

**Pattern and Process in Evolution
Biology (BIO) 437
Spring 2017**

Meetings: Monday, Wednesday, Friday 10:00-10:50 AM
NSC 218
Instructor: Dr. Jessica Poulin
Email: jpoulin@buffalo.edu
Office: Hoch 621
Office Hour: Wednesday 2-3 PM and by appointment

Required Materials:

1. Futuyma, D.J. (2013). *Evolution* (3rd edition). MA: Sinauer/Freeman Publishers **OR** Bergstrom, C.T & Dugatkin, L.A. (2011) *Evolution* (2nd edition). WW Norton & Co. **We will discuss how to choose during the first day of class.**
2. Regular reference to the course site on UB Learns

Goals of the Course:

This course will explore the major theoretical underpinnings of evolution as a scientific field, bringing a more advanced approach to topics introduced in Biology 200 as well as introducing novel areas of study. Separate sections of the course will examine microevolution and macroevolution through both theoretical and mathematical perspectives. All topics will be explored through the lens of current research. At the end of the course, students should be conversant in most major topics in the field of evolutionary biology.

The formal assessment of these goals is detailed in the “Assessment Items for Bio 437”, posted under “Course Information” on UBLearns.

What will we cover and how to find it:

Lecture will be divided into two major sections: 1) Change within a species (microevolution), 2) Where do new species come from (Macroevolution). Specific daily lecture topics (“Lecture topics and readings”) and readings can be found in the “Course Information” section of our UB Learns site. Please check this regularly to make sure you are up to date.

All course information will be posted in the “Course Information”, “Course Documents”, OR “External Links” sections of UB Learns. If you need to find something, please check **ALL** of these areas before emailing me.

How to succeed:

- Reading: I have provided textbook assignments for each of the lectures this semester. The readings are designed to complement the lecture material, not to overlap directly with the material. Some students will find it most helpful to read the assignment before lecture (coming prepared for the material), while others will find it more effective to read the text after lecture (to flesh out my approach to the topic). It is your responsibility to determine which type of student you are. **Students who do not do the reading are unlikely to succeed in the course.**
- Slides: All lecture slides will be posted (no later than 5 PM the evening before lecture and usually before) in the “Slides” folder of the “Course Documents” section of our UB Learns site. The slide documents are pdf files with two slides per page to limit the amount of printing. I **strongly** recommend you download the slides before coming to class so that you can take notes directly on the slides. PLEASE NOTE: Printing my slides does not mean you don’t have to take notes – it just means you’ll have more time to write the important parts down!
- Studying: Studying occurs after basic course participation (lecture attendance, note-taking, and reading). The most important key to good studying is to do it throughout the semester, rather than right before the exam (“cramming”). Most students benefit from studying both before and after

each lecture – reviewing previous topics and possibly reading before lecture and then reviewing notes (and adding to them) and possibly reading after the lecture. Remember: as this is a 3 credit class, **I am expecting you to do two hours of outside work for each hour we are in class together.** If you save all of that for the night or two before the exam you will not be able to make it through all the material.

Suggested study methods:

- Writing your own outline of each lecture – if you can write an outline of a lecture you understand the organization of the lecture and what I felt the key points were.
- Re-writing notes – this implants important concepts more firmly in your mind and gives you a neater set to study from.
- Condensing notes – try to write all the notes from a given section of the course onto a single page (a favorite technique of mine for the day or so before an exam).
- Making up test questions – a prepared student should be able to figure out what I am going to ask on the exam by studying good notes. Try to write your own exam. It's EXCELLENT practice.
- Discussion – it's often helpful to do some studying with other classmates. Talking over concepts can be extremely helpful for cementing them in your own mind. **Combining group study with solitary studying often leads to the most successful outcomes.**

Article/Discussion Days:

We will have five days across the semester where we will dispense with normal lectures and break into groups to discuss articles. These articles have been selected to expand on important topics from lecture and to provide students with exposure to a variety of academic writing styles.

Students will do a short write up before each discussion day to prepare for the discussion session. These need to be typed and will be handed in at the beginning of the discussion session. Students who must miss a discussion can email the write up BEFORE class begins to receive credit. Students will also receive credit for participating in each discussion, meaning they must be present at each discussion day in order to receive full credit. Each session will be worth 10 points: 5 for the write up and 5 for participation in the session. If you do not do your write up you CANNOT receive credit for the discussion.

Oral Presentation:

All students will do a group oral presentation on a primary review article published between two and five years ago in the journal Trends in Ecology and Evolution (TREE). The article needs to be approved by me before work on the presentation can begin. The presentation will include:

- 1) a description of the focus of the review
- 2) information from sources the focus article cited
- 3) a short description of at least one article that cited your study

Students who are not presenting will be responsible for peer review of other presenters and asking questions. Non-presenting groups will rotate refreshment responsibilities ☺ Presentation grades will be a combination of a base group grade and a grade for individual contribution. Individual grades will reflect the reviews of all other group members. You will receive a detailed description of the oral presentation assignment and grading later in the course.

You cannot pass the course if you drop out of or do not work with your oral presentation group (i.e. you will receive an F).

Exams:

There will be two midterms: Midterm 1 (**Wed 3/15, during class**) and Midterm 2 (**Mon 5/15:10-11:15, Talbert 107**). There will be an in-class review the lecture before each exam.

- Lecture exams will be free response (matching, short answer, problem solving, etc).
- You will be allowed to bring a single page of notes to your exams. You may use the front and back of a single 8 ½ x 11 sheet to write your notes. Your notes **MAY NOT** be typed. You may also use a four-function calculator on the exams. More complex calculators or phones **WILL NOT** be permitted.
- The second midterm will NOT be cumulative, unless Dr. Poulin announces what Midterm 1 material will be included (in class or via email) beforehand.
- Lecture exams will ONLY cover material covered in lecture and on discussion days. Material in the text that is not covered in lecture will not be on the exams.
- Make up exams will only be offered after consultation with Dr. Poulin (either in person or writing). Please do your best to make arrangements for make up exams in advance of a test. Unforeseen emergencies will be dealt with on a case by case basis.
- Exam grades, keys, and statistics will be posted in the "Exam results" folder in the "Course Information" section of our UB Learns site as quickly as possible after the exams are graded. I will email the class when I post these documents.

Grading:

Your grade will be determined by your performance on two homework assignments, participating in five article discussion sessions, the lecture exams, and your oral presentation. You will not be graded on attendance (except for during article discussions and oral presentations) or reading.

Item	Points
HW homework	5
The five microevolutionary forces homework	10
Participation & responses to articles (10/article)	50
Group oral presentation	60
Midterm 1	60
Midterm 2	60
Research methods lecture & evaluation	5
Total	250

Grading errors: IT IS YOUR RESPONSIBILITY TO CHECK THAT THE GRADES REPORTED FOR ALL ASSIGNMENTS ARE ACCURATE. If you believe that there has been an error in grading, present the error in writing within one week of receiving the grade. Re-graded assignments may raise or lower the grade received.

Grading is done on a straight scale, with scores rounded to the nearest tenth of a percent.

Low	High	Grade
0.930	1.000	A
0.900	0.929	A-
0.870	0.899	B+
0.830	0.869	B
0.800	0.829	B-

Low	High	Grade
0.770	0.799	C+
0.730	0.769	C
0.700	0.729	C-
0.600	0.699	D
0.000	0.599	F

I may adjust this scale down (lowering the cut offs for each grade) at the end of the term. Students will be notified of any scale changes.

Safe Space: It is critical to me that this classroom is a safe place that encourages learning for all students. I expect all students to be respectful of fellow learners regardless of race, ethnicity, citizenship, age, disability, gender, religion, sexual orientation, or gender identity. Any type of harassment is against UB's Discrimination and Harassment Policy and will be reported, as such. Feel free to email me or make an appointment to speak with me if you have questions or concerns about this policy or about incidents in the classroom.

Academic Dishonesty: The University at Buffalo's regulations in this area are available on our UBLeans site under External Links, listing [Academic Integrity](#). From that site: "Academic integrity is a fundamental university value. Through the honest completion of academic work, students sustain the integrity of the university while facilitating the university's imperative for the transmission of knowledge and culture based upon the generation of new and innovative ideas."

Academic dishonesty, as defined at UB, includes submitting previously submitted work, plagiarism, using unauthorized materials, the giving and receiving of unauthorized assistance during an exam or on an assignment, falsification of academic materials, misrepresentation of documents, receipt or distribution of confidential academic materials, and selling or purchasing academic assignments.

Any sort of academic dishonesty is unacceptable and can result in course failure.

Incompletes: Incompletes will only be received by students in good standing (not failing) who have an excused absence from one of the exams. These students will be given an incomplete and expected to arrange to take the missed exam when the course is next offered. Arrangements to receive an incomplete must be made before the end of the semester. Please refer to the University Policy on Grading for more information.

Accessibility Resources: Students with disabilities sometimes require reasonable accommodations to ensure their opportunity to participate fully in a class. Any student requesting such accommodation any time during the term should contact UB's Accessibility Resources Office, 25 Capen Hall, 645-2608, where they can document their mental or physical impairments and receive written verification of disability and individualized written accommodation recommendations.