

Biology 270: Principles of Evolution (Section 2)

Instructor: Dr. Brian C. Barringer
 Email: bbarring@uwsp.edu
 Phone: 715-346-2452
 Office: TNR 476
 Office Hours: Thur/Fri 10:00 – 12:00 or by appointment

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



Required Texts: *Evolutionary Analysis*, 5th ed., Herron and Freeman, 2014 (rental); Additional reading (and one video) will be provided for you on Canvas.

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

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

- 1) Describe and discuss the history of evolutionary thought.
- 2) Describe and apply knowledge of fundamental evolutionary processes to investigate patterns in nature, including the generation and maintenance of genotypic and phenotypic diversity within and among species.
- 3) Critically analyze and discuss scientific literature and use the scientific method to generate and explore relevant questions of interest.
- 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). Exams will focus on lecture material; however, lab activities and both textbook and supplemental readings compliment lecture material and will probably 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 Mon Dec 16th at 10:15 AM.

Quizzes: I will ask that you read a number of items (mostly peer-reviewed journal articles) and watch one short video this semester. We will discuss these items during our meetings; therefore, you must have access to this material in class. With that in mind I encourage you to bring a tablet/laptop to class on those days. Hard copies of reading material – though not optimal because it uses so much paper and ink – will also work. Most reading/video 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/video assignments before coming to class.

Lab: We will meet for lab each week, 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. Late arrivals and/or missed classes will result in a deduction from your attendance score (see below).

Attendance and participation: I do not take attendance during lecture, though this is a small class and I do notice who is there and who is absent. My observations suggest that students who regularly attend and participate in lecture

generally do 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.

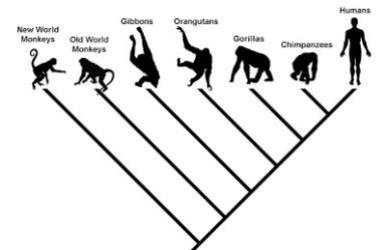
On-time attendance in lab is mandatory. I will take attendance at the beginning of each lab meeting. Each of our meetings is worth up to 10 points for attendance (not including midterm exam meetings). Students arriving late lose one point per minute (up to a 10 point maximum). Note that if you miss a lab meeting for a verifiable extraordinary reason, I will not penalize you. However, for logistical reasons it is often 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, outside of regular class time. 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 550. Point values for individual exams, quizzes, assignments, etc. 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
Midterm exams (3)	50 each
Final exam	60
Quizzes (10)	5 each
Statistics prelab assignment	10
Natural selection simulation assignment	20
Herbivore foraging project report	40*
Herbivore foraging project report peer evaluation	20*
Phylogeny construction assignment	20
100 articles presentation	40*
Attendance (11 lab 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 72 hours 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.

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):

<https://www.uwsp.edu/dos/Documents/UWS%2014-1.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. Shaded dates (9/16-9/27 and 10/21-11/1) refer to the two herbivore foraging project data collection time periods (details will be shared in class).

Date	Topic	Assignments and due dates
9/4	Introduction	
9/6	Quiz I Pattern and process in nature	Read Kunin 1997 before lecture; focus on section 1.1 and just skim the rest.
9/9	Quiz II History of evolutionary theory <i>Lab: What kind of squirrel are you? Intro to herbivore foraging project (we will be walking over to Schmeckle Reserve and hiking around off-trail; dress appropriately)</i>	Read Carroll 2009a and 2009b before lecture. Herbivore foraging project report assigned.
9/11	History of evolutionary theory	
9/13	Quiz III The evidence for evolution	Read Quammen 2004 and watch Dawkins video before lecture.
9/16	The evidence for evolution <i>Lab: data analysis/interpretation and communication in science</i>	Read statistics tutorial before lab. Statistics prelab assignment due (on Canvas) before lab.
9/18	Evolutionary change within populations	
9/20	<i>How to Tame a Fox and Build a Dog.</i> Lee Dugatkin seminar in Sci D102	
9/23	Evolutionary change within populations <i>Lab: natural selection simulation</i>	Natural selection simulation assignment assigned.
9/25	Evolutionary change within populations	
9/27	Evolutionary change within populations	
9/30	Evolutionary change within populations <i>Lab: population genetics problems and visit on-campus herbivore feeding station sites; please dress appropriately</i>	Natural selection simulation assignment due (on Canvas).
10/2	Quiz IV Evolutionary change within populations	Read Byars <i>et al.</i> 2010 before lecture.
10/4	Catch-up and review for Midterm I	
10/7	No lecture meeting <i>Lab: Midterm I</i>	
10/9	Species and speciation	
10/11	Species and speciation	
10/14	Species and speciation <i>Lab: Quiz V and speciation discussion</i>	Read Knowlton <i>et al.</i> 1993 before lab.
10/16	Species and speciation	
10/18	Quiz VI Species and speciation	Read Losos <i>et al.</i> 1997 before lecture.
10/21	Origin and history of life on earth <i>Lab: classic papers in evolution and ecology</i>	100 articles presentation assigned.
10/23	Phylogenetics	

Date	Topic	Assignments and due dates
10/25	Phylogenetics	
10/28	Phylogenetics <i>Lab: Phylogeny construction</i>	Phylogeny construction assignment assigned.
10/30	Quiz VII Phylogenetics	Read Harcourt <i>et al.</i> 1981 and Harcourt <i>et al.</i> 1995 before lecture.
11/1	Catch-up and review for Midterm II	
11/4	No lecture meeting Lab: Midterm II	Phylogeny construction assignment due (hard copy).
11/6	Life-histories	
11/8	Life-histories	
11/11	Life histories <i>Lab: Quiz VIII and life history discussion</i>	Read Croft <i>et al.</i> 2015 before lab.
11/13	Life histories	
11/15	Behavior	
11/18	Behavior <i>Lab: Quiz IX and kin selection/altruism discussion</i>	Read Sundstrom <i>et al.</i> 1996 before lab.
11/20	Behavior	Herbivore foraging project report due (on Canvas + one hard copy).
11/22	Population ecology	
11/25	No lecture meeting Lab: Midterm III	
11/27	No class – Thanksgiving Break	
11/29	No class – Thanksgiving Break	
12/2	Population ecology <i>Lab: Quiz X and science and society discussion</i>	Read Achenbach 2015 and Rouner 2015 and (skim) Funk and Rainie 2015 before lab. Herbivore foraging project peer evaluation assigned.
12/4	Population ecology	Herbivore foraging project report peer evaluation due (On Canvas + one hard copy + original document you evaluated).
12/6	Community ecology	
12/9	Community ecology <i>Lab: 100 articles presentations</i>	
12/11	Large-scale ecology	
12/13	Catch-up and course review	(Optional) Herbivore foraging project report revised version due (on Canvas)
12/16	Final Exam (10:15 AM in TNR 464)	

