BIOL 200
Genetics, Evolution, and Ecology
Syllabus

Lecture: MWF 10-10:50 a.m. Science Center A155
Lab: W or R 1:30-4:20 p.m. Science Center K121

Lecture and Wednesday Lab Instructor
Mary Garvin
Science Center A139
440-775-6402
mgarvin@oberlin.edu
Office hours: T, Th, & F 11-12, and by appointment

Thursday Lab Instructor
Mary Teleha
Science Center A131
440-775-6239
mteleha@oberlin.edu
Office hours: W & F 11-12, and by appointment

Course Description
This course provides biology majors and others with an integrated introduction to key principles of ecology and evolution, including selection, drift, sources of variation, and patterns of diversity, as well as factors and processes governing biotic and abiotic interactions that influence the distribution and abundance of organisms. Labs feature indoor and field exercises and discussions designed to develop critical thinking and quantitative skills in data collection, analysis, and interpretation. Field trips required. Prerequisites: BIOL 100. Attributes: 4NS, QFR.

Course Objectives:
Students completing this course should be able to
- Understand and apply fundamental evolutionary and ecological concepts.
- Apply all parts of the scientific method to ecological and evolutionary questions.
- Appreciate the nature of variation and the importance of stochasticity in natural systems, across levels of organization from the molecule to the ecosystem.
- Be aware of the broad diversity of life, past and present, and the major patterns of life through time.
- Interpret graphical presentations of empirical relationships and theoretical models.
- Begin to use and appreciate basic statistical methods.
- Recognize the relationship of biology to other sciences, disciplines, and society.

Required Text
Principles of Biology published by Nature Education. This is an electronic textbook which you purchase the right to access. Access codes are available in the bookstore. This text serves as a source reference for topics covered in lecture and lab. Modules are listed according to lecture date and topic for reading before lecture meetings and for constructing your concept map. You should find the search function, index, text, and figures very useful in studying material emphasized in lecture and lab.

Support Services
- Instructors are available for individual consultation during office hours or by appointment. Available times are noted above, announced in class, and posted at the instructors’ offices.
- Teaching Assistants (TAs): Both the Wednesday and Thursday labs sections will be assisted by TAs. Your TA’s contact information and availability will be announced in the first lab meeting
- Oberlin Workshop and Learning Sessions (OWLS): The OWLS instructors, students who have taken BIOL 200 in the past, are available two nights/week to answer questions and generally assist you with the material. These are excellent opportunities to gain clarity and deeper understanding of the material covered in lecture and lab. For more information on the OWL services and the ways in which the program has assisted students in the past, see http://news.oberlin.edu/articles/owls-program-spreads-its-wings/. OWLS for this course will be offered on Monday and Thursday evenings at 8:30pm in A255 by Alexandra Kahn and Noah Lost.
- Tutors are available through the Office of Student Support Services in Peters Hall. This service is free and you are encouraged to arrange for a tutor as soon as you like.
- Writing Center, located in Mudd 101A, has peer writing associates who can assist students at all stages of the writing process.
- Quantitative Drop-in Tutoring Center is located in the Science Library (Room N175) and can assist students with math skills, statistics, computer software like Excel, or programming languages. No appointment is necessary. Hours will be announced.

Students who have been approved by Student Academic Services for special exam arrangements must make appropriate arrangements with Ms. Garvin one week prior to the first exam.
Grading

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<tr>
<th>Component</th>
<th>Points</th>
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<tr>
<td>100 pt. exams (4 exams @100 pts each)</td>
<td>400 pts</td>
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<tr>
<td>Final comprehensive exam (100 pts each)</td>
<td>100 pts</td>
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<tr>
<td>Concept maps (10 maps @5pts each)</td>
<td>50 pts</td>
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<tr>
<td>Laboratory quizzes – at beginning of each lab period (10 @5 pts each)</td>
<td>50 pts</td>
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<tr>
<td>Laboratory assignments (11 assignments @10pts each)</td>
<td>110 pts</td>
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<tr>
<td>Midterm and final reflections (2 reflections @10pts each)</td>
<td>20 pts</td>
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<td>Seminar Report</td>
<td>20 pts</td>
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<td><strong>TOTAL</strong></td>
<td>750 pts</td>
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Concept Maps: To help you organize concepts, link the lecture to the lab material, and facilitate your becoming an independent scholar, you will create a concept map of each week’s topics based on the reading for that week. Bring your concept maps to class on Monday. The last 10 minutes of each Monday lecture will be reserved for you to discuss your concept map with a classmate. It will then become part of your lab notebook (see below) and provide a study guide throughout the semester. Maps will be graded at the midterm and end of the semester. For information on concept maps see http://cmap.ihmc.us/docs/theory-of-concept-maps.

Exams: Extensions or make-up exams will be granted only under extreme circumstances, e.g. serious health issues or major conflicts. In case of the latter, you must clear the situation well in advance. For Lecture assignments (e.g., exams), consult Ms. Garvin. For Lab assignments, consult your laboratory instructor (Ms. Teleha or Ms. Garvin).

Lecture Exams: Each lecture exam will focus primarily on recent material; however, a solid understanding of material covered earlier remains important and useful in later exams. Exams may include the following types of questions:
- Multiple-choice problems requiring knowledge and comprehension skills
- Short - one or two sentence - problems that are more complex and require synthesis, application and analysis skills
- Problem solving, such as genetics problems to determine genotype frequencies, which require comprehension, analysis, and evaluative skills

All questions regarding exam grades must be resolved within two weeks of the date the exam is returned. After the exam a key will be posted on the course Bb site.

Comprehensive Final Exam: The comprehensive final exam will focus specifically on synthesis and evaluation, spanning topics visited throughout the semester and emphasizing connections among them. Knowledge and comprehension of the semester’s material will be critical but insufficient for success on the final exam.

Laboratory assignments: These will consist of Problem Sets due at the beginning of lab or Figure Interpretation write-ups. Specifics of these assignments and due dates will be discussed in your lab section. All work must be turned in at the beginning of the lab period. The purposes of these assignments are (1) to give you practice in working with and thinking about the topics of the course, (2) to practice and improve your quantitative and formal reasoning (QFR) skills, and (3) to prepare you to delve deeper into topics during lab exercises. Laboratory exercises are different each week and may involve group work or field trips. If you must miss your lab during a given week, you must make arrangements with your lab instructor in advance.

Laboratory Notebook: Laboratory assignments and concept maps will be organized in a three-ring binder provided in lab. At the midterm and end of the semester, you will write a 1-2 page reflection piece that summarizes your work and understanding of the material up to that point. Details of this assignment will be provided in lab.

Weekly Lab Prep Quiz: Each week, except the first week, lab will begin with a 10 minute quiz focused on the day’s lab handout. The quiz will begin promptly at 1:30 and last 10 minutes - late arrivals will have less than 10 minutes to complete the quiz. The purpose of this assignment is to help you prepare for the day’s lab by encouraging you (1) to do the reading in advance of lab and (2) to think about the lab before we begin working on it together. This preparation will increase your absorption and depth of understanding of the course material.

Seminar Report: For this assignment, you will attend one approved seminar during the semester and write a response paper that summarizes the seminar as well as reflects on your thoughts about the seminar. The instructors will provide you with a list of approved seminars and a rubric with detailed instructions on writing the Seminar Report. If you find a seminar not on the approved list, you must get approval from your lab instructor to ensure credit for the assignment. The purposes of this assignment are to (1) experience a standard way in which scientists explain their research to others, (2) make the connection between the science and the people who do science, and (3) practice contextualizing specific research topics within a broader framework.

Honor Code: You are expected to sign the Honor Code on all assignments: 1) exams and quizzes, affirming that the work is your own, without giving or receiving aid; 2) seminar reports, affirming that the work is your own and that you have cited references accurately; 3) lab assignments, affirming that you have worked only with classmates.