

Term Information

Effective Term Autumn 2019
[Previous Value](#) Spring 2014

Course Change Information

What change is being proposed? (If more than one, what changes are being proposed?)

Change number from 7310 to 5340. Change title to "Evolution and Taxonomy of Vascular Plants". Change credit hours from variable (1-4) to fixed (3).

What is the rationale for the proposed change(s)?

When we went through the conversion to semesters, this course, which had been taught at the 600-level, was set at the 7000-level, meaning that undergraduates could not take it, thus excluding a segment of the previous audience. The purpose of this course change is thus to (1) refocus the course at an upper-level undergraduate and graduate level, and (2) provide a more meaningful title.

What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

None

Is approval of the request contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

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 |
| Previous Value | Graduate |
| Course Number/Catalog | 5340 |
| Previous Value | 7310 |
| Course Title | Evolution and Taxonomy of Vascular Plants |
| Previous Value | Taxonomy of Vascular Plants |
| Transcript Abbreviation | Plant Taxonomy |
| Previous Value | 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. |
| Previous Value | Focus on vascular plant taxonomy. Survey groups of seedless vascular plants, gymnosperms, and angiosperms in a phylogenetic context, learning their characters and understanding the character transformations in this part of the tree of life. We will also examine the types of character evidence that plant systematists use to build phylogenetic trees. |
| Semester Credit Hours/Units | Fixed: 3 |
| Previous Value | Variable: Min 1 Max 4 |

Offering Information

| | |
|--|--|
| Length Of Course | 14 Week, 12 Week, 8 Week, 7 Week, 6 Week, 4 Week |
| Flexibly Scheduled Course | Never |
| Previous Value | Always |
| 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. |
| <i>Previous Value</i> | <i>Prereq: Permission of instructor.</i> |
| Exclusions | Not open to students with credit for 672. |
| Electronically Enforced | Yes |
| <i>Previous Value</i> | No |

Cross-Listings

Cross-Listings

Subject/CIP Code

| | |
|-----------------------|---------------------------|
| Subject/CIP Code | 26.1303 |
| Subsidy Level | Doctoral Course |
| Intended Rank | Senior, Masters, Doctoral |
| <i>Previous Value</i> | <i>Masters, Doctoral</i> |

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 | <ul style="list-style-type: none">• 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• <i>Classification systems</i> |
| <i>Previous Value</i> | |

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

Previous Value

- *Systematic morphology and anatomy*
- *Phylogenetics of extant and fossil taxa*
- *Monographic studies, literature, nomenclature*
- *Biosystematics*
- *Evo/devo*
- *History of systematics*
- *Taxonomy as it relates to domestication*

Sought Concurrence

No

Attachments

- EEOB 5340 Evol Taxonomy of Vasc Plants revision (003).doc
(Syllabus. Owner: Hamilton,Ian M)
- EEOB curriculum maps Sept 2018.xlsx: Curriculum Maps
(Other Supporting Documentation. Owner: Hamilton,Ian M)

Comments

- Enforcement has been changed to "yes" *(by Hamilton,Ian M on 09/18/2018 05:32 PM)*
- 09/18: Are you sure that you do not want prereqs/exclusion enforced? *(by Haddad,Deborah Moore on 09/18/2018 05:27 PM)*

Workflow Information

| Status | User(s) | Date/Time | Step |
|--------------------|---|---------------------|------------------------|
| Submitted | Hamilton,Ian M | 09/18/2018 04:54 PM | Submitted for Approval |
| Approved | Hamilton,Ian M | 09/18/2018 04:55 PM | Unit Approval |
| Revision Requested | Haddad,Deborah Moore | 09/18/2018 05:27 PM | College Approval |
| Submitted | Hamilton,Ian M | 09/18/2018 05:32 PM | Submitted for Approval |
| Approved | Hamilton,Ian M | 09/18/2018 05:32 PM | Unit Approval |
| Approved | Haddad,Deborah Moore | 09/18/2018 05:35 PM | College Approval |
| Pending Approval | Nolen,Dawn Vankeerbergen,Bernadette Chantal Oldroyd,Shelby Quinn Hanlin,Deborah Kay Jenkins,Mary Ellen Bigler | 09/18/2018 05:35 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

3 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. We will explore the diversity of vascular plants and their characters in the laboratory portion of the course. We will use a textbook and supplementary readings.

Required text:

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

Evaluation:

| | |
|-------------------------------------|-----|
| 4 lab quizzes | 20% |
| 2 lecture exams (midterm and final) | 40% |
| Monograph project | 20% |
| 1 lab practical | 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> |
| 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> |
| 7 | <u>Lecture:</u> Phylogenetics of extant and fossil vascular plants II <i>Chapters 3-6</i> <u>Lab:</u> Monocots III, <i>pp. 230-264</i> |
| 8 | <u>Lecture:</u> Monographic studies, literature, nomenclature <i>Chapters 16-18</i> <u>Lab:</u> Basal tricolpate dicots, <i>pp. 276-291</i> |
| 9 | <u>Lecture:</u> Exam I <u>Lab:</u> Work on monograph project |

- 10 Lecture: Biosystematics, *Chapter 13*
Lab: Caryophyllids, *pp. 295-309*
- 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*
- 14 Lecture: Cultivated plants & ethnobotany, *Supplementary reading*
Lab: Asterids III, *pp. 389-433*

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