Lecture:</u> Plant morphology and anatomy II, <i>Chapter 10</i> <u>Lab:</u> Gymnosperms, <i>Chapter 5</i> ; Quiz 1
4	<u>Lecture:</u> Plant morphology and anatomy III, <i>Chapter 11</i> <u>Lab:</u> Basal angiosperms, <i>pp. 182-200, 468-508</i>
5	<u>Lecture:</u> Plant morphology and anatomy IV, <i>Chapter 12</i> <u>Lab:</u> Monocots I, <i>pp. 200-230</i> ;
6	<u>Lecture:</u> Phylogenetics of extant and fossil vascular plants I <i>Chapters 3-6</i> <u>Lab:</u> Monocots II, <i>pp. 200-230</i> ; Quiz 2
7	<u>Lecture:</u> Exam I <u>Lab:</u> Monocots III, <i>pp. 230-264</i>
8	<u>Lecture:</u> Phylogenetics of extant and fossil vascular plants II <i>Chapters 3-6</i> <u>Lab:</u> Basal tricolpate dicots, <i>pp. 276-291</i>
9	<u>Lecture:</u> Monographic studies, literature, nomenclature <i>Chapters 16-18</i> <u>Lab:</u> Work on monograph project

- 10 Lecture: Biosystematics, *Chapter 13*
Lab: Caryophyllids, pp. 295-309; **Quiz 3**
- 11 Lecture: Plant chemistry, cytology, development, *Chapter 14*
Lab: Eurosids I, pp. 312-347
- 12 Lecture: History of plant systematics, *Supplementary reading*
Lab: Eurosids II & Asterids I, pp. 347-386
- 13 Lecture: Molecular data, *Supplementary reading*
Lab: Asterids II, pp. 389-433; **Quiz 4**
- Project write-up due**
- 14 Lecture: Cultivated plants & ethnobotany, *Supplementary reading*
Lab: Discussion of project results

Disability Statement

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.

Academic Integrity

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/>.

Learning objectives

Students who have taken this course will be able to:

1. Describe key features of vascular plants (structural, chemical, molecular) and explain how they are used to build and interpret phylogenetic patterns
2. Identify major groups of vascular plants (to the level of family) and explain their evolutionary relationships
3. Identify plant structures (external and internal) and explain their evolutionary significance and distribution among plant groups
4. Understand the history of plant taxonomy and its relationship to other historical scientific trends
5. Understand and apply the basis for species circumscription in plants
6. Explain the transition from wild to domesticated plants as a human-mediated process