

Term Information

Effective Term Autumn 2018

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 Undergraduate
Course Number/Catalog 3310.02
Course Title Evolution (Hybrid Online)
Transcript Abbreviation Evolution
Course Description This course surveys the many processes that underlie biological evolution and illustrates the patterns they generate, with a focus on adaptation, types of selection, population genetics, species interactions and biodiversity. This course is presented in a hybrid online format.
Semester Credit Hours/Units Fixed: 4

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? Yes
Is any section of the course offered Greater or equal to 50% at a distance
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 Prereq: Biology 1114 or 1114H, or permission of instructor.
Exclusions Not open to students with credit for EEOB 400, EEOB 3310 or EEOB 3310.01
Electronically Enforced No

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 26.1303
Subsidy Level Baccalaureate Course
Intended Rank Sophomore, Junior

Requirement/Elective Designation

Required for this unit's degrees, majors, and/or minors

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

- Course goal: Understand how evolutionary biology is practiced
- Course goal: Understand the development of evolutionary thought
- Course goal: Understand the importance of phylogeny in evolutionary biology
- Course goal: Understand the processes that generate evolutionary change
- Course goal: Link evolutionary processes with the generation of diversity
- Learning objective: Students will be familiar with elements of the scientific process, including peer review, primary literature, and research seminars
- Learning objective: Students will be familiar with the research practices and resources used in modern evolutionary biology
- Learning objective: Students will be introduced to the history of biology as it relates to the development of evolutionary theory
- Learning objective: Students will be aware of the evidence for evolution and evolutionary change
- Learning objective: Students will understand how the phylogeny of organisms is determined and how phylogeny relates to the history of life on Earth.
- Learning objective: Students will understand how characters change through time in phylogenetic relationships (descent from a common ancestor with modification over time).
- Learning objective: Students will understand the role of variation, fitness, natural selection and adaptation
- Learning objective: Students will understand selection, including natural selection, sexual selection, and group selection
- Learning objective: Students will understand how randomness affects evolution, including the role of genetic drift and how neutral theory can explain evolutionary phenomena
- Learning objective: Students will understand species concepts and the factors that lead to speciation
- Learning objective: Students will understand adaptation as the outcome of selection
- Learning objective: Students will be introduced to the history of life on earth
- Learning objective: Students will be introduced to the role of evolutionary theory in conservation biology
- Learning objective: Students will be aware of how evolutionary theory elucidates human evolution

Content Topic List

- Variation, fitness, natural selection and adaptation
- Randomness and evolution: genetic drift and neutral theory
- Evolution of sex, sexual selection
- Group selection and sociality
- Species and speciation
- Phylogeny and the history of life on Earth
- Applications: conservation and human evolution

Sought Concurrence

No

Attachments

- Phase2-Submitted_Proposal.docx: Affordable Learning Exchange-funded grant proposal
(Other Supporting Documentation. Owner: Hamilton, Ian M)
- curriculum maps.xlsx: EEOB Curriculum Maps
(Other Supporting Documentation. Owner: Hamilton, Ian M)
- EEOB 3310 syllabus AU2017_USE.docx: Original syllabus
(Syllabus. Owner: Hamilton, Ian M)
- Evolution hybrid syllabus.pdf: Hybrid Online syllabus
(Syllabus. Owner: Hamilton, Ian M)
- EEOB 3310 Sabree.pdf: ASCTech checklist
(Other Supporting Documentation. Owner: Hamilton, Ian M)

Comments

- - Please remember to work with ASCTech (Mike Kaylor) and once that is done, upload the distance learning syllabus that he has reviewed/approved and his tech checklist in curriculum.osu.edu. See instructions here <https://asccas.osu.edu/distance-learning-courses>
- You probably would want to add something to the title of the course & its description (that will go in the course catalog) to show how .02 is different from .01. For example, "Evolution (hybrid online)"
- The old 3310 should be added as an exclusion. *(by Vankeerbergen, Bernadette Chantal on 12/28/2017 09:43 AM)*
- The proposed course incorporates a distance learning component to EEOB 3310, Evolution. EEOB 3310 without distance learning is planned to be available for offer as EEOB 3310.01. A course change proposal for EEOB 3310.01 will be submitted concurrently.

Differences between the existing course and the proposed EEOB 3310.02 include:

Change to 55 min/week of in-person and 110 min/week of online delivered lectures and 110 min/week of laboratory practice. The total credit hours (4) will not change.

67% of didactic lecture content will be delivered via Carmen course modules designed by instructors and 33% of didactic lecture content will be delivered in-person by instructors. All didactic lecture materials will be assessed in both online and in-class exams.

In-person lectures will be in one of four lecture sections of up to 60 students instead of 200+ students in a single lecture section.

One-hour recitation section is being replaced with a two-hour laboratory section *(by Hamilton, Ian M on 12/17/2017 01:58 PM)*

Workflow Information

| Status | User(s) | Date/Time | Step |
|--------------------|--|---------------------|------------------------|
| Submitted | Hamilton, Ian M | 12/17/2017 01:59 PM | Submitted for Approval |
| Approved | Hamilton, Ian M | 12/17/2017 01:59 PM | Unit Approval |
| Approved | Haddad, Deborah Moore | 12/17/2017 05:19 PM | College Approval |
| Revision Requested | Vankeerbergen, Bernadette Chantal | 12/28/2017 09:43 AM | ASCCAO Approval |
| Submitted | Hamilton, Ian M | 01/16/2018 11:32 AM | Submitted for Approval |
| Approved | Hamilton, Ian M | 01/16/2018 11:33 AM | Unit Approval |
| Approved | Haddad, Deborah Moore | 01/16/2018 12:06 PM | College Approval |
| Pending Approval | Nolen, Dawn Vankeerbergen, Bernadette Chantal Oldroyd, Shelby Quinn Hanlin, Deborah Kay Jenkins, Mary Ellen Bigler | 01/16/2018 12:06 PM | ASCCAO Approval |

EEOB 3310 / Evolution

Lectures: MWF 10:20AM – 11:15AM Jennings 001

Recitation: T-Th, various times Jennings 030 / Jennings 124

Instructors:

Dr. Zakee Sabree
490 Aronoff Laboratory
614-688-1590

sabree.8@osu.edu

Office Hours: Dr. Sabree:
Wednesdays 12-1 or by appointment

Dr. Bryan Carstens
482 Aronoff Laboratory
614-292-6587

carstens.12@osu.edu

Office Hours: TBA

Graduate Teaching Assistants (GTA):

Mael Glon glon.1@osu.edu

Natalie Hamilton hamilton.857@osu.edu

Naava Honer honer.4@osu.edu

Jamin Wieringa wieringa.3@osu.edu

Format of instruction. Lecture (3 contact hours/week) and recitation (1 contact hour/week)

Description of the course. This course surveys the many processes that underlie biological evolution and illustrates the patterns they generate, with a focus on adaptation, types of selection, population genetics, species interactions and biodiversity. Additionally, not only will successful students obtain a workable understanding of these concepts, but they will be equipped with basic research practices that include using primary literature databases and reading primary literature.

Required Materials:

Evolution, by Bergstrom and Dugatkin, 2nd edition Norton & Company, ISBN 978-0-393-93793-0

Course Structure:

We will meet MWF 10:20–11:15 as a large class in Jennings 001, and you will meet in smaller recitation sessions with your GTA; check Buckeyelink for the exact room number. You must attend the recitation section that you've been assigned to. Generally, MW will be used for lectures, and F will be used for active learning exercises and exams.

IMPORTANT DATES (subject to change):

| | |
|--|------------|
| First Class Meeting | 8/23 |
| Recitation Sections First Meeting | 8/29, 8/31 |
| 1st Mid-term Exam | 9/15 |
| 2nd Mid-term Exam | 10/11 |
| First Draft of Paper Due | 11/3 |

| | |
|---------------------------------|------|
| 3rd Mid-term Exam | 11/6 |
| Final Draft of Paper Due | 12/4 |
| 4th Mid-term Exam | 12/6 |

ASSIGNMENTS

| | |
|---|--|
| Mid-Term Exams 4 exams @ 100 + 5 bonus points each | 400 points (20+ possible extra) Extra points will be counted towards the calculation of your final grade in the class. |
| Term Paper Project -this is broken up into six supportive parts, each of which are graded, that culminate in the final paper | 150 points for assignments |
| Central Dogma Genetics Quizzes (in Carmen) | 96 points |
| Cell Cycle Quiz (in Carmen) | 64 points |
| In-class Activities (ICA) 10 ICAs @ 10 points per activity and lowest scored activity will be dropped | 90 points for assignments |
| Recitation Activities | 110 points |

TOTAL..... 910 pts

Topical Course Outline

- Week 1 History of Science, Natural Variation and the Contributions Evolutionary Biology
- 2 Population Genetics I
- 3 Population Genetics II
- 4 Sexual Selection, Levels of Selection and Quantitative Genetics
- 5 Phylobiogeography and Speciation
- 6 Phylogenetics
- 7 Molecular and genomic evolution
- 8 Cooperation and Conflict
- 9 Evolution and Development
- 10 Major Transitions and Macroevolution
- 11 Human Evolution
- 12 Senescence and Darwinian Medicine
- 13 Species Invasion Biology
- 14 Discerning the Evidence Behind Critiques of Evolutionary Biology

-Each topic will be covered by 165 min of required in-person contact with instructors for didactic lectures and/or guided discussion; and required readings that will be comprised of primary literature, review articles, and/or instructor notes will also be assigned

-Recitation activities will focus on allowing students to observe adaptation, natural selection and speciation *in silico*.

PEER GRADING: For many of the assignments in this class students will have the opportunity to grade each other's assignments. We believe that this can be a useful tool for student learning as it will challenge students to understand shared concepts from different perspectives. Rubrics and answer keys will be provided to assist you with accurately assessing the quality of your classmate's work. The peer review is mandatory and not completing the peer review for the assignments will result in loss of points for persons not completing them. TAs and instructors will be checking the quality of your peer reviews for accuracy and are at liberty to amend points given as needed. Academic misconduct will not be tolerated and we will not hesitate to take any and all actions in this regard if necessary.

MIDTERM EXAMS: Each exam will be 100 + bonus points. Although 100 points would be the maximum necessary to earn full points for the exam, you can earn additional points that will be added to your final cumulative point total for the course. None of the exams will be dropped from the calculation of your final grade.

Exam Format. Each exam will have 20+ multiple choice questions worth 3 points each (for a total of 60 points) and three short answer questions worth 15 points each (for a total of 45 points).

CLASS POLICIES:

Assignment Due Dates will be announced. For every day (or portion thereof) you are late, you will be penalized by 10%; no work will be accepted after the 4th day

Absence Policy: If you must miss class or recitation for a valid reason, please submit your explanation to the instructor/GTA. Official University absences must be validated by an appropriate official (e.g. Athletics Coach). For illness, please include a copy of your doctor's excuse. We will not allow make up work for unexcused absences.

Requests for grade changes will be accepted for five school days after grades are posted in Carmen, starting the day after the grade is posted. We will be happy to talk with you about your performance on assignments any time thereafter, but absolutely no grade changes will be made after that date.

Statement about 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: slids@osu.edu; 614-292-3307; slids.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Academic Misconduct. We expect every student to behave with high integrity, and we also expect every student to understand what actions might be construed as 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/>. If we suspect a student of such behavior, we will take vigorous action in response.

Letters of reference: We are sometimes asked to write letters of reference for graduate or professional schools. We are more than happy to do so, provided that the student has: (i) earned an A in the course, (ii) (s)he has participated in classroom discussions in a constructive manner, and (iii) (s)he has made it a point to visit one of us during office hours. These requirements ensure that we will write a good letter that will actually help you achieve your goals. We'll even use spell-check.

Statement on diversity: We are committed to promoting a welcoming climate for all students. We welcome suggestions, questions and comments about any element of this class, including issues relating to exchanges among students during course activities. Any conversations with us about diversity issues will be conducted with confidentiality, safety and respect and within university guidelines. For more information, see www.biosci.ohio-state.edu/~eeob/diversity

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

Student 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's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling [614-292-5766](tel: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](tel: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.

Sexual misconduct/relationship violence. Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at titleix@osu.edu



THE OHIO STATE UNIVERSITY

SYLLABUS: EEOB3310 EVOLUTION (HYBRID DISTANCE) AUTUMN 2018

Course overview

Instructor

Instructor: Zakee L. Sabree / Bryan Carstens

Email address: sabree.8@osu.edu / carstens.12@osu.edu

Phone number: 614-688-1590 (Sabree) / 614-292-6587 (Carstens)

Office hours are in-person: Wednesdays 12-1 or by appointment

Office locations: 490 Aronoff (Sabree) and 482 Aronoff (Carstens)

Course description

This course surveys the many processes that underlie biological evolution and illustrates the patterns they generate, with a focus on adaptation, types of selection, population genetics, species interactions and biodiversity. Additionally, not only will successful students obtain a workable understanding of these concepts, but they will be equipped with basic research practices that include using primary literature databases and reading primary literature.

This course will be taught both online and in-person, and students are required to attend both formats of instruction to earn a passing grade in the class.

Online instruction: Students will be assigned 2hrs of content per week, which will include lectures, quizzes and other active learning assignments.

In-person instruction: Students must attend the weekly 55 min discussion with their faculty instruction and participate in the weekly activities, which include small group discussion, writing substantive reflections and student/group presentations.

Laboratory activities: Students must attend the weekly two-hour evolution lab meeting and participate in the activities that include wet-lab and in-silico experimentation, group presentations and writing assignments.

Students will be graded based on their performance in online and in-person assessments that include quizzes, exams, writing assignments.

Course learning outcomes

By the end of this course...

- Students will be familiar with elements of the scientific process, including peer review, primary literature, and research seminars
- Students will be familiar with the research practices and resources used in modern evolutionary biology
- Students will be introduced to the history of biology as it relates to the development of evolutionary theory
- Students will be aware of the evidence for evolution and evolutionary change
- Students will understand how the phylogeny of organisms is determined and how phylogeny relates to the history of life on Earth.
- Students will understand how characters change through time in phylogenetic relationships (descent from a common ancestor with modification over time).
- Students will understand the role of variation, fitness, natural selection and adaptation
- Students will understand selection, including natural selection, sexual selection, and group selection
- Students will understand how randomness affects evolution, including the role of genetic drift and how neutral theory can explain evolutionary phenomena
- Students will understand species concepts and the factors that lead to speciation
- Students will understand adaptation as the outcome of selection
- Students will be introduced to the role of evolutionary theory in conservation biology
- Students will be aware of how evolutionary theory elucidates human evolution

Course materials

Required

Evolution 3310 Course Modules (electronic, on Carmen)

Evolution 3310 Lab Manual (electronic, on Carmen)

Optional materials

“Evolution” by Bergstrom and Dugatkin (print)

“Evolution” by Futuyma (print)

Course technology

For help with your password, university e-mail, Carmen, or any other technology issues, questions, or requests, contact the OSU IT Service Desk. Standard support hours are available at <https://ocio.osu.edu/help/hours>, and support for urgent issues is available 24x7.

- **Self-Service and Chat support:** <http://ocio.osu.edu/selfservice>
- **Phone:** 614-688-HELP (4357)

- Email: 8help@osu.edu
- TDD: 614-688-8743

Baseline technical skills necessary for online courses

- Basic computer and web-browsing skills
- Navigating Carmen

Technology skills necessary for this specific course

- CarmenConnect text, audio, and video chat
- Collaborating in CarmenWiki
- Recording a slide presentation with audio narration
- Recording, editing, and uploading video

Necessary equipment

- Computer: current Mac (OS X) or PC (Windows 7+) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed
- Microphone: built-in laptop or tablet mic or external microphone

Necessary software

- [Microsoft Office 365 ProPlus](#) All Ohio State students are now eligible for free Microsoft Office 365 ProPlus through Microsoft's Student Advantage program. Each student can install Office on five PCs or Macs, five tablets (Windows, iPad® and Android™) and five phones.
 - Students are able to access Word, Excel, PowerPoint, Outlook and other programs, depending on platform. Users will also receive 1 TB of OneDrive for Business storage.
 - Office 365 is installed within your BuckeyeMail account. Full instructions for downloading and installation can be found <https://ocio.osu.edu/kb04733>.
- PDF viewing software: Preview (Mac) or Adobe Acrobat (PC and Mac)

Grading and faculty response

Grades

| Assignment or category | Points |
|---|---------------------------------|
| Exams (125 points each x 2 exams) | 250 points (25% of total grade) |
| Online post-lecture activities (20 points each x 14 weeks) | 280 points (28% of total grade) |
| In-person lecture participation (15 points each x 14 weeks) | 210 points (21% of total grade) |
| Laboratory Activities (15 points each x 14 weeks) | 210 points (21% of total grade) |
| Laboratory Project | 50 points (5% of total grade) |
| Total | 1000 |

IMPORTANT DATES (subject to change):

| | |
|-----------------------------------|--------------------|
| First Class Meeting | 8/23 |
| Laboratory Sections First Meeting | 8/29, 8/31 |
| 1st Exam | 10/10 |
| 2nd Exam | 11/17 |
| 3rd Exam | During Finals Week |

Late assignments

Assignment Due Dates will be announced. For every day (or portion thereof) you are late, you will be penalized by 10%; no work will be accepted after the 4th day

Absence Policy. If you must miss class or recitation for a valid reason, please submit your explanation to the instructor/GTA. Official University absences must be validated by an appropriate official (e.g. Athletics Coach). For illness, please include a copy of your doctor's excuse. We will not allow make up work for unexcused absences.

Grading scale

93–100: A
 90–92.9: A-
 87–89.9: B+

83–86.9: B
80–82.9: B-
77–79.9: C+
73–76.9: C
70 –72.9: C-
67 –69.9: D+
60 –66.9: D
Below 60: E

Faculty feedback and response time

Remember that you can call **614-688-HELP** at any time if you have a technical problem.

Grading and feedback

For large weekly assignments, you can generally expect feedback within **7 days**.

E-mail

I will reply to e-mails within **24 hours, Monday-Friday**.

Discussion board

I will check and reply to messages in the discussion boards every **24 hours, Monday-Friday**

Attendance, participation, and discussions

Student participation requirements

Because this is a distance-education course, your attendance is based on your online activity and participation. The following is a summary of everyone's expected participation:

- **Logging in: AT LEAST TWO TIMES PER WEEK**
Several lectures and online activities *must* be completed by the student each week and we estimate that students will need to devote at least six hours/week to complete these activities, which include watching lectures, doing active learning activities (graded and ungraded quizzes), and completing readings and reflections.
Be sure you are logging in to the course in Carmen each week, including weeks with holidays or weeks with minimal online course activity. (During most weeks you will probably log in many times.) If you have a situation that might cause you to miss an entire week of class, discuss it with me *as soon as possible*.

- **Participating in weekly in-person discussion: ONCE A PER WEEK**
As participation, each week you can expect to add to class discussions of weekly topics and post at least one substantive reflection about the class discussion on the week's topics per week.
- **Office hours: OPTIONAL OR FLEXIBLE**
All live, scheduled events for the course, including my office hours, are optional. If you are required to discuss an assignment with me, please contact me at the beginning of the week if you need a time outside my scheduled office hours.

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. Informality (including an occasional emoticon) 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.)
- **Backing up your work:** Consider composing your academic posts in a word processor, where you can save your work, and then copying into the Carmen discussion.

Other course policies

Academic integrity policy

Policies for this online course

- **Quizzes and exams:** You must complete the midterm and final exams yourself, without any external help or communication. Weekly quizzes are included as self-checks without points attached.
- **Written assignments:** Your written assignments, including discussion posts, should be your own original work. In formal assignments, you should follow **APA** style to cite the ideas and words of your research sources. You are encouraged to ask a trusted person to proofread your assignments before you turn them in--but no one else should revise or rewrite your work.

- **Reusing past work:** In general, you are prohibited in university courses from turning in work from a past class to your current class, even if you modify it. If you want to build on past research or revisit a topic you've explored in previous courses, please discuss the situation with me.
- **Falsifying research or results:** All research you will conduct in this course is intended to be a learning experience; you should never feel tempted to make your results or your library research look more successful than it was.
- **Collaboration and informal peer-review:** The course includes many opportunities for formal collaboration with your classmates. While study groups and peer-review of major written projects is encouraged, remember that comparing answers on a quiz or assignment is not permitted. If you're unsure about a particular situation, please feel free just to ask ahead of time.
- **Group projects:** This course includes group projects, which can be stressful for students when it comes to dividing work, taking credit, and receiving grades and feedback. I have attempted to make the guidelines for group work as clear as possible for each activity and assignment, but please let me know if you have any questions.
- **Letters of reference:** We are sometimes asked to write letters of reference for graduate or professional schools. We are more than happy to do so, provided that the student has: (i) earned an A in the course, (ii) (s)he has participated in classroom discussions in a constructive manner, and (iii) (s)he has made it a point to visit one of us during office hours. These requirements ensure that we will write a good letter that will actually help you achieve your goals. We'll even use spell-check.
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Ohio State's academic integrity policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's *Code of Student Conduct*, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the University, or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's *Code of Student Conduct* is never considered an "excuse" for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- The Committee on Academic Misconduct web pages ([COAM Home](#))
- *Ten Suggestions for Preserving Academic Integrity* ([Ten Suggestions](#))
- *Eight Cardinal Rules of Academic Integrity* (www.northwestern.edu/uacc/8cards.htm)

Copyright disclaimer

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Trigger warning

Some contents of this course may involve media that may be triggering to some students due to descriptions of and/or scenes depicting acts of violence, acts of war, or sexual violence and its aftermath. If needed, please take care of yourself while watching/reading this material (leaving classroom to take a water/bathroom break, debriefing with a friend, contacting a Sexual Violence Support Coordinator at 614-292-1111, or Counseling and Consultation Services at 614-292-5766, and contacting the instructor if needed). Expectations are that we all will be respectful of our classmates while consuming this media and that we will create a safe space for each other. Failure to show respect to each other may result in dismissal from the class.

Statement on title IX

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at titleix@osu.edu

Accessibility accommodations for students with disabilities

Requesting accommodations

If you would like to request academic accommodations based on the impact of a disability qualified under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, contact your instructor privately as soon as possible to discuss your specific needs. Discussions are confidential.

In addition to contacting the instructor, please contact the Student Life Disability Services at [614-292-3307](tel:614-292-3307) or ods@osu.edu to register for services and/or to coordinate any accommodations you might need in your courses at The Ohio State University.

Go to <http://ods.osu.edu> for more information.

Accessibility of course technology

This online course requires use of Carmen (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- [Carmen \(Canvas\) accessibility](#)
- Streaming audio and video
- Synchronous course tools

Your mental health!

A recent American College Health Survey found stress, sleep problems, anxiety, depression, interpersonal concerns, death of a significant other and alcohol use among the top ten health impediments to academic performance. Students experiencing personal problems or situational crises during the quarter are encouraged to contact the College of Pharmacy Office of Student Services in room 150 Parks Hall (614-292-5001) OR OSU Counseling and Consultation Services (614-292-5766) for assistance, support and advocacy. This service is free and confidential.



Course schedule (tentative)

| WEEK | AUTUMN SEMESTER | Holidays + Events | Formula Bar | LECTURE TOPIC | Online Assignments | In-person Assignments | Lab Activities |
|------|----------------------------|---|-------------|---|--|-----------------------|--|
| 1 | Tuesday, August 21, 2018 | | | History of Science, Natural Variation and the Contributions of Evolutionary Biology | Lectures, Quizzes, Discussion Reflection | Discussion | Fruit Fly lab #1 |
| 2 | Monday, August 27, 2018 | | | Population Genetics I | Lectures, Quizzes, Discussion Reflection | Small-group activity | Fruit Fly lab #2 |
| 3 | Monday, September 3, 2018 | Labor Day, 9/3/18 | | Population Genetics II and Quantitative Genetics | Lectures, Quizzes, Discussion Reflection | Small-group activity | Fruit Fly lab #3 |
| 4 | Monday, September 10, 2018 | | | Levels of Selection and Molecular and genomic evolution | Lectures, Quizzes, Discussion Reflection | Discussion | Auxotrophy Selection Lab |
| 5 | Monday, September 17, 2018 | | | Phylogenetics (nuts and bolts introduction) and Biogeography | Lectures, Quizzes, Discussion Reflection | Small-group activity | Building Phylogenies Lab |
| 6 | Monday, September 24, 2018 | | | Species Invasion Biology | Lectures, Quizzes, Discussion Reflection | Journal Club | Modeling Species Invasions In-silico Lab |
| 7 | Monday, October 1, 2018 | | | Speciation, adaptive radiations | Lectures, Quizzes, Discussion Reflection | Journal Club | AVIDA Lab #1 |
| 8 | Monday, October 8, 2018 | 10/9-10/10 Midterm Exams; 10/11-10/12 Autumn Break | | | | | |
| 9 | Monday, October 15, 2018 | | | Evolution of Sex and sexual selection | Lectures, Quizzes, Discussion Reflection | Discussion | AVIDA Lab #2 |
| 10 | Monday, October 22, 2018 | | | Cooperation and Conflict | Lectures, Quizzes, Discussion Reflection | Small-group activity | Competition Lab |
| 11 | Monday, October 29, 2018 | | | Evolution and Development | Lectures, Quizzes, Discussion Reflection | Discussion | AVIDA Lab #3 |
| 12 | Monday, November 5, 2018 | | | Major Transitions and Macroevolution | Lectures, Quizzes, Discussion Reflection | Discussion | Scientific Communication Lab |
| 13 | Monday, November 12, 2018 | 11/12 Veterans Day | | Biodiversity and Extinction | Lectures, Quizzes, Discussion Reflection | Journal Club | Working on Group Presentations |
| 14 | Monday, November 19, 2018 | 11/21-11/23 Thanksgiving and Columbus Day observation | | | | | |
| 15 | Monday, November 26, 2018 | | | Human Evolution and Society: Anthropological Evidence, Senescence, Darwinian Medicine, Origin of life | Lectures, Quizzes, Discussion Reflection | Discussion | Group Presentations |

Project Overview

Project Title INCREASING ACCESS AND ENGAGEMENT IN EVOLUTIONARY BIOLOGY

Project Abstract

The EEOB 3310-Evolution course is core to several OSU life sciences majors and it surveys of the discovery and study of biological evolution, including its history and contributions to health, agriculture, commerce, society and the environment. As >400 students enroll in this course in autumn and spring semesters combined, this course has the potential to have enormous impact on many future professionals. The current format of the course relies upon an expensive textbook (\$122) and provides minimal faculty-student engagement (i.e. lectures to >200 students, 3-times-per-week). The course redesign will develop conceptual and content knowledge thru increased opportunities for faculty-student/student-student interactions that provide verbal, visual, and mechanical engagement with the material. Furthermore, the course will leverage OSU investments (Canvas, library collections and periodicals) to deliver a familiar, omniplatform experience at no additional costs, and the modular design will allow most of EEOB faculty to teach the course.

Savings

Current major cost: \$122 textbook

--200 students per semester = \$24,400/semester

-2 semesters = \$48,800

Support Team

Core Instructors

Zakee L. Sabree (Project Lead), Asst. Prof, EEOB

Bryan Carstens, Asso. Prof, EEOB

Andrea Wolfe, Asso. Prof, EEOB

Allison Bennett (Spring 2019), Asst. Prof, EEOB

Instructional Support

Barbara Shardy, EEOB, Laboratory Supervisor

Sue Ellen Dehority, EEOB, Academic Advisor and Transfer Credit Coordinator

Katherine O'Brien, EEOB, Staff Employee/Postdoc, MBD curriculum designer

Ian Hamilton, EEOB, Asso. Prof., Curriculum Committee Chair

Transformation and Impact

Project Tasks

1) Assembling Existing Content from Multiple Sources

-We will use library collections and periodicals to generate the primary content information that students will access via Carmen and other OSU online instructional delivery methods.

2) Creating Audio/Video Media

-EEOB instructors will generate interactive lectures that will be a part of the formal/primary instruction

3) Creating Canvas Modules, Course Materials

-Instructional materials (i.e. video lectures, assembled readings, and assessments) will be organized in thematic modules in a dedicated Canvas course

4) Redesigning Your Course

-Faculty-student contact time scheduling and a change from recitation to lab section are among the modifications that will necessitate a course redesign and approval

Before and After

CURRENT EEOB 3310 COURSE

-Three hours of didactic instruction per week are provided to up to 220 students by a single EEOB faculty person. A single section of this is currently available.

-One hour of recitation per week is provided that includes minimal active learning opportunities. Thirteen sections with a max enrollment of 18 students per section are available.

REDESIGN

-Two hours/week of formal didactic instruction with pre- and post-assessments will be delivered via video-recorded EEOB instructor-given lectures and interactive learning objects within Canvas modules. Required by all students.

-One hour of lecture/discussion will be provided by EEOB faculty person each week to a 60 students max. section. Four sections will be available for students. Two EEOB faculty persons will each lead two sections.

-Two laboratory hours per week will be provided by EEOB TAs to perform relevant evolutionary biology wet lab experiments and in silico modeling activities. Eight laboratory sections (30 students per section max.) will be provided.

DIFFERENCES

-Improved leveraging of ODEE expertise to serve a large student population

-Learn-at-your-own-pace approach for students acquiring primary instruction via Canvas

-Faculty and peer reinforcement of primary instruction in smaller lecture/discussion sections

-Further instruction reinforcement through guided wet lab and in silico activities

Accessibility

Although we do not have an explicit accessibility plan in place, we enthusiastically welcome working with ODEE in this regard.

Additionally, information delivery and assessments will reflect an awareness of different learning abilities, especially many of those encountered by the instructors when teaching this class in its current form.

Mission

As affordability and reduction in indebtedness are highlighted goals under President Drake's 2020 Vision, our course redesign aligns well with these through 1) eliminating expensive textbook and related costs and 2) leveraging OSU-ODEE distance learning resources for rich, omnplatform content delivery. Additionally, as we are implementing 'learn-at-your-own-pace' approaches coupled with a ~70% faculty-student ratio

reduction (1:200 to 1:60), we are providing students with both educative flexibility and increased contact with eminent scholars in evolutionary biology; through these processes we will also help OSU achieve being a leader in enrolling and retaining talented students from diverse backgrounds.

Project Planning

Requirements and Challenges

We will need the resources to generate original videos of lectures given by the instructors. Additionally, we will need time with an ODEE genius to help us with developing interactive widgets (image/video overlays) and troubleshooting omnplatform (i.e. laptop, smartphone, tablet) content delivery. Further, since we want to make this course accessible for additional EEOB faculty across all of our campuses to use, either in part or fully, we would also request some training in using Canvas for EEOB faculty. Finally, if we receive the ALX grant, we will hold planning meetings thru spring 2018 and will want to do all of our filming and online content development over 1-2 summer weeks. As a result, a few days of summer ODP will be requested for EEOB instructors and staff over SU2018 and SU2019 to support content development, data analysis and maintenance.

Budget Timeline

TIMELINE (number of expected meetings on the topics are parenthesized)

Fall 2017 - Organizational meetings (2), course room reservation and scheduling, course approval

Jan-Mar 2018 - Curriculum review and planning meetings (2)

April 2018 - Finalize video production schedule and Canvas training (2)

May 2018 - Video production

June 2018 - Canvas course design

July 2018 - Piloting course material with EEOB undergraduates and revisions

AU 2018 / SP 2019 - implementation

May-June 2019 - Data analysis and review

July 2019 - Course maintenance

AU 2019 / SP 2020 - implementation

Implementation

Implementation Date Autumn 2018

Measuring Success

QUANTITATIVE MEASURES

EEOB 3310 course learning objectives-aligned questions will be integrated into pre- and post-online content assessments to measure student progress. We will use assessment tools within Canvas and through Qualtrics (via OSU license) to collect these data.

Faculty in OSU Department of Education (Kathy Malone, Karen Irving and Andria Stammen) will be consulted on analytical approaches.

QUALITATIVE MEASURES

Students will be asked to reflect on their experience with the course in short narratives

at the end of the course and in their SEI.

OTHER MEASURES OF SUCCESS

- the course will be available for most of our evolutionary biology faculty to teach with minimal prep time
- the course will be available for use by branch campus members as well
- provide a useful model for omniplatform and small group delivery of biological science concepts and content to large student populations

Sustainability

Updates and Maintenance

We expect that the content that will be developed in summer 2018 will not require significant maintenance before summer 2020, if then. We will be examining how student learning is impacted by the redesigned course over the 2018-2019 and 2019-2020 academic years, and we will use these data to inform future revisions.

Once the core instructional staff are proficient in using Canvas and associated ODEE content delivery resources, we expect to be able to continue to maintain the course materials and make well-informed requests for assistance from ODEE when necessary.

Faculty Development

The current and redesigned course will be taught by multiple EEOB faculty. A fundamental part of the redesign is that the content (i.e interactive online lectures with assessments, and lab activities) will be modular, each with clearly defined learning goals, and developed by all of the faculty that are currently teaching this course. As most of the content will be delivered online, many of our faculty will require some training in using Canvas to build user confidence and drastically reduce implementation issues

Arts and Sciences Distance Learning Course Component Technical Review Checklist

Course: EEOB 3310

Instructor: Sabree/Carstens

Summary: Evolution

| Standard - Course Technology | Yes | Yes with Revisions | No | Feedback/ Recomm. |
|---|-----|--------------------|----|---|
| 6.1 The tools used in the course support the learning objectives and competencies. | X | | | Carmen, CarmenConnect, CarmenWiki, Office 365 |
| 6.2 Course tools promote learner engagement and active learning. | X | | | Mandatory login to the site per week (2) and mandatory posts in the forum (1) per week effectively engage students. |
| 6.3 Technologies required in the course are readily obtainable. | X | | | All materials are either offered by OSU site license at no charge or are easily obtainable for no charge. |
| 6.4 The course technologies are current. | X | | | All technologies are up to date with the exception of listing Carmen (Desire2Learn). |
| 6.5 Links are provided to privacy policies for all external tools required in the course. | X | | | No third party applications are used that require a unique login. |
| Standard - Learner Support | | | | |
| 7.1 The course instructions articulate or link to a clear description of the technical support offered and how to access it. | X | | | Links for support via various Help services are provided. |
| 7.2 Course instructions articulate or link to the institution's accessibility policies and services. | X | | | a |
| 7.3 Course instructions articulate or link to an explanation of how the institution's academic support services and resources can help learners succeed in the course and how learners can obtain them. | X | | | b |
| 7.4 Course instructions articulate or link to an explanation of how the institution's student services and resources can help learners succeed and how learners can obtain them. | X | | | c |
| Standard – Accessibility and Usability | | | | |
| 8.1 Course navigation facilitates ease of use. | X | | | Recommend using the Carmen Distance Learning "Master Course" template developed by ODEE and available in the Canvas Commons to provide student-users with a consistent user experience in terms of navigation and access to course content. |
| 8.2 Information is provided about the accessibility of all technologies required in the course. | X | | | Info is provided that clearly spells out how to obtain accessibility details from 3 rd party applications. |
| 8.3 The course provides alternative means of access to course materials in formats that meet the needs of diverse learners. | X | | | Recommend that resources be developed to address any requests for alternative means of access to course materials. |
| 8.4 The course design facilitates readability | X | | | Recommend using the Carmen Distance Learning "Master Course" template developed by ODEE and available in the Canvas |

| | | | | |
|---|---|--|--|--|
| | | | | Commons to provide student-users with a consistent user experience in terms of navigation and access to course content. |
| 8.5 Course multimedia facilitate ease of use. | X | | | All assignments and activities that use the Carmen LMS with embedded multimedia facilitates ease of use. All other multimedia resources facilitate ease of use by being available through a standard web browser |

Reviewer Information

- Date reviewed: 1/11/18
- Reviewed by: Ian Anderson

Notes: Please consider adding the following:

- **Tool that will be used to host online for Office Hours under the office hours list on page 1.**
- **Dates and assignments as they pertain to course materials listed clearly under the course schedule section.**

^aThe following statement about disability services (recommended 16 point font):
 Students with disabilities (including mental health, chronic or temporary medical conditions) that have been certified by the Office of Student Life Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office of Student Life Disability Services is located in 098 Baker Hall, 113 W. 12th Avenue; telephone 614- 292-3307, slds@osu.edu; slds.osu.edu.

^bAdd to the syllabus this link with an overview and contact information for the student academic services offered on the OSU main campus.
<http://advising.osu.edu/welcome.shtml>

^cAdd to the syllabus this link with an overview and contact information for student services offered on the OSU main campus. <http://ssc.osu.edu>. Also, consider including this link in the “Other Course Policies” section of the syllabus.