



**Course Name:** Introduction to Evolution

**Course Number:** BI 345

**Credits:** 3 Credits

**Course Description**

Elements of evolutionary theory; origin and history of life; evolutionary controversy; origins of species, sex, and humans. Lecture (Bacc Core Course) No Prerequisites

**Teaching Philosophy**

Evolution is a field of study that covers topics affecting our daily lives. I'm fascinated by what we as humans can learn from the rich biological history of our planet, and how we can put those lessons to good use. This course uses different tools to facilitate our learning at multiple levels. These tools provide an active learning environment that allows students to learn by doing. My goal is for you to walk away with a deep understanding of evolution and to be able to share this knowledge with others.

**Measurable Student Learning Outcomes**

By applying concepts learned in this class, you will be able to:

1. Identify and connect basic ideas and terminology found in the study of evolution.
2. Analyze and critically evaluate sources of information about evolution.
3. Assess the effects of evolution on the structure and function of organisms.
4. Examine the ways scientists determine phylogenetic relationships and construct a tree diagram.
5. Explain how scientific advances have influenced our understanding of genetics and evolution since Darwin.
6. Describe how specific scientific methods and/or technological tools are used in the current study of evolution.
7. Examine the processes of mutation, selection, and genetic change and evaluate the ways they compel evolutionary change.
8. Assess the strengths and weaknesses of observational, experimental, and modeling approaches for studying evolution.
9. Compare and contrast microevolution and macroevolution.
10. Examine and illustrate human evolution and its impacts on our environment.
11. Describe how the continued evolution of life affects our development of medicine, agriculture, and conservation.
12. Assess the roles of scientific and social values in decision making pertaining to evolution.

**Baccalaureate Core**

Successful completion of this course partially fulfills OSU's Baccalaureate Core course requirements in the Synthesis category under Science, Technology, and Society.

Upon successful completion of this course students will be able to:

1. Analyze relationships among science, technology, and society using critical perspectives or examples from historical, political, or economic disciplines.
2. Analyze the role of science and technology in shaping diverse fields of study over time.

3. Articulate in writing a critical perspective on issues involving science, technology, and society using evidence as support.

#### Communication

Please post all course-related questions in the General Discussion Forum so that the whole class may benefit from our conversation. Please email your instructor for matters of a personal nature (ex. You are considering dropping the class). The instructor will reply to course-related questions and email within 2448 hours.

I am dedicated to providing a quick response to all graded assignments. A typical turn-around time for grading will be 7 days (or sooner). If you have a more immediate question or would like to discuss something by phone you can call my office: (541) 737-3786. You are encouraged to call during the following hours: Mondays through Fridays 10:00 am – 11:00 am PT.

#### Canvas

This course will be delivered via Canvas ([Canvas Login Information](#)) where you will interact with your classmates and with your instructor. Within the course Canvas site you will access the learning materials, such as the syllabus, class discussions, assignments, projects, and quizzes. To preview how an online course works, visit the [Ecampus Course Demo](#). For technical assistance, please visit [Ecampus Technical Help](#).

#### Technical Assistance

If you are a newly admitted student seek help [Getting Started](#). If you experience computer difficulties, need help downloading a browser or plug-in, assistance logging into the course, or if you experience any errors or problems while in your online course, contact the OSU Help Desk for assistance. You can call (541) 7373474, email [osuhelpdesk@oregonstate.edu](mailto:osuhelpdesk@oregonstate.edu) or visit the [OSU Computer Helpdesk](#) online.

#### Learning Resources



##### Understanding Evolution

Understanding Evolution. 2014. University of California Museum of Paleontology. 22 August 2008. <http://evolution.berkeley.edu/>. [http://evolution.berkeley.edu/evolibrary/article/evo\\_01](http://evolution.berkeley.edu/evolibrary/article/evo_01)



##### Learn Genetics

Genetic Science Learning Center.

"Learn.Genetics.utah.edu." LearnGenetics 9 February

2014 Availability: Free Online at <http://learn.genetics.utah.edu/>



##### SimBio Software EvoBeaker

Availability: Purchased by student (~\$44.00) at <http://simbio.com/>

Contact: Melissa Schmitt [melissa@simbio.com](mailto:melissa@simbio.com) 617-

314- 7701 ext. 713



BioInteractive  
Howard Hughes Medical Institute. Resources for  
Science Students  
Educational Materials, 3 March 2014 Availability:  
Free Online at  
<http://www.hhmi.org/biointeractive>

**Note to prospective students:** Please check with the OSU Bookstore for up-to-date information for the term you enroll ([OSU Bookstore Website](#) or 800-595-0357). If you purchase course materials from other sources, be very careful to obtain the correct ISBN.

### Evaluation of Student Performance

You will be learning by using the guided weekly modules I've provided. Each module includes a series of interrelated foundational and assessment activities. Each week you will read and view online materials that will help you prepare for and transition into the assessment portion of your learning.

The learning outcomes will be measured using the following assessments:

There are three important elements for successful learning in this course: formative assessments (which help you form and measure your learning as it develops), summary assessments (which evaluate how you are summarizing and synthesizing the concepts), and a final assessment (which is a capstone assignment to test what you've learned in the class).

Formative Assignments:

*Concepts Quizzes: formative assessments to gauge understanding of readings* - Using online interactive texts, you will be exposed to the basic concepts and vocabulary of evolutionary biology and genetics. You will gauge your understanding by answering a variety of questions and getting immediate feedback no later than Wednesday by 11:59 PM PT.

*Mini-lecture Quizzes: formative assessments to gauge understanding of mini-lectures* - Using online video resources, you will be exposed to the basic concepts and vocabulary of evolutionary biology and genetics. You will gauge your understanding by answering a variety of questions and getting immediate feedback no later than Wednesday by 11:59 PM PT.

*Discussions: Sequential discussion postings- We are an online community, and to interact with each other, each week there will be a group discussion prompted by a question. You are required to participate in our discussions on at least two different days each week, with your first thread due no later than Wednesday by 11:59 PM PT, and your second, a reply to your instructor, due by Sunday 11:59 PM PT of each week.*

*Video Quizzes: formative assessments to gauge understanding of video interviews* - Using video resources developed in the IB Department, you will be exposed to evolutionary biology and genetics research being carried out at OSU. You will gauge your understanding by answering a variety of questions and getting immediate feedback due by Sunday 11:59 PM PT.

*Numeracy Workshops: Simulations* – Using the SimBio online simulations, we will participate in online interactive learning activities that involve manipulating variables and simulating interactions and outcomes. You will answer Feedback Questions, which give you a chance to self-check your understanding. After each section, you will also answer Graded Questions. I will grade your participation in these questions based on the percentage of the questions you answer and the percentage of Graded Questions you answer correctly. For more information, please see the SimBio Rubric in the Grading Rubrics tab. We will have 8 Workshop Simulations over the course of the term due by Sunday 11:59 PM PT.

*Literacy Skills Trainings: Developmental activities to acquire skills and use tools*—In this class you will practice skills that will not only help you in this course, but in your academic and professional endeavors. These include using the library's resources, peer reviewing, and citing sources due by Sunday 11:59 PM PT.

Summary Assignments:

*Rhetorical Precip: Article evaluation* - In this class, in the field of evolution, and in many other disciplines, you will need to critically evaluate articles as sources, which you will demonstrate in this assignment due by Sunday 11:59 PM PT.

*Peer Review Assignments: Prepare Peer Review pages*—The Peer Review Assignments provide a way for you to make a visual scrapbook of your learning about a specific topic. You will construct Peer Review Discussions with figures and citations about the tree of life, human genetic traits, reproductive isolation, transitional fossils, human genome, biological control, and barriers to gene flow due by Sunday 11:59 PM PT.

*Video Cumulative Quiz: This quiz will test your long term retention to gauge your understanding of the video interviews presented throughout the term* - Using video resources developed in the IB Department at OSU. You will gauge your understanding by answering a variety of questions.

Midterm Assignments:

*Midterm Outline: Outlining a 5-paragraph essay.* You will first organize your thoughts in an outline before writing an essay. — Good writing skills are critical across professions. This includes outlining a 5-paragraph essay due by Sunday 11:59 PM PT.

*Midterm Essay: Write a 5-paragraph essay with citations* – Your essay will demonstrate your understanding of topics we've learned in class as well as use proper citations, which we practice in our skills training due by Sunday 11:59 PM PT.

Final Assignments:

*Final Outline: Outlining a 5-paragraph essay.* You will first organize your thoughts in an outline before writing an essay. — Good writing skills are critical across professions. This includes outlining a 5-paragraph essay due by Sunday 11:59 PM PT.

*Final Essay: Write a 5-paragraph essay with citations* – Your essay will demonstrate your understanding of topics we've learned in class as well as use proper citations, which we practice in our skills training due by Sunday 11:59 PM PT.

## Grading Scale

### **Total – 1000 points**

1. Concepts Quizzes – 100 points (10@10)
2. Mini-lecture Quizzes– 100 points (10@10)
3. Video Quizzes –100 points (10@10)
4. Discussions – 100 points (10@10)
5. Numeracy Workshops –120 points (6@20)
6. Literacy Skills Trainings – 50 points (5@10)
7. Summary Assignments – 120 points (6@20)
8. Peer Review Assignments-40 points (2@20)
9. Video Cumulative Quiz – 30 points (1@30)
10. Midterm Outline – 20 points (1@20)
11. Midterm Essay – 100 points (1@100)
12. Final Outline – 20 points (1@20)
13. Final Essay – 100 points (1@100)

### **Letter Points**

A	1000 - 930
A-	929 - 900
B+	899 - 870
B	869 - 830
B-	829 - 800
C+	799 - 770
C	769 - 730
C-	729 - 700
D+	699 - 670
D	669 - 630
D-	629 - 600
F	Below 600

Detailed Schedule for BI345 Introduction to Evolution				
Dates	Topics	Activities	Points	Hours
Week 1	Theory of Evolution	Attendance Verification Concepts Quizzes: Text, Mini-Lectures Video Quiz: Museums and Evolution Class Discussion: Darwin's Principles Literacy Training: Library Databases Summative Assignment: Rhetorical Precis	0 20 10 10 10 20	2 2 1 1 1 2
Week 2	Phylogeny Tree of Life	Concepts Quizzes Text, Mini-Lectures Video Quiz: Beetles in a Phylogenetic Tree Class Discussion: Phylogenetics Workshop: Sorting Seashells Literacy Training: Citations Summary Assignment: Tree of Life	20 10 10 20 10 20	2 1 1 2 1 2
Week 3	Heredity, Genetics, and Evolution	Concepts Quizzes: Text, Mini-Lectures Video Quiz: Genetic Tools for Studying Corals Class Discussion: Genetic Change Workshop: Darwinian Snails Literacy Training: Peer Review Summary Assignment: Pigeon Genetics Peer Review of Tree of Life	20 10 10 20 10 20 20	2 1 1 2 1 2 1
Week 4	Genetics and Evolution	Concepts Quizzes: Text, Mini-Lectures Video Quiz: Genetics & Evolution of Nematodes Class Discussion: Natural Selection Workshop: Finches & Evolution Literacy Training: Essay Outlining Midterm Outline	20 10 10 20 10 20	2 1 1 2 1 2
Week 5	Populations Evolution	Concepts Quizzes: Text, Mini-Lectures Video Quiz: Wildlife Populations and Diseases Class Discussion: Populations and Evolution Workshop: Mendelian Pigs Literacy Training: Essay Writing Midterm Essay	20 10 10 20 10 100	2 1 1 2 1 4
Week 6	Speciation	Concepts Quizzes: Text, Mini-Lectures Video Quiz: Evolutionary Stasis Class Discussion: Speciation Workshop: Dog Evolution Summary Assignment: Reproductive Isolation	20 10 10 20 20	2 1 1 2 2
Week 7	Macroevolution and the Fossil Record	Concepts Quizzes: Text, Mini-Lectures Video Quiz: Reconstructing Paleoenvironments Class Discussion: Macroevolution Summary Assignment: Transitional Fossils Peer Review of Reproductive Isolation	20 10 10 20 20	2 1 1 2 1
Week 8	Evolutionary Medicine	Concepts Quizzes: Text, Mini-Lectures Video Quiz: Snails and Schistosomiasis Class Discussion: Advanced Genetics Workshop: Sickle Cell Alleles Summary Assignment: Human Genome	20 10 10 20 20	2 1 1 2 2
Week 9	Evolutionary Agriculture	Concepts Quizzes: Text, Mini-Lectures Video Quiz: Hatcheries and Domestication Class Discussion: Gene Flow Final Outline	20 10 10 20	2 1 1 2
Week 10	Evolutionary Conservation	Concepts Quizzes: Text, Mini-Lectures Video Quiz: Life History Evolution Class Discussion: Small Populations Final Essay	20 10 10 100	2 1 1 4
Week 11	Finals Week	Video Cumulative Quiz: Ten Video Interviews	30	1
Totals			1,000	86

### **Guidelines for a productive and effective online classroom**

1. The discussion board is your space to interact with your colleagues and discuss course topics or respond to your colleague's statements. It is expected that each student will participate in a mature and respectful fashion.
2. Posting of personal contact information is discouraged (e.g. telephone numbers, address, and personal website address).
3. Participate actively in the discussions after you have watched the weekly lectures and thought carefully about the issues.
4. Pay close attention to what your classmates write in their online comments. Ask clarifying questions when appropriate. These questions are meant to probe and shed new light, not to minimize or devalue comments.
5. Think through and reread your comments before you post them.
6. Assume the best of others in the class and expect the best from them.
7. Value the diversity of the class. Recognize and value the experiences, abilities, and knowledge that each person brings to class.

### **Course Policies Course Check-in**

Your original attendance in this course will be verified during the Week 1 course check-in, which involves your completion of the following activities: reading the course syllabus and schedule, completion of the Orientation Quiz, Introductory E-mail to your professor, self-introduction on the course Discussion Board, and posting your perceptions in the Week 1 Discussion.

### **Attendance Policies**

You must log-in to the course on a weekly basis throughout the term and respond to messages sent by your instructor. You must complete all the assignments in the course by their assigned due dates.

### **Discussion Participation**

Students are expected to participate in all graded discussions. While there is great flexibility in online courses, this is not a self-paced course. You will need to participate in our discussions on at least two different days each week, with your first post due no later than Wednesday at 11:59 PM Pacific Time, your second no later Sunday at 11:59 PM Pacific Time.

### **Assignment Due Dates**

Students are expected to keep up with the weekly schedule (see "Class Schedule" in "Start Here"). To stay current, students should complete all formative assignments early in the week (by Thursday at 11:59 PM Pacific Time) and summary assignments by the end of each week (by Sunday at 11:59 PM Pacific Time). Late assignments, posted after Sunday, will lose 15% of the possible points for each day they are late. Quizzes cannot be posted after the due date.

### **Missed Assignments**

I do not give make-up points and/or extra credit for missed assignments unless 1) you are excused in advance by me, your instructor, or 2) you provide proof of a medical or family emergency.

### **Incompletes**

Incomplete (I) grades will be granted only in emergency cases (usually only for a death in the family, major illness or injury, or birth of your child), and if the student has turned in 80% of the points possible (in other words, usually everything but the final paper). If you are having any difficulty that might prevent you completing the coursework, please don't wait until the end of the term—let me know right away.

## **University and Departmental Policies**

**Students with disabilities:** Oregon State University is committed to student success; however, we do not require students to use accommodations nor will we provide them unless they are requested by the student. The student, as a legal adult, is responsible to request appropriate accommodations. The student must take the lead in applying to Disability Access Services (DAS) and submit requests for accommodations each term through DAS Online. OSU students apply to DAS and request accommodations at our [Getting Started with DAS](#) page.

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Additionally, Canvas, the learning management system through which this course is offered, provides a [vendor statement](#) certifying how the platform is accessible to students with disabilities.

**Conduct in this online classroom:** Students are expected to be honest and ethical in their academic work. Intentional acts of academic dishonesty such as cheating or plagiarism may be penalized by imposing an "F" grade in the course.

Student conduct is governed by the universities policies, as explained in the Office of the Dean of Student Life: Student Conduct and Community Standards. In an academic community, students and faculty, and staff each have responsibility for maintaining an appropriate learning environment, whether online or in the classroom. Students, faculty, and staff have the responsibility to treat each other with understanding, dignity, and respect. Students are expected to conduct themselves in the course (e.g. on discussion boards, email postings, etc.) in compliance with the university's regulations regarding civility. Students will be expected to treat all others with the same respect as they would want afforded to themselves. Disrespectful behavior (such as harassing behavior, personal insults, inappropriate language) or disruptive behaviors are unacceptable and can result in sanctions as defined by Student Conduct and Community Standards.

For more info on these topics please see:

[Statement of Expectations for Student Conduct](#)

[Student Conduct and Community Standards - Offenses](#)

[Policy On Disruptive Behavior](#)

## **PLAGIARISM**

You are expected to submit your own work in all your assignments, postings to the discussion board, and other communications, and to clearly give credit to the work of others when you use it. Academic dishonesty will result in a grade of "F."

[Statement of Expectations for Student Conduct](#)

[Avoiding Academic Dishonesty](#)

## ***Turnitin Plagiarism Prevention***

Your instructor may ask you to submit one or more of your writings to **Turnitin**, a plagiarism prevention service. Your assignment content will be checked for potential plagiarism against Internet sources, academic journal articles, and the papers of other OSU students, for common or borrowed content. Turnitin generates a report that highlights any potentially unoriginal text in your paper. The report may be submitted directly to your instructor or your instructor may elect to have you submit initial drafts through Turnitin and you will receive the report allowing you the opportunity to make adjustments and ensure that all source material has been properly cited. Papers you submit through Turnitin for this or any class will be added to the OSU Turnitin database and

may be checked against other OSU paper submissions. You will retain all rights to your written work. For further information on Turnitin please click [HERE](#).

**Tutoring:** [NetTutor](#) is a leading provider of online tutoring and learner support services fully staffed by experienced, trained and monitored tutors. Students connect to live tutors from any computer that has Internet access. NetTutor provides a virtual whiteboard that allows tutors and students to work on problems in a real-time environment. They also have an online writing lab where tutors critique and return essays within 24 to 48 hours. Access NetTutor from within your Canvas class by clicking on the Tools button in your course menu.

**OSU Student Evaluation of Teaching:** The online Student Evaluation of Teaching form will be available in week 9 and close at the end of finals week. Students will be sent instructions via ONID by the Office of Academic Programs, Assessment, and Accreditation. Students will log in to “Student Online Services” to respond to the online questionnaire. The results on the form are anonymous and are not tabulated until after grades are posted. Course evaluation results are very important and are used to help improve courses and the learning experience of future students. Results from questions are tabulated anonymously and go directly to instructors and unit heads/supervisors. Unless a comment is “signed,” which will associate a name with a comment, student comments on the open-ended questions are anonymous and forwarded to each instructor. “Signed” comments are forwarded to the unit head/supervisor.

#### **REFUND POLICY INFORMATION**

Please see the [Ecampus website](#) for policy information on refunds and late fees.

**The course schedule and student evaluation assignments are subject to change at the instructor’s discretion.**