Term Information

Effective Term	Autumn 2026

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	3310.03
Course Title	Evolution
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.
Semester Credit Hours/Units	Fixed: 4

Offering Information

Length Of Course	14 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	Lima, Mansfield, Marion, Newark

Prerequisites and Exclusions

Prerequisites/Corequisites	Biology 1114 or equivalent
Exclusions	
Electronically Enforced	Yes

Cross-Listings

Cross-Listings	

Subject/CIP Code

Subject/CIP Code	26.0701
Subsidy Level	Baccalaureate Course
Intended Rank	Sophomore, Junior, Senior

Requirement/Elective Designation

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

Course Details

Course goals or learning objectives/outcomes

- 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

Content Topic List

- Overview of evolutionary biology, History of evolutionary biology, Natural selection, Phylogeny, Systematics, Inheritance and genetic variation, Population genetics, Genetic Drift, Evolution and multiple loci, Genome evolution
- Origin and evolution of early life, Major transitions, Evolution and development, Species & speciation, Extinction and evolutionary trends, Sexual selection, Sociality, Coevolution, Human evolution, Evolution and medicine

Sought Concurrence

No

Attachments

- EEOB 3310.03 syllabus.docx: syllabus

  (Syllabus. Owner: Freudenstein,John Vincent)
- EEOB Curriculum Maps 2025.xlsx: EEOB curriculum map

  (Other Supporting Documentation. Owner: Freudenstein,John Vincent)

Comments

- EEOB currently offers 3310 in different versions, one of which is separate lecture+recitation and lab courses. The recitation is important on the Columbus campus because in a 150+ student lecture, there is a little opportunity for questions and discussion of topics, whereas on the regional campuses, with much smaller enrollments in the course, the recitation becomes superfluous since there is much more opportunity for interaction with the instructor. Regional campus students are hesitant to enroll in the Columbus pattern (at 5 credits total) and would rather have the option to achieve the same learning goals at 4 credits. This especially relevant now to the Marion campus where we offer the PHP Biology major and students need to have three lab courses. *(by Freudenstein,John Vincent on 12/31/2025 03:00 PM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Freudenstein,John Vincent	12/31/2025 03:01 PM	Submitted for Approval
Approved	Freudenstein,John Vincent	12/31/2025 03:01 PM	Unit Approval
Approved	Vankeerbergen,Bernadette Chantal	01/19/2026 06:34 PM	College Approval
Pending Approval	Jenkins,Mary Ellen Bigler Neff,Jennifer Vankeerbergen,Bernadette Chantal Wade,Macy Joy Steele,Rachel Lea	01/19/2026 06:34 PM	ASCCAO Approval

EEOB 3310.03
Evolution

Lecturer:

Email:
Office:
Office hours:

Class meeting schedule:

Lecture: Twice weekly for 80 minutes
Lab: Weekly for 120 minutes

Prerequisites: BIOL 1114

Required Textbook: Evolution, by Bergstrom and Dugatkin, 3rd edition
Norton & Company, ISBN 1324033711

Credit Hours and Work Expectation:
This is a 4-credit-hour course. According to Ohio State policy, students should expect around 4 hours per week of time spent on direct instruction in addition to 8 hours of homework to receive a grade of C average. ASC Honors provides a guide to scheduling and study expectations.

Course Description: EEOB 3310.03 addresses basic conceptual issues and processes in evolution with an emphasis on the ecological basis of adaptation and consequences of natural selection.

Course Goal	Learning Objective
A. Understand how evolutionary biology is practiced	I. Students will be familiar with elements of the scientific process, including peer review, primary literature, and research seminars
	II. Students will be familiar with the research practices and resources used in modern evolutionary biology
B. Understand the development of evolutionary thought	I. Students will be introduced to the history of biology as it relates to the development of evolutionary theory
	II. Students will be aware of the evidence for evolution and evolutionary change
C. Understand the importance of phylogeny in evolutionary biology	I. Students will understand how the phylogeny of organisms is determined and how phylogeny relates to the history of life on Earth
	II. Students will understand how characters change through time in phylogenetic relationships (decent from a common ancestor with modification over time)
D. Understand the processes that generate evolutionary change	I. Students will understand the role of variation, fitness, natural selection and adaptation
	II. Students will understand selection, including natural selection, sexual selection, and group selection.
	III. Students will understand how randomness affects evolution, including the role of genetic drift and how neutral theory can explain evolutionary phenomena.
	IV. Students will gain a basic understanding of population genetics

E. Link evolutionary processes with the generation of diversity	I. Students will understand species concepts and the factors that lead to speciation
	II. Students will understand adaptation as the outcome of selection
	III. Students will be introduced to the history of life on earth
	IV. Students will be introduced to the role of evolutionary theory in conservation biology
	V. Students will be aware of how evolutionary theory elucidates human evolution.

Grading and Evaluation:

Graded assignments may come in three forms, and students should note the expectations for each in the descriptions of our class assignments below:

- Independent Work (I): Strictly non-collaborative, original-individual work. You may discuss this assignment only with your instructor. Discussions with other individuals, either in person or electronically, are strictly prohibited and constitute academic misconduct.
- Required Collaboration (RC): An explicit expectation for collaboration among students either in-class or outside (i.e., group work).
- Optional Collaboration (OC): Students are permitted, but not required, to discuss the assignment or ideas with each other. However, all submitted work must be one's original and individual creation.

Assignment	Points	Assignment type
Welcome survey	5	I
Pre-quizzes (3 x 10 pts)	30	I
Population genetics pre-quizzes (2 x 10 pts)	20	I
In-class quizzes and participation (23 x 5 pts)	115	I, OC
Midterm exams (3 x 100 pts)	300	I
Final exam	150	I
Lab reports (4 x 60 pts)	240	RC
Lab group accountability survey (4 x 15 pts)	60	
Population genetics activities (2 x 30 pts)	60	RC
Pop gen group accountability surveys (2 x 10 pts)	20	
Total	1000	

Pre-quizzes, Population genetics pre-quizzes (10 points each): Student understanding of prerequisite course material on cell structure, molecular genetics and population genetics will be evaluated to identify knowledge gaps. Students have the opportunity to resubmit pre-quizzes until they have mastered the material.

In-class quizzes and participation (5 points each): During most class periods, there will be in-class participation activities, including individual quizzes, group quizzes, and group activities. To receive full credit, students must be present, and you must participate fully in the activity. Quizzes can be at any time throughout the lecture period. Students who arrive

late or leave class early without an excused absence will not be given extra time to complete their quizzes.

Midterm exams (100 points each): Student understanding of the content will be assessed through four summative in-class exams consisting of multiple-choice and short answer questions. Students' lowest midterm score will be dropped.

Final Exam (150 points): Student understanding of the content will be assessed through a cumulative in-class exam consisting of multiple-choice and short answer questions.

Lab reports, Lab group accountability survey (60 + 15 points each): Students will demonstrate their understanding of the scientific process and principles of evolution by presenting and analyzing the results of their laboratory activity. Each of the four lab activities generates original data to test an evolutionary hypothesis. Lab activities support student learning of data analysis and technology-based skills relevant to evolutionary biology. Each of the four lab activities will span multiple weeks. A template for lab report content and format, and a rubric for evaluating lab reports will be provided. To ensure student contribution to each laboratory activity, after each lab, students evaluate the participation of their group members. If the lab group accountability survey indicates that a student is not contributing to the success of their group, the offending member or members can receive up a point deduction of up to 15 points.

Population genetics activities, Population genetics group accountability survey (30 + 10 points each): Students will work in groups to complete simulations and problem sets addressing different population genetic topics. These activities generate original data to test evolutionary hypotheses. Population genetics activities support student learning of data analysis and technology-based skills relevant to evolutionary biology. Population genetics activities will be submitted at the end of the lab period. To ensure student contribution to each activity, students evaluate the participation of their group members. If the population genetics group accountability survey indicates that a student is not contributing to the success of their group, the offending member or members can receive up a point deduction of up to 10 points.

Final Grades:
Your final grade will be based on the percentage of the 1000 points that you earn during the semester, as indicated below. Please note that the course is not graded on a curve and Carmen does not round averages up to the nearest percentage point, so 92.1% and 92.9% both earn the grade of A-.

A	A-	B+	B	B-	C+	C	C-	D+	D	E
93 – 100%	90 – 92.9%	87 – 89.9%	83 – 86.9%	80 – 82.9%	77 – 79.9%	73 – 76.9%	70 – 72.9%	67 – 69.9%	60 – 66.9%	≤ 59.9%

Posting of Grades:
All grades will be posted on Carmen. After grades are posted you have 10 working days to challenge any grade or inquire regarding an unposted or missing grade. **After that time, grades are final.** To challenge or inquire about a missing grade, contact your instructor.

Late Assignments:
All assignments are due on the date and time described in the course schedule. Late work will not be accepted except in rare (and documentable) circumstances.

Absences:
If you are unable to take an exam or complete an assignment, please contact your instructor within 24 hours of the missed class period in which the exam was taken. Valid excuses are limited to problems that are beyond the student's control, such as illness, military duty, intercollegiate athletic or academic activities, funerals, etc. Scheduled absence due to a personal problem will be considered, in advance, on an individual basis. In all instances, documentation supporting the excused absence will be required. If an absence is excused, quiz and discussion participation scores will be pro-rated, rather than made up. Make-ups for missed exams may be in a different format than the scheduled exam.

Disability Services:
The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let the course instructor know immediately so that we can privately discuss options. To establish reasonable accommodations, we may request that you register with Student Life Disability Services at https://sierra.accessiblelearning.com/OSU/ApplicationStudent.aspx. After registration, make arrangements with the Office of Disability Services as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. ODS contact information: marionds@osu.edu; 740-725-6247; https://osumarion.osu.edu/academics/academic-support-services/disability-services.html; 128 Maynard Hall, 1461 Mount Vernon Avenue, Marion.

Syllabus statements:
Please consult the Office of Undergraduate Education's Syllabus Policies & Statements webpage for updated information about syllabus policies and statements: https://ugeducation.osu.edu/academics/syllabus-policies-statements

Religious Accommodations:
Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement and the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.
If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the Office of Institutional Equity.
Policy: Religious Holidays, Holy Days and Observances

Weather or Other Short-Term Closing:
If a weather emergency affects the Ohio State Marion campus, please check the Carmen Canvas page and your emails for instructions about what to do. Please note that Ohio State Marion does not automatically shut down when local K-12 school systems close.

Course technology:
The OSU Marion Media Lab will be available Monday through Friday from 8:00am to 5:00pm for regular computing and media needs. If you need in-person help session on certain app or software program, make a request via email and the appointment will be arranged in the Media Lab (MR281). Media equipment services will be available by request. Call Marion Help-Desk at (740) 725–6329 for any technical request and issue on classroom or office computers, iPads, network and Email. You may contact IT technicians directly via Email to Bryan Sickmiller (sickmiller.2@osu.edu) and Travis Elkins (elkins.66@osu.edu). Call 8-HELP (614) 688-4357 for any tech issue when campus technician is not available.

CarmenCanvas

- CarmenCanvas, Ohio State's Learning Management System, will be used to host materials and activities throughout this course. To access Carmen, visit Carmen.osu.edu. Log in to Carmen using your name.# and password. If you have not setup a name.# and password, visit my.osu.edu.
- For CarmenCanvas help call Joe Zhou at 740 725 6385 or email zhou.134@osu.edu.

- If you need additional services to use CarmenCanvas, please request accommodations with your instructor. Consult this Carmen accessibility page for more information.

CarmenZoom

- Additional office hours or lectures on weather closure days may be held through Ohio State's conferencing platform, CarmenZoom.
- Please consult the CarmenZoom help guide, or Joe Zhou at 740 725 6385 or Email zhou.134@osu.edu for assistance with CarmenZoom.

TurnItIn

- Students at The Ohio State University are accountable for the integrity of the work they submit. Therefore, you should be familiar with the guidelines provided by the Committee on Academic Misconduct (COAM) and Section A of OSU's Code of Student Conduct in order to meet the academic expectations concerning appropriate documentation of sources. In addition, OSU has made TurnItIn, a learning tool and plagiarism prevention system, available to instructors. For this class, you will submit your papers to TurnItIn from Carmen. When grading your work, I will interpret the originality report, following Section A of OSU's Code of Student Conduct as appropriate. For more information about TurnItIn, please see the vendor's guide for students. Note that submitted final papers become part of the OSU database.
- Please know that I view TurnItIn first and foremost as a teaching tool to make you a better writer. You will see in your individual originality reports exactly what the instructors see. We WANT you to look at this report as soon as you submit your assignments. If you see an issue, please correct it right away, before we start grading the assignment. You can resubmit without penalty as many times as you want prior to the established due date for any assignment. After the due date, the late policy is in effect.

Grievances and Solving Problems:
According to University Policies, if you have a problem with this class, you should seek to resolve the grievance concerning a grade or academic practice by speaking first with the instructor or professor. Then, if necessary, take your case to the associate dean.

Building Emergency Action Plan:
Each building on campus has a Building Emergency Action Plan (BEAP) outlining that specific building's specific procedures to be followed in the event of a range of emergency situations, including fire, weather, terrorism, chemical spills, etc. It is the role of every Buckeye to help keep each other safe and to be aware of these procedures. You can find all of the campus BEAPs at https://dps.osu.edu/beap.

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 at titleix@osu.edu.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct:
The Ohio State University affirms the importance and value of diversity of people and ideas. We believe in creating equitable research opportunities for all students and to providing programs and curricula that allow our students to understand critical societal challenges from diverse perspectives and aspire to use research to promote sustainable solutions for all. We are committed to maintaining an inclusive community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among all members; and encourages each individual to strive to reach their own potential. The Ohio State University does not discriminate on the basis of age, ancestry, color, disability, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, race, religion, sex, gender, sexual orientation, pregnancy, protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. (To learn more about diversity, equity, and inclusion and for opportunities to get involved, please visit: **https://odi.osu.edu/** or **https://cbsc.osu.edu**)

Your instructor is committed to promoting a welcoming climate for all students. Please come see your instructor if you are concerned about civil discourse in the course and in your exchanges with other students as a part of class activities. Any conversations with will be conducted with confidentiality, safety and respect and within university guidelines.

Intellectual Diversity:
Ohio State is committed to fostering a culture of open inquiry and intellectual diversity within the classroom. This course will cover a range of information and may include discussions or debates about controversial issues, beliefs, or policies. Any such discussions and debates are intended to support understanding of the approved curriculum and relevant course objectives rather than promote any specific point of view. Students will be assessed on principles applicable to the field of study and the content covered in the course. Preparing students for citizenship includes helping them develop critical thinking skills that will allow them to reach their own conclusions regarding complex or controversial matters.

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 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/. We will adhere to this policy.

- **Quizzes and exams**: You must complete individual quizzes, midterms and the final exam yourself, without communication with other humans.
- **Written assignments**: Your written assignments should be your own original 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. Negative results are valid results! You should never fabricate or modify data to support your research hypothesis.
- **Collaboration**: While study groups are encouraged, remember that comparing answers on an individual quiz or assignment is not permitted. If you're unsure about a particular situation, please feel free to ask your instructor ahead of time.
- **Artificial intelligence**: Unless otherwise specified for a particular assignment, use of AI-generated materials for course submissions is not permitted.
- **Technology and testing**: Use of any technology during a closed-book quiz or exam (including but not limited to cell phones, smart watches, headphones, electronic dictionaries, etc.) is strictly prohibited.

Academic Success Center:
The Academic Success Center (ASC) offers tutoring services (at no additional cost to normal tuition) to assist OSU student learning. The Center consists of three parts: Math Lab, STEM Center, and Writing Center, that each provide professional tutoring help on a drop-in and appointment basis. The writing and math centers are located in MR 216 and the STEM enrichment center is in MSE 210B. Additionally, if you would like to submit a request for assistance in a subject outside these disciplines, please submit an online application for a tutor here. For the most up-to-date information regarding all aspects of the center please visit our website (https://u.osu.edu/marionasc/,), or email AcademicSuccess@osu.edu.
The STEM Center and Dr. Tiffiny Rye-McCurdy (rye-mccurdy.1@osu.edu) offers assistance with courses in science and engineering. The center also aims to continue offering tutoring by appointment for geography, physics, and engineering courses. Please visit the STEM Center website (https://u.osu.edu/stemcenter/) for further details and information.

Crisis Assistance:
If you or someone you know are in crisis and need to talk to someone, please contact Leslie Beary at the Office of Counseling & Wellness (740) 725-6349; beary.4@osu.edu. After hours, a licensed mental health counselor is available at (614) 292-5766.
Other 24/7 resources include The *Crisis Text Line*. Text 4hope to 741741 and a trained support person will text back within a few minutes. The number for the *National Suicide Prevention Lifeline* is: 1-800-273-TALK (8255).

Support:
If you are struggling to afford food or if you don't have a safe and stable place to live, OSU Marion has resources to help you, including a food pantry and free fresh produce. Please contact Leslie Beary, Director of Student Life for more information (740) 725-6349; beary.4@osu.edu. I am happy to help you access these resources.

EEOB 3310.03
Evolution

Course Schedule: Autumn 2027

Wk	#	Date	Topic	Chapter	Due
1		8/24	NO LAB		
	1	8/25	An overview of evolutionary biology	1	
2	2	8/30	History of evolutionary biology	2	
		8/31	Lab 1: Evolution of color pattern – week 1		
	3	9/1	Natural selection	3	
3	4	9/6	NO CLASS		
		9/7	Lab 1: Evolution of color pattern – week 2		
	5	9/8	Natural selection, Phylogeny	3, 4	
4	6	9/13	Phylogeny, Systematics	4, 5	
		9/14	Lab 1: Evolution of color pattern – week 3 Lab 2: Evolution of antibiotic resistance – week 1		
	7	9/15	Systematics	5	
5	8	9/20	MIDTERM 1		Carmen Pre-quizzes 1-3
		9/21	Lab 2: Evolution of antibiotic resistance – week 2		Lab 1 due
	9	9/22	Inheritance and genetic variation	6	
6	10	9/27	Population genetics	7	
		9/28	Lab 2: Evolution of antibiotic resistance – week 3		
	11	9/29	Population genetics and genetic drift	7, 8	
7	12	10/4	Genetic Drift	8	
		10/5	Lab 2: Evolution of antibiotic resistance – week 4		
	13	10/6	Genetic Drift, Evolution and multiple loci	8, 9	Carmen Pop-gen quiz 1 due
8	14	10/11	Evolution and multiple loci	9	
		10/12	Population genetics 1		Lab 2, Population Genetics 1 due
	15	10/13	Genome evolution	10	Carmen Pop-gen quiz 2
9	16	10/18	MIDTERM 2		
		10/19	Lab 3: Evolution of cancer cells – week 1		
	17	10/20	Origin and evolution of early life	11	
10	18	10/25	Major transitions	12	
		10/26	Lab 3: Evolution of cancer cells – week 2		
	19	10/27	Evolution and development	13	
11	20	11/1	Evolution and development, Species & speciation	14	
		11/2	Lab 3: Evolution of cancer cells – week 3		
	21	11/3	Species and speciation, Peer review discussion	14, 15	
12	22	11/8	Extinction and evolutionary trends	15	
		11/9	Population genetics 2 Lab 4: Adaptive radiation – week 1		Lab 3 due Population genetics 2 due
	23	11/10	MIDTERM 3		
13	24	11/15	Sexual selection	16	
		11/16	Lab 4: Adaptive radiation – week 2		
	25	11/17	Sexual selection, Sociality	16, 17	
14	26	11/22	Sociality	17	
		11/23	Lab 4: Adaptive radiation – week 3		
	27	11/24	NO CLASS		
15	28	11/29	Coevolution	18	
		11/30	Lab 4: Adaptive radiation – week 4		
	29	12/1	Human evolution	19	
16	30	12/6	Evolution and medicine	20	
		12/7	NO LAB (Calamity day)		Lab 4 due
	31	12/8	MIDTERM 4		
17		12/13	FINAL EXAM 11:00–12:45		