revised syllabus: 12/4/14

SYLLABUS UPDATED 2.25.2015

084

RECEIVED
SEP 24 2014
WSU Registrar

Washington State University
MAJOR CURRICULAR CHANGE FORM - - COURSE
(Submit original signed form and ten copies to the Registrar's Office, zip 1035)

Future Effective Date: 08/01/2015 ☑ New course ☐ Temporary course ☐ Drop service course
(effective date cannot be retroactive) ☐ There is a course fee associated with this course (see instructions)

☑ Variable credit 1-4 ☑ Repeat credit (cumulative maximum 9 hours) *

☐ Increase credit (former credit _____) ☐ Lecture-lab ratio (former ratio _____)

☐ Number (former number _____) ☐ Prefix (former prefix _____)

☐ Crosslisting (between WSU departments) **(Must have both departmental signatures)** ☐ Cooperative listing (UI prefix and number _____)
taught by: WSU ☐ UI ☐ jointly taught ☐

☐ Conjoint listing (400/500) ☐ S, F grading

☐ Request to meet Writing in the Major [M] requirement **(Must have All-University Writing Committee Approval)**

☐ Request to meet GER in _____ **(Must have GenEd Committee Approval)** ☐ Fulfills GER lab (L) requirement

☐ Professional course **(Pharmacy & Vet Med only)** ☐ Graduate credit **(professional programs only)**

* ☑ Other (please list request) ~~no cumulative maximum number of hours~~ See email

Biology	594	Advanced Topics in Evolution
course prefix	course no.	title

v1-4				
credit	lecture hrs per week	lab hrs per week	studio hrs per week	prerequisite

Description (**20 words or less**) Presentation and discussion of advanced topics in evolution taken from research in progress or current literature.

Instructor: variable Phone number: _____ Email: _____
Contact: Justine Rupp Phone number: 335-8649 Email: ruppj@wsu.edu
Campus Zip Code: 4236

- Please attach rationale for your request, a current and complete syllabus, and explain how this impacts other units in Pullman and other branches (if applicable).
- Secure all required signatures and provide 10 copies to the Registrar's Office.

12 Sept. 2014 — **Chair/date** | 9/17/14 — **Dean/date** | **General Education Com/date**

Chair (if crosslisted/interdisciplinary)* | **Dean (if crosslisted/interdisciplinary) *** | **Graduate Studies Com/date**

All-University Writing Com/date | **Academic Affairs Com/date** | **Senate/date**

***If the proposed change impacts or involves collaboration with other units, use the additional signature lines provided for each impacted unit and college.**

Typically offered

Biology 594 Advanced Topics in Evolution

Justification

As modern biological sciences continues to grow as a field, so too does the need for topical seminar courses. In accordance with the growth of biology, so too has the number of graduate students and faculty in SBS at WSU. This growth has resulted in higher demands among our graduate students for seminar courses in topical areas.

One area where we anticipate offering an increased number of special topics and seminar courses is in evolution. We have hired 4 tenure track faculty in this particular area in the last 3 years and all are offering seminar courses. Currently, we only have 1 advanced topics course (in Biology, Biology 589), however our recognized departmental strengths are in ecology, evolution and physiology. Other departments at WSU, such as the Department of Chemistry, have multiple advanced topics courses, including "Advanced topics in Inorganic Chemistry", "Advanced topics in Organic Chemistry", "Selected topics in Analytical Chemistry." Similarly, the Department of Mathematics has "Topics in Mathematics", "Topics in Applied Mathematics" and "Topics in Mathematics Application." We are seeking a similar breakdown of courses to accommodate the increasing demand for our special topics courses as well as to accommodate the breadth of training our graduate students need. With regards to the latter, our recent approved curriculum changes for graduate training in our department emphasize the need for breadth, which can be accommodated with a greater number of advanced topics courses.

This course offering would likely also attract students from departments and schools across campus, including from School of the Environment, Entomology, Plant Pathology, and the School of Global Animal Health. As such, this seminar offering would be of wide appeal to SBS students, as well as enhance interactions and resulting interdisciplinary discussions of graduate students from across campus. As graduate student education is shifting from having departmental walls to being more integrated and interdisciplinary programs that are campus-wide (e.g., Molecular Plant Sciences at WSU), increased offerings of seminar courses that potentially have wide appeal is a step toward aligning with national trends.

A sample syllabus is attached.

SYLLABUS UPDATED 2.25.2015

Biology 594: Advanced Topics in Evolution - *The Origin of Species*

Note: This is an example syllabus of the type of course that would be taught under Biology 594

NOTE THAT THIS IS A SYLLABUS IS AN EXAMPLE OF A 2 CREDIT SPECIAL TOPICS COURSE; A 1 CREDIT COURSE MAY BE ENTIRELY DISCUSSION-BASED WITHOUT AN ORAL PRESENTATION OR FINAL EXAM, A 3 CREDIT COURSE WOULD HAVE 3 HOURS OF MEETINGS (E.G., 2 HOURS OF LECTURE AND 1 HOUR OF DISCUSSION) PER WEEK AND A 4 CREDIT COURSE WOULD POTENTIALLY HAVE A 3 HOUR COMPUTER LAB OR WET LAB COMPONENT

Washington State University
Instructor: Prof. Jeremiah Busch (jwbusch@wsu.edu, Eastlick 387; 5-0086)
Class hours: 3:30-5:30, Wednesdays (Eastlick 361); 2 credits
Text: Darwin's Origin of Species (6th edition; purchase on Amazon.com)
Pre-requisites: graduate standing and at least one undergraduate course on evolution

Course Objectives

Charles Darwin's *Origin of Species* stands as one of the most influential scientific works in modern history. Given the importance of this book to the development of evolutionary biology as a discipline, the purpose of this class is to discuss this classic text, but to also use recently published articles in the literature to examine areas of great progress in this broad discipline. Specifically, high impact papers concerning adaptation, biogeography, evo-devo, epigenetics, hybridization, paleontology, sexual selection, speciation, the origin of complex traits, and social evolution will be chosen to accompany weekly readings of the *Origin of Species*. By the end of the course, students will be familiar with Darwin's most influential work and will also appreciate areas where many advances are being made to understand the evolution and diversity of species.

Student learning outcomes

I expect that students will:

1. Demonstrate a working knowledge of natural selection and Darwinian evolution
2. Communicate the importance of a historical perspective in evolutionary biology
3. Critically evaluate the primary literature
4. Synthesize a body of literature in written form

Student Learning Outcomes for this course: At the end of this course, students should be able to:	Course Topics/Dates The following topic(s)/dates(s) will address this outcome:	Evaluation of Outcome: This outcome will be evaluated primarily by:
Demonstrate a working knowledge of natural selection and Darwinian evolution	Each week, especially Weeks 3 (Natural Selection) and 10 (Macroevolution)	Weekly discussions, oral presentation at end of semester, take home final
Communicate the importance of	Weekly discussions,	Participation in weekly

historical perspective in evolutionary biology	Week 15	discussions, generation of weekly discussion questions, discussion leader, presentation in Week 15
Critically evaluate the primary literature	Weekly discussions, Week 15, Week 16	Weekly participation, oral presentation, take home final
Synthesize a body of literature in written form	Week 16	Take home final

Weekly Meetings and Papers

We will meet once a week to discuss a chapter reading and an accompanying paper. Students will volunteer to lead a single discussion early in the semester. I would like students to choose papers to accompanying readings in the *Origin* by meeting with me and discussing the chapter beforehand. Papers should have a broad and general impact and serve to illustrate concepts in the *Origin of Species* or point out areas where great progress has been made since Darwin's time. Students must choose their paper one week in advance of class discussion and send the paper to the class via email so that other students have ample time to read and digest the material.

Assignments and Grading

Attendance and general participation	20%
Discussion leader	20%
Weekly discussion questions	10%
Oral presentation	20%
Take home final	30%

Grading criteria:

Attendance and participation

We understand that graduate students occasionally have to miss class for field work or intensive lab work in addition to traditional excuses like illness. Please let us know in advance to the extent possible and accommodations will be made. If there are any questions about how participation will be graded, please discuss this with the instructors as early as possible in the semester so it will be as clear as possible.

Otherwise, students are expected to attend every class meeting; three total absences are allowed. Students will receive no credit if more than three unexcused absences occur. Students are expected to make at least one comment per session to achieve the full 20 percent for this portion of their grade.

Discussion leader

Each student is expected to lead a discussion based on the primary literature at least once (depending on the number of students) during the semester. This student will be responsible for synthesizing discussion questions from students and presenting the paper for the weekly discussion.

Discussion questions

Students should each prepare 1-2 questions that are meant to be discussed by the class so that we may better understand the week's idea. Broadly speaking, ideal questions

should be general and thought-provoking. Useful questions may involve comparison of the ideas in the *Origin of Species* to those in important modern works, as this may illuminate areas of progress or substantial disagreement. Given Darwin's Victorian writing style, questions may also force the class to decipher the meaning of important sections of the *Origin of Species*, or to consider the predictions made about topics which are currently areas of intense research today.

Oral presentations

Each student will be expected to develop an independent presentation on material closely related to the course topics. This presentation should synthesize at least 5 articles from the primary literature. Students are encouraged to consult the instructor prior to their presentation. Powerpoint or related format should be used, and presentations should be 15 minutes plus questions.

Take-home final

Students will be given a take home essay final which will be assigned the week before dead week and due the Wednesday of finals week. The final will consist of 5 questions, and students are expected to provide a 1-2 page answer for each question. Students may use any materials they wish to answer questions, but they may not consult with other students in the class when writing their final exam.

The grading scale will be:

90%+ = A	77-79 = B-	64-66 = D+
87-89 = A-	74-76 = C+	60-63 = D
84-86 = B+	70-73 = C	<60 = F
80-83 = B	67-69 = C-	

Attendance Policy. Students are expected to attend every class session. If you are unable to come to class for any reason, please let me know ahead of time if at all possible. Students with more than 3 absences will not receive credit for the course.

Students with Disabilities. Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center (Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. For more information contact a Disability Specialist: Pullman or WSU Online: 509-335-3417. http://accesscenter.wsu.edu, Access.Center@wsu.edu

Campus Safety and Emergencies. Washington State University is committed to enhancing the safety of the students, faculty, staff, and visitors. It is highly recommended that you review the Campus Safety Plan (http://safetyplan.wsu.edu/) and visit the Office of Emergency Management web site (http://oem.wsu.edu/) for a comprehensive listing of university policies, procedures, statistics, and information related to campus safety, emergency management, and the health and welfare of the campus community.

Academic Integrity. WSU is an institution that upholds the highest standards of academic integrity. **.** Students can work together on assignments, but are expected to hand in original work. Plagiarism or copying is considering cheating (for definitions of plagiarism, see the SBS webpage: http://sbs.wsu.edu/index2.html). It is strongly suggested that you read and understand these definitions. Any student caught cheating on any assignment will be given an F grade for the course and will be reported to the Office Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). It is strongly suggested that you read and understand these definitions. **Cheating on an exam or other assignment (including plagiarism) will result in a final grade of F for the entire course, will be reported to the Office of Student Affairs, and will result in additional disciplinary action by the University.**

Course Schedule

	Topic	***Origin of Species* Reading**
Week 1	Organizational meeting Student sign-up for weeks	An Historical Sketch Introduction
Week 2	Darwin and Genetics	Chapter I: Variation Under Domestication Chapter II: Variation Under Nature
Week 3	Natural Selection	Chapter III: Struggle for Existence Chapter IV: Natural Selection
Week 4	Environmental Effects	Chapter V: Laws of Variation
Week 5	Social Insects	Chapter VII: Instinct
Week 6	Difficulties	Chapter VI: Difficulties Of Theory
Week 7	Hybridization	Chapter VIII: Hybridism
Week 8	Paleontology	Chapter IX: On the Imperfection of the Geological Record
Week 9	NO CLASS	*Spring Break*
Week 10	Macroevolution	Chapter X: On the Geological Succession of Organic Beings
Week 11	Vicariance and Dispersal	Chapter XI: Geographical Distribution
Week 12	Islands	Chapter XII: Geographical Distribution (continued)
Week 13	Evo-Devo	Chapter XIII: Mutual Affinities of Organic Beings: Morphology, Embryology, Rudimentary Organs

		Student presentations; paper due
Week 14	Darwin's Impact	Chapter XIV: Recapitulation and Conclusion
Week 15		**Student presentations**