Biology 270: Ecology and Evolution (Section 4)

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Office: TNR 337
Office Hours: Tue and Wed 9:00 – 11:00 or by appointment

Lecture: Mon/Wed/Fri 12:00 – 12:50 TNR 464
Lab: Mon 1:00 – 2:50 TNR 461

Required Texts: *Ecology*, 3rd ed., Cain et al., 2014 (rental)
Evolutionary Analysis, 5th ed., Herron and Freeman, 2014 (rental)

Course Description: This course introduces students to the history and fundamental principles of ecology and evolutionary biology. As a *Communication in the Major* course, oral and written communication skills will be emphasized in both lecture and lab.

Course Learning Outcomes: After taking this course, students will be able to:

1) Describe and apply knowledge of fundamental ecological processes that operate at the level of organisms, populations, communities, and ecosystems.
2) Describe and apply knowledge of fundamental evolutionary processes to investigate patterns in nature, including the generation and maintenance of levels of diversity within and among species.
3) Critically analyze and discuss scientific literature and use the scientific method to explore relevant questions of interest within the fields of ecology and evolutionary biology.
4) Effectively communicate scientific information and critically evaluate and provide meaningful feedback on the written work and oral presentations of others.

Exams: This course includes four exams total: three midterms and a final. Exams will consist of a mixture of question types (e.g., short answer, multiple choice, matching, fill-in-the-blank, and quantitative problems). Exam content will be focused on lecture material; however, lab activities and supplemental readings generally compliment lecture material and might serve as inspiration for exam questions. Midterm exams will occur during three lab periods in TNR 461. The final exam is cumulative though it will be weighted slightly toward material covered at the very end of the semester (i.e., after midterm III). The final exam is also worth a bit more than the midterms. The final exam will occur in our regular lecture classroom (TNR 464) on Monday, Dec 18th from 10:15 – 12:15.

Quizzes: I will ask that you read a number of items (mostly peer-reviewed journal articles) this semester, and we will discuss these items during our meetings. Most reading assignments will be accompanied by a short quiz, which will be administered promptly at the start of class on the associated day (see course schedule, below). Quizzes are not meant to be difficult; they are simply meant to provide an incentive for students to complete the reading assignments before coming to class.

Lab: We will meet for lab each week throughout the semester and lab activities and assignments will comprise a large portion of your course grade. Because many of our lab activities involve collaboration it is important that you arrive to lab on time each week. Late arrivals and/or missed classes will result in a deduction from your attendance score (see below).

Attendance and participation: I do not formally take attendance during lecture. However, students who regularly attend and participate in lecture generally do significantly better than students who habitually skip and/or are late. If you skip lecture more than once or twice this semester I can virtually guarantee your grade will be affected in a negative way. Do not fool yourself into thinking that your textbooks and access to my slides is a substitute for attending lecture! They are not.

On-time attendance in lab is mandatory. I will take attendance at the beginning of each lab meeting. Each of our meetings is worth up to 10 points for attendance (not including midterm exam meetings). Students arriving late lose 1 point per minute (up to a 10 point maximum). Note that if you miss a lab meeting for a verifiable extraordinary reason I will not penalize you for attendance; however, for logistic reasons it is generally impossible to make-up a lab activity and it is your responsibility to obtain missed information from a classmate.

Your final course grade will also be influenced by your participation in lab and lecture discussions and activities. If you are consistently quiet, withdrawn, unengaged, and unprepared for our meetings you will not fare well in this regard. You must earn these points!

Extra credit: I do not offer extra credit in response to student requests. On occasion, I might offer a small amount of extra credit, usually for attending relevant seminars held on campus or in the community. If/when these opportunities occur I will announce them in class and via email.

Grading: The total number of points possible in this course is 600. Point values (and due dates, if relevant) are listed below. Values with an asterisk (*) refer to assignments that, if not completed, will result in the associated loss of points and a reduction of your letter grade to the next lowest full grade (i.e., B+ to a C+).

Activity	# Points Possible	Due date
Midterm exams (3)	50 each	
Final exam	60	
Quizzes (8)	5 each	
Statistics prelab assignment	10	9/18 before lab
Natural selection simulation assignment	20	10/2
Herbivore foraging and behavior project report	40*	10/16
Herbivore foraging and behavior project report peer evaluation	20*	10/30
Phylogeny construction assignment	20	11/6
Modeling life-histories assignment	20	11/20
Modeling altruism assignment	20	11/27
Independent project presentation	40*	
Independent project powerpoint file	20*	12/11
Attendance (11 meetings)	110	
Participation	30	

Your final grade in this course will be based on the percentage of all possible points that you earn throughout the semester. To determine your final grade the following metric will be used:

≥ 94%	90-93%	87-89%	84-86%	80-83%	77-79%	74-76%	70-73%	67-69%	60-66%	≤ 59%
A	A-	B+	B	B-	C+	C	C-	D+	D	F

Make-up and late policy: Make-ups for missed exams and quizzes are given only in truly extraordinary situations. However, if you have a university-sanctioned event or an emergent medical situation, death in the family, etc., you can take a make-up. In order to qualify for a make-up, you must provide a written, verifiable excuse from an appropriate person (coach, medical doctor, etc.) within 3 days of the missed activity. This excuse should clearly articulate that you were unable to make it to class on the day you missed. I reserve the right to verify the legitimacy of all excuses by contacting the authority figure.

Assignments are due on their respective due dates (see course schedule, below). Assignments turned in late lose 20% of their value per day. Assignments turned in more than five days late will be critiqued and returned but will receive no credit.

Students with disabilities: I am happy to help you if you need special accommodations to succeed in this course. Please visit the UWSP Student Disability and Assistive Technology Center (located in LRC 609) to document your needs and then contact me so that appropriate arrangements can be made. More information can be found here: http://www.uwsp.edu/disability/Pages/default.aspx

Academic integrity: It is your responsibility to be aware of your rights and responsibilities as a UWSP student. Please take the time to read and understand the information found here (and let me know of any questions): http://www.uwsp.edu/stuaffairs/Documents/RightsRespons/SRR-2010/rightsChap14.pdf Also, be sure to review the following information on plagiarism: http://library.uwsp.edu/guides/vrd/plagiarism.htm

Course schedule: Note that I reserve the right to change this schedule, with due notice, as we progress through the semester. Lab meetings occur on dates in bold.

Date	Topic	Assignments and due dates
9/6	Introduction	
9/8	**Quiz I** Pattern and process in nature	**Read Kunin 1997 before lecture; focus on section 1.1 and just skim the rest.**
9/11	**Quiz II** History of ecol/evol theories *Lab: Intro to herbivore foraging and behavior project*	**Read Carroll 2009a and 2009b before lecture.** Herbivore foraging and behavior project report assigned.
9/13	History of evol/ecol theories	
9/15	**Quiz III** The evidence for evolution	**Watch Dawkins video before lecture.**
9/18	The evidence for evolution *Lab: data analysis and communication in science*	**Read statistics tutorial and upload statistics prelab assignment to dropbox before lab.**
9/20	Evolutionary change within populations	
9/22	Evolutionary change within populations	
9/25	Evolutionary change within populations *Lab: natural selection simulation*	Natural selection simulation assignment assigned.
9/27	Evolutionary change within populations	
9/29	Evolutionary change within populations	
10/2	Evolutionary change within populations *Lab: population genetics problems*	**Natural selection simulation assignment due in dropbox.**
10/4	**Quiz IV** Evolutionary change within populations	**Read Byars *et al.* 2010 before lecture.**
10/6	Catch-up and review for Midterm I	
10/9	**No lecture meeting** ***Lab: Midterm I***	
10/11	Species and speciation	
10/13	Species and speciation	

Date	Topic	Assignments and due dates
10/16	Species and speciation *Lab: Critically reading and interpreting scientific literature*	**Read Knowlton *et al.* 1993 before lab.** **Herbivore foraging and behavior project report due in dropbox.**
10/18	Species and speciation	
10/20	**Quiz V** Species and speciation	**Read Losos *et al.* 1997 before lecture.**
10/23	Origin and history of life on earth *Lab: Independent (group) project*	Herbivore foraging and behavior project peer evaluation assigned. Independent (group) project assigned.
10/25	Phylogenetics	
10/27	Phylogenetics	
10/30	Phylogenetics *Lab: Phylogeny construction*	**Herbivore foraging and behavior project report peer evaluation due (two hard copies + original document).** Phylogeny construction assignment assigned.
11/1	**Quiz VI** Phylogenetics	**Read Harcourt *et al.* 1981 and Harcourt *et al.* 1995 before lecture.**
11/3	Catch-up and review for Midterm II	
11/6	**No lecture meeting** ***Lab: Midterm II***	**Phylogeny construction assignment due.**
11/8	Life-histories	
11/10	Life-histories	
11/13	Life histories *Lab: **Quiz VII** and modeling scientific processes*	**Read Croft *et al.* 2015 before lab.** Modeling life-histories assignment assigned.
11/15	Life histories	
11/17	Behavior	
11/20	Behavior *Lab: altruism*	**Modeling life-histories assignment due in dropbox.** **(Optional) Herbivore foraging and behavior project report revised version due in dropbox.** Modeling altruism assignment assigned.
11/22	Behavior	
11/27	Population ecology *Lab: **Quiz VIII** and Science and Society discussion*	**Read Achenbach 2015 and Rouner 2015 before lab.** **Modeling altruism assignment due in dropbox.**
11/29	Population ecology	
12/1	Catch-up and review for Midterm III	
12/4	**No lecture meeting** ***Lab: Midterm III***	
12/6	Community ecology	
12/8	Community ecology	
12/11	Large-scale ecology *Lab: Independent (group) project student presentations*	**Independent (group) project Powerpoint file due in dropbox (each student must upload separately).**
12/13	Large-scale ecology	
12/15	Catch-up and course review	
12/18	**Final Exam (10:15 – 12:15 PM in TNR 464)**	