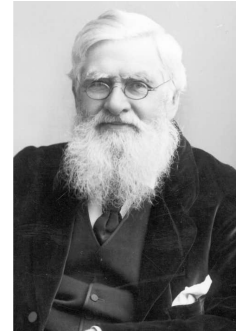
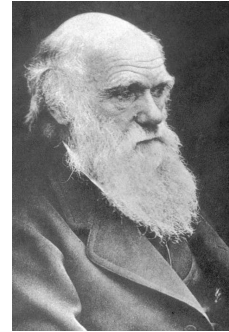


**Biology 270: Principles of Evolution**

Instructor: Dr. Brian C. Barringer  
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 Phone: 715-346-2452  
 Office: CBB 302A (inside Biology Dept main office)  
 Office Hours: Mon/Tue 10-11 or by appointment  
 Lecture: Mon/Wed/Fri 12:00-12:50 in CBB 131  
 Lab: Mon 1:00-2:50 in CBB 120



**Course Description:** This course introduces students to the history and fundamental principles of evolutionary theory, the central concept in biology that ties all of the life sciences (and many of the physical sciences!) together. We'll spend much of our time learning about and exploring a number of different evolutionary processes and the patterns that emerge from those processes. Along the way we'll learn about the history of life on earth and the relevance of evolutionary theory to a diverse array of contemporary topics related to human health and happiness.

**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.

**Required Course Materials:** *Evolutionary Analysis*, 5<sup>th</sup> ed., Herron and Freeman, 2014 (rental); Additional materials will be provided for you on Canvas.

**Exams:** This course includes three exams total: two 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 reading/video materials compliment lecture material and will probably serve as inspiration for exam questions. Midterm exams will occur during two lab periods in CBB 120. The final exam is cumulative, though it will be weighted toward material covered at the end of the semester (i.e., after midterm II). The final exam is also worth a bit more than the midterms.

**Supplemental readings/videos and quizzes:** I will ask that you read a number of articles (mostly from the primary literature) and watch one or two short videos this semester. We will discuss these items during our meetings; therefore, you must have access to this material in class (the reading material at least). With that in mind I encourage you to bring a tablet/laptop to class on those days. Hard copies of reading material 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. 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 most weeks, 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.

**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. They certainly learn more. Do not fool yourself into thinking that your textbook and access to my slides is a reasonable substitute for attending lecture. They are not.

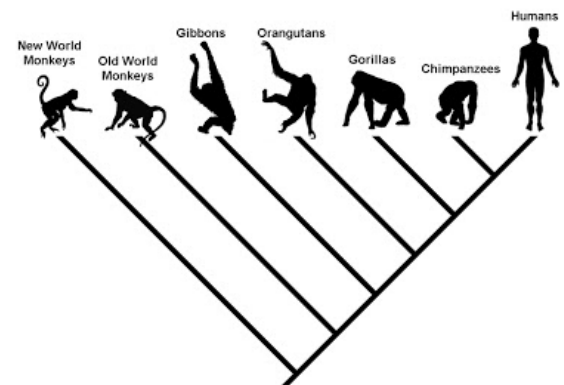
On-time attendance in lab is mandatory. I will take attendance at the beginning of each lab meeting. Each of our meetings is worth up to 10 points for attendance (not including midterm exam meetings and one week in which we won't meet). Students arriving late lose one of those points per minute. Note that if you miss a lab meeting for a verifiable, extraordinary reason, I will not penalize you in terms of attendance points. 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 480. 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 (2)	50 each
Final exam	60
Quizzes (8)	5 each
Natural selection simulation assignment	20
HWE and population genetics assignment	20
Phylogeny construction assignment	20
Herbivore foraging project report	40*
Herbivore foraging project report peer evaluation	20*
Classic paper presentation	20*
Attendance (11 lab meetings)	10 each
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

**Late policy and make-up policy for missed quizzes and exams:** Assignments are due on their respective due dates. Assignments turned in after their due date lose 20% of their value per day. Make-ups for missed exams and quizzes are given only in truly extraordinary situations. Timely communication with me about your situation is important.

**Students with disabilities:** I will be happy to help you if you need special accommodations to succeed in this course. Please visit the UWSP Disability Resource Center (located in CCC 108) to document your needs and contact me so that appropriate arrangements can be made. More information can be found here:

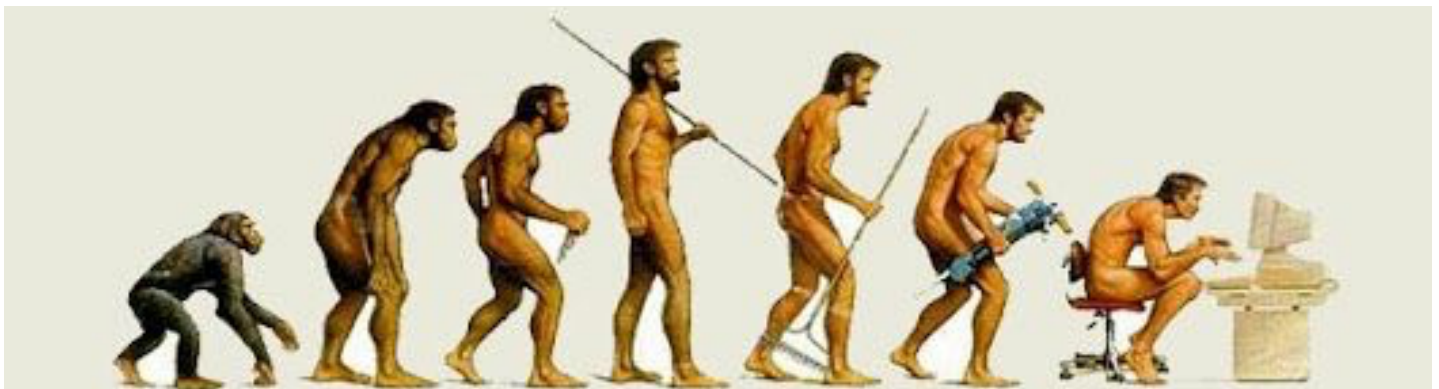
<http://www.uwsp.edu/disability/Pages/default.aspx>.

**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: <https://www.uwsp.edu/dos/Documents/UWS%2014-1.pdf>. It is also your responsibility to be aware of the definition(s) of the word plagiarism and take care to avoid committing plagiarism in your work. Please take the time to read and understand the information found here: <https://libraryguides.uwsp.edu/plagiarism>.

**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 (9/19-9/30 and 10/17-10/28) refer to the two herbivore foraging project data collection time periods (details about this will be shared in class).

Date	Topic	Assignments/assignments due
9/7	Introduction	
9/9	<b>Quiz I</b> Pattern and process in nature	<b>Read Kunin 1997; focus on section 1.1</b>
<b>9/12</b>	History of evolutionary theory <i>Lab: Herbivore foraging project</i>	Herbivore foraging project report assigned
9/14	History of evolutionary theory	
9/16	<b>Quiz II</b> History of evolutionary theory	<b>Read Carroll 2009a and 2009b</b>
<b>9/19</b>	The evidence for evolution <i>Lab: Herbivore foraging project continued (be prepared to walk over to Schmeckle Reserve to feeding station locations)</i>	
9/21	The evidence for evolution	
<b>9/23</b>	<b>Quiz III</b> The evidence for evolution	<b>Read Quammen 2004 and watch Dawkins video</b>
<b>9/26</b>	Mechanisms of evolutionary change within populations <i>Lab: classic papers in evolution and ecology</i>	Classic paper presentation assigned
9/28	Mechanisms of evolutionary change within populations	
9/30	Mechanisms of evolutionary change within populations	
<b>10/3</b>	Mechanisms of evolutionary change within populations <i>Lab: natural selection simulation (and be prepared to walk around campus to see on-campus feeding station locations)</i>	Natural selection simulation assignment assigned
10/5	Mechanisms of evolutionary change within populations	
10/7	Mechanisms of evolutionary change within populations	
<b>10/10</b>	Mechanisms of evolutionary change within populations <i>Lab: HWE and population genetics</i>	HWE and population genetics problems assigned <b>DUE: Natural selection simulation assignment</b>
10/12	Species and speciation	
10/14	Species and speciation	<b>DUE: HWE and population genetics problems</b>
<b>10/17</b>	No lecture meeting (extra office hours) <i>Lab: Midterm Exam I</i>	
10/19	Species and speciation	
10/21	Species and speciation	
<b>10/24</b>	Origin and history of life on earth <i>Lab: Quiz IV and speciation discussion</i>	<b>Read Knowlton et al. 1993</b>
10/26	Origin and history of life on earth	
10/28	Origin and history of life on earth	
<b>10/31</b>	Origin and history of life on earth <i>Lab: Visiting speaker Lee Burke; Career Development Coordinator from the Academic and Career Advising Center at UWSP</i>	
11/2	<b>Quiz V</b> Phylogenetics	<b>Read Harcourt et al. 1981 and Harcourt et al. 1995</b>
11/4	Phylogenetics	

Date	Topic	Assignments/assignments due
11/7	Phylogenetics <i>Lab: phylogenetics</i>	Phylogeny construction assignment assigned
11/9	Life-history evolution and ecology	
11/11	<b>Quiz VI</b> Life-history evolution and ecology	<b>Read Croft <i>et al.</i> 2015</b>
11/14	Life-history evolution and ecology <i>Lab: Quiz VII and science and society discussion</i>	<b>Read Achenbach 2015, Rouner 2015, and (skim) Funk and Rainie 2015 (reading list might be revised)</b> <b>DUE: Phylogeny construction assignment</b>
11/16	Life-history evolution and ecology	
11/18	Life-history evolution and ecology	
11/21	No lecture meeting (extra office hours) <i>Lab: Midterm Exam II</i>	<b>DUE: Herbivore foraging project report</b> Herbivore foraging project report peer evaluation assigned
11/23	*** No Class – Thanksgiving Break ***	
11/25	*** No Class – Thanksgiving Break ***	
11/28	Behavioral evolution and ecology <i>Lab: Quiz VIII and kin selection/altruism discussion</i>	<b>Read Sundstrom <i>et al.</i> 1996</b>
11/30	Behavioral evolution and ecology	
12/2	Behavioral evolution and ecology	
12/5	Behavioral evolution and ecology <i>Lab: no formal meeting (work on classic paper presentation)</i>	<b>DUE: Herbivore foraging project report peer evaluation</b>
12/7	Introduction to the science of ecology (if time allows)	
12/9	Introduction to the science of ecology (if time allows)	
12/12	Introduction to the science of ecology (if time allows) <i>Lab: classic paper presentations</i>	
12/14	Course wrap-up	<b>DUE: (Optional) Herbivore foraging project report revised version</b>
12/20	<b>Final Exam starting 2:45 PM in CBB 131</b>	



*In the end we will conserve only what we love, we will love only what we understand, and we will understand only what we are taught.*

---Baba Dioum