Instructor: Vanessa Koelling, Ph.D.
Office: Thompson 257C
Office Hours: Drop-in or by appointment
Email: vkoelling@pugetsound.edu
Lecture: MWF, 9:00-9:50 AM, TMS271
Lecture Notes: Provided online after class as a PDF.
Course Websites: A Moodle site will be used to distribute lecture notes, labs, and other materials. http://moodle.pugetsound.edu/

COURSE DESCRIPTION AND LEARNING OBJECTIVES

Evolution is an elective course covering the major principles of modern evolutionary theory. This course will examine the mechanisms of evolution and how it has shaped, and continues to shape, the diversity of life on Earth. When you finish this course, you should have a thorough grounding in:

- how the process of evolution occurs in populations
- major transitions in the history of life on Earth
- how evolution is studied at both the micro and macro scale
- important concepts within major subfields of evolutionary biology
- connections between evolutionary biology and other disciplines

This course will also give you the opportunity to further develop your ability to read primary scientific literature and communicate in written and oral forms.

RESPONSIBILITY

I will facilitate an effective learning environment in which you can explore the fundamentals of evolution. No question is unreasonable. However, ultimately you are responsible for your own education. You must dedicate ample energy and time to learn the material on your own. You are responsible for obtaining information on any schedule changes as well as on class materials you may miss during absence from class.

TIME REQUIREMENTS

Please be aware that assessment in this course will be based on comprehension and application of biological knowledge. As such, you will need to plan on **SIGNIFICANT** additional time outside of lecture so that you may move beyond simple acquisition of knowledge.

OFFICE HOURS AND CLASS CORRESPONDENCE
I have a drop-in policy for office hours. You may stop by my office at any time with the caveat that I may not always be available to speak with you. If I am not available at that time, we can set up an appointment to meet. Note that emailing me for an appointment before you stop by my office will guarantee my availability.

You may contact me by telephone, e-mail, or in person. I check e-mail periodically throughout the day but usually not often in the evenings or on weekends. I will respond to email within 24-48 hours. Please consider before emailing me whether or not a question can best be answered in person. If that is the case, please request an appointment.

I will use e-mail and/or Moodle to provide information about the class. Make sure you routinely check your Puget Sound e-mail and the Moodle site for this class.

**READINGS**

1) The required textbook for this course is Evolution (3rd edition) by Douglas J. Futuyma, 2013, published by W. H. Freeman and Company. You may purchase this textbook in print (hard bound or loose leaf) or as an e-book—all are acceptable. There is a companion website with study aids that you may find useful here: [http://sites.sinauer.com/evolution3e/index.html](http://sites.sinauer.com/evolution3e/index.html)

This is an upper-division course in which you are expected to acquire content knowledge of greater depth and detail than in lower-division courses; therefore, you are expected to do a close reading of the textbook. Following each lecture, it is important that you integrate the information in the text with that from lecture in order to organize and apply your learning.

2) Evolution for Everyone by David Sloan Wilson is also required. We will discuss readings from this book on most class days.

3) You should also expect supplemental reading assignments (e.g., news articles or scientific journal articles). Assignments will often be associated with this reading material. In all cases, you should consider the reading material required unless I state otherwise.

**SIMBIO ASSIGNMENTS**

You will be assigned a number of EvoBeaker assignments from SimBio. These are simulation experiments based on real world examples of evolution. They are designed to help you understand fundamental evolutionary principles and where they come from, as well as practice solving problems in evolutionary biology using the scientific method. We will use some in-class time for parts of the EvoBeaker assignments, but you will also be asked to complete some parts on your own outside of class.

You must purchase a subscription to these EvoBeaker assignments. The cost is $25. If you wish to use financial aid, you may purchase a registration voucher at the Puget Sound bookstore. To complete your registration, follow the instructions you receive from me via email.

**CLASS PARTICIPATION**
I expect your regular attendance and attention in class. As part of your participation in the course, you will use paper clickers (plickers) to answer multiple choice questions I pose during lecture, and you will earn points for answering these questions. I will give you a plicker on the first day of class, and you should bring it to class every day. You will return the plicker to me on the last day of class.

**FINAL PAPER**

You will write a final paper for this class. Further instructions for this assignment will be given in class.

To help you with this assignment, the Science Librarian has set up a web page specifically designed to help you with your research: [http://research.pugetsound.edu/bio311?hs=a](http://research.pugetsound.edu/bio311?hs=a)

You can also set up one-on-one consultations with the Science Librarian if you need assistance with these assignments. His contact information is as follows:

Eli Gandour-Rood, Science Librarian
Collins Library, Room 1117
Phone: 253-879-3678
Email: egandourrood@pugetsound.edu

**PROBLEM SETS**

You may receive problem sets from time to time. The purpose of the problem sets is to help you understand the material covered and to give you a chance to familiarize yourself with the sorts of problems that you might encounter on exams. These problems will often ask you to explain or predict results based on observed data. Problem sets will be graded on completion. Answer keys will be posted after problem sets are turned in. Late problem sets will not be accepted.

**EXAMS**

There will be three mid-term exams and a final exam.

I will not discuss an exam or exam grade within 24 hours of returning the graded exam to you. If you wish to dispute the grade or further discuss how to improve your study habits, I will be happy to meet with you after the 24-hour time period—once you have thoroughly read through your exam and the posted exam answer key.

**Re-grading Policy:** If you feel there has been a mistake made in grading an exam problem, you may submit it for a regrade. Turn in your exam to me with a written explanation of what you think is wrong. However, please be aware that we will not revisit how points are assigned for questions that received partial credit. Regrades must be submitted within one week (7 calendar days) of the quiz/exam being returned.

**GRADING (subject to change at discretion of instructor at any time)**
Grading Policies
- NO MAKE-UP EXAMS WILL BE GIVEN. However, if you are sick or have some other valid reason for missing the exam, please contact the instructor. While make-up exams are not given, we may be able to work something out.
- Late papers, lab reports, etc. will be accepted. Late papers and lab reports will be penalized 10% per day late. The one exception to this is problem sets. Late problem sets are not accepted.
- No extra credit.

Grading Scale
This class will be graded straight-scale, based on the percentage of the total points that you accumulate from exams, labs, and other assignments. The scale is as follows:

- A ≥ 94%  A- = 90-93.9%
- B+ = 87-89.9%  B = 84-86.9%  B- = 80-83.9%
- C+ = 77-79.9%  C = 74-76.9%  C- = 70-73.9%
- D+ = 67-69.9%  D = 64-66.9%  D- = 60-63.9%
- F < 60%

Approximate Breakdown of Grade Components
- Exams: 50%
- Final Paper: 15%
- SimBio Assignments: 10%
- Class Participation: 15%
- Other Assignments: 10%

APPROPRIATE BEHAVIOR

Students are expected to behave in an appropriate manner while attending this class. During class time I expect you to be working on materials for this course only. Please be respectful to others in the class, especially concerning the use of personal technology:

- Switch your phones to vibrate or no-ring before coming to class and have them stowed in your bag or pocket
- No email or text messaging
- You may not have ear buds in at any time while in class
- Digital devices (laptops, tablets, phones) can only be used by permission of instructor
- You may not touch or use any electronic devices in any way during an exam
- You may not leave the room during an exam

In addition, please be aware that my classroom is an inclusive classroom. I expect you to treat your fellow classmates with respect at all times. Behavior that diminishes or excludes another person based on their age, disability, sex, gender identity, race or ethnicity, socioeconomic class, or other identity characteristics is unacceptable in this class. Please see Puget Sound’s statement on diversity here: http://www.pugetsound.edu/about/diversity-at-puget-sound/university-diversity-statement/
STATEMENT CONCERNING ACADEMIC MISCONDUCT

As a student at the University of Puget Sound, you assume the responsibility to exhibit in your academic performance the qualities of honesty and integrity. I will not tolerate academic misconduct in any form, especially plagiarism.

If you need to refresh your memory about the nature of academic misconduct and university policies on the handling of academic misconduct, you may go here: http://www.pugetsound.edu/student-life/personal-safety/student-handbook/academic-handbook/academic-integrity/

Plagiarism is defined as presenting the work of another as one's own. More than four consecutive words from a source other than the writer constitutes plagiarism when the source is not clearly identified in appropriate documentation format.

If you are found to have committed plagiarism in this class you will lose 100 points or the value of the assignment that was plagiarized, whichever is greater. In addition, I will follow the steps for handling academic misconduct outlined on the university website above.

If you did not receive instruction on avoiding plagiarism in your freshman seminar courses, please take some time to complete the course that the library has set up for you. For that course, go here: http://research.pugetsound.edu/academicintegrity

ACCESSIBILITY AND ACCOMMODATIONS

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Peggy Perno, Director of the Office of Accessibility and Accommodations, 105 Howarth, 253.879.3395. She will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential. Please notify me well in advance should you require accommodation in the class or lab.

CLASSROOM EMERGENCY RESPONSE PROCEDURES

Please review university emergency preparedness and response procedures posted at www.pugetsound.edu/emergency/. There is a link on the university home page. Familiarize yourself with hall exit doors and the designated gathering area for your class and laboratory buildings.

If building evacuation becomes necessary (e.g. earthquake), meet your instructor at the designated gathering area so she/he can account for your presence. Then wait for further instructions. Do not return to the building or classroom until advised by a university emergency response representative.

If confronted by an act of violence, be prepared to make quick decisions to protect your safety. Flee the area by running away from the source of danger if you can safely do so. If this is
not possible, shelter in place by securing classroom or lab doors and windows, closing blinds, and turning off room lights. Stay low, away from doors and windows, and as close to the interior hallway walls as possible. Wait for further instructions.

BEREAVEMENT POLICY

Upon approval from the Dean of Students’ Office, students who experience a death in the family, including parent, grandparent, sibling, or persons living in the same household, are allowed three consecutive weekdays of excused absences, as negotiated with the Dean of Students. For more information, please see the Academic Handbook.

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# Tentative Schedule for BIO 360, Spring 2017

*Subject to change at any time at the discretion of Dr. Vanessa Koelling*

<table>
<thead>
<tr>
<th>Week/dates</th>
<th>Lecture Topics</th>
<th>Reading from the Textbook</th>
<th>Exams &amp; SimBio Assignments</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Intro to Evolution/The Tree of Life: Classification and Phylogeny</td>
<td>Ch. 1, 2</td>
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<tr>
<td>1/18-1/20</td>
<td>The Tree of Life: Classification and Phylogeny/Patterns of Evolution</td>
<td>Ch. 2, 3</td>
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<tr>
<td>Week 3</td>
<td>Genetic Variation in Evolution</td>
<td>Ch. 8, 9</td>
<td>SimBio: Domesticating Dogs, 1/30</td>
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<td>1/30-2/3</td>
<td>Genetic Variation in Evolution/Genetic Drift</td>
<td>Ch. 9, 10</td>
<td>SimBio: Mendelian Pigs, 2/6</td>
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<tr>
<td>Week 4</td>
<td>Genetic Drift and Neutral Theory/Natural Selection and Adaptation</td>
<td>Ch. 10, 11</td>
<td>SimBio: Genetic Drift and Bottlenecked Ferrets, 2/13</td>
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<tr>
<td>2/6-2/10</td>
<td>The Genetic Theory of Natural Selection/Phenotypic Evolution</td>
<td>Ch. 12, 13</td>
<td>SimBio: The HIV Clock, 2/20</td>
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<tr>
<td>Week 5</td>
<td>The Evolution of Life Histories</td>
<td>Ch. 14</td>
<td>SimBio: Finches and Evolution, 2/27</td>
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<td>2/13-2/17</td>
<td>Sex and Reproductive Success</td>
<td>Ch. 15</td>
<td>Exam 2 on 3/10</td>
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<td>Week 6</td>
<td>Cooperation and Conflict</td>
<td>Ch. 16</td>
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<td>3/6-3/10</td>
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<tr>
<td>Week 7</td>
<td>No class 3/13-3/16 (Spring Break)</td>
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<td>Week 8</td>
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<td>3/20-3/24</td>
<td>No class 3/24 (President Crawford’s)</td>
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<td>Week 9</td>
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<td>Week 10</td>
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*BIO 360, Spring 2017, V.A. Koelling*
| Inauguration) | Week 11  
3/27-3/31 | Species and Speciation | Ch. 17, 18 |
| --- | --- | --- | --- |
| Week 12  
4/3-4/7 | Evolution of Species Interactions/Evolution of Genes and Genomes | Ch. 19, 20 |
| Week 13  
4/10-4/14 | Fossil Record/Life’s History | Ch. 4, 5 | Exam 3 on 4/10 |
| Week 14  
4/17-4/21 | Biogeography & Biodiversity | Ch. 6, 7 |
| Week 15  
4/24-4/28 | Human Evolution | Ch. 4, 6, supplemental reading |
| Week 16  
5/1-5/3  
No class 5/5 (Reading Period) | Evolutionary Science, Creationism, and Society | Ch. 23 |
| Week 17 — Final Exam Wednesday, 5/10, 8:00-10:00AM  
Exam will be cumulative | | | |