

## Biology 131 "Introduction to Evolution", Spring 2015

**Instructor:** Dr. Ann Petersen

annp@uoregon.edu (please use Bi131 in the subject header)

Office hour: Onyx 360, Tues 4-5pm and Thursday 11am-12pm and by appointment

**GTFs:** Teresa Findley [tfindley@uoregon.edu](mailto:tfindley@uoregon.edu)

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**Website:** All course documents will be posted on the **Blackboard** Course Website.

**Required Text:** Kardong, Ken. 2008. An Introduction to Biological Evolution, Second Edition.

McGraw Hill. The text is on reserve at the science library.

In addition, you will be responsible for reading documents posted on Blackboard.

**Recommended Reading:** I will be reading from and using examples throughout the term from "The Greatest Show on Earth" by Richard Dawkins. This is an excellent readable and fun book about the wonders of nature and evolution...and a clear call for more scientific awareness from the public.

Although it is not required, if you can get a copy from the library or from Amazon, we could have a bit of a book club discussion weekly during office hours. This will help immerse you in evolutionary theory, and enhance your experience in the course.

### Course Goals

We will explore fundamental concepts in evolution such as natural selection, speciation, extinction, adaptations in living organisms, and human evolution. We will examine human-caused evolution including the impact of humans on the evolution of disease causing organisms. In addition, it is important for all citizens to be scientifically literate, whether or not they are in a science profession. Part of science literacy is the ability to find, evaluate, and communicate or act on scientific information and issues. We will practice these skills in this course.

### Lectures

T/Th 8:30am - 9:50am	Lillis Hall 182
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You will be responsible for all material presented in lecture. The course schedule is tentative and subject to change; adjustments will be announced in class. Occasionally, there are group and writing activities that occur during lecture. It is our expectation that you participate in these activities. Your active involvement promotes understanding of the material and preparation for exam questions. PowerPoint slides with notes will be available on Blackboard after lecture.

*There is a strong positive correlation between attendance in lecture and class grades.* Attendance will be taken during lecture in the form of a sign in sheet that will be passed around. Please don't forget to sign in and record if you arrived late or need to leave early. This class also uses clickers, if you do not own a clicker you can purchase them from the bookstore. Most clicker questions will be graded based on

effort and not correctness. In the rare case that a question is graded for correctness, you will be told prior to submitting your answer.

**Please do not bring laptops to lecture, and keep cell phones off and put away.** If you need to use a laptop please see me to discuss your situation.

### **Email**

We appreciate feedback on the lectures. Questions about lecture material are welcome and encouraged during and after lecture, during office hours, and via e-mail, however, due to the large number of students in this class, if you have questions about due dates or other topics that are contained in the syllabus, Please attempt to look this stuff up for yourself before you email us.

### **Discussion Sections:** Mondays, 111 Huestis Hall

Participation in discussion sections is a required part of this class and will count toward your final grade. Sections will provide an opportunity to question and discuss many of the topics presented in the readings and lecture. In addition, hands-on activities will allow us to ask questions about natural selection and evolution. Much of discussion will also be devoted to preparing to research and write a project paper and to developing a group poster presentation.

**Changing Discussion Sections:** Students are expected to attend the section in which they are registered. If you need to change your discussion section time, please do not try to drop and add back the class with the new section. This will close you out of the class.

### **Grading Evaluation:**

- 20% Midterm
- 17% Final Exam
- 10% Problem sets (3 problem sets)
- 20% Project (12% Paper + 8% Poster Presentation)
- 20% Discussion (Participation, attendance, handouts, cleanup)
- 13% Lecture attendance and participation (clickers)

**Exams:** There will be two exams: one midterm and one final exam. Exams will include material from the lectures, readings, discussion sections and the film clips shown in class. The **Final Exam** will be cumulative.

Exams will most likely be mixed format and include at least some multiple-choice questions. Scantrons will be handed out in class; please bring a #2 pencil to all exams.

**Make-up Exam Policy:** There will be **NO make up exams** except in the case of a documented severe medical condition or other extreme documentable emergency. It is your responsibility to contact the instructor as soon as possible.

Note the date and time of the final exam is **8:00 Tue., June 9** There will be **no early exams!**

**Project:** The project has two parts (see handout or calendar for due dates):

- (1) A two to three page Mini-term Paper about a topic in evolutionary biology  
(You will choose one of the assigned topics during the first week of classes.)
- (2) A Group Poster Presentation

You will be given information about these assignments in discussion. Please read these documents carefully and ask if you have any questions.

**Problem Sets** get you thinking about the material and allow you to focus and organize your studies. They serve as study guides and are good preparation for taking the exam. The answers to the Problem Sets will be posted on Blackboard after the due date. We recommend you read through these in preparation for the exams.

Problem sets will be posted and submitted through Blackboard by the due date noted in the syllabus. Enter your answers in the textbox that appears when you open the assignment link. You do not need to copy and paste the text of the questions themselves.

**Plagiarism will not be tolerated.** You are expected to do your own work on homework assignments, projects, and exams. When writing up your homework assignments and papers, you are expected to paraphrase (use your own words). When writing up your project papers, give credit to the sources of your information.

You are encouraged to discuss ideas with each other and to study together, but don't copy someone else's work, or allow them to copy yours.

Academic dishonesty is a serious offense. Please refer to the University of Oregon Student Conduct Code by which all students are expected to abide.

### **Classroom Etiquette:**

1. Please arrive on time.
2. Please don't leave early. This is very disruptive to everyone. In turn, I will not lecture beyond 9:50. If you have an unusual circumstance and must leave early, then please sit near the exit so you can leave unobtrusively.
3. Please refrain from engaging in activities that could be distracting to your fellow students.
  - We ask that you not converse with your neighbors when someone else is talking (instructor or classmate) as this interferes with the ability of other students to learn.
  - Please turn your cell phones off during lecture.
  - Please do not use computers during lecture.
  - Please do not pack up your things early as this makes it difficult for students around you to hear the end of the lecture.

If you are having a problem that interferes with your ability to do the work in this class, please tell us about it as soon as you can.

The University of Oregon is working to create inclusive learning environments. Please notify me if there are aspects of the instruction or design of this course that result in barriers to your participation. You may also wish to contact Disability Services in 164 Oregon Hall at 346-1155 or [disabsrv@uoregon.edu](mailto:disabsrv@uoregon.edu)

These dates and deadlines are subject to change, you will be told about any changes in class.

<b>Date</b>	<b>Lecture/Discussion Topic</b>	<b>Reading</b>	<b>Assignments due</b>
March 30 <sup>th</sup> Discussion 1	Discussion Overview Take Student Pictures Fast Plants: plant seeds		
March 31 <sup>st</sup> Lecture 1	Introduction Antibiotic resistance in bacteria	314-316	
April 2 <sup>nd</sup> Lecture 2	Studying Evolution	99-120 320-323	
April 6 <sup>th</sup> Discussion 2	Project topics: overview Locating references Intro to genetics	Discussion handout on Term Project	
April 7 <sup>th</sup> Lecture 3	Artificial Selection Intro to genetics	123-128 41-59	
April 9 <sup>th</sup> Lecture 4	Genetics, Mutation, and Variation	145-155	
April 13 <sup>th</sup> Discussion 3	Fast Plants: measure plants Genetic problems		Turn in 3 potential references during discussion
April 14 <sup>th</sup> Lecture 5	Natural Selection	128-134	PS 1 due on Blackboard @ 5PM
April 16 <sup>th</sup> Lecture 6	Sexual Selection (non-random mating)	134-141	
April 20 <sup>st</sup> Discussion 4	Evolution of Populations (population genetics)	Discussion 4 handout	Discussion 4 handout
April 21 <sup>st</sup> Lecture 7	Migration (gene flow) Genetic Drift (founder effect and population bottlenecks)	219-220 section on genetic drift	
April 23 <sup>rd</sup> Lecture 8	Speciation part I Reproductive Isolating Mechanisms (RIM)	159-166	
April 27 <sup>th</sup> Discussion 5	Poster & Project Paper Planning		Show your GTF a rough draft of both poster and paper
April 28 <sup>th</sup> Lecture 9	Speciation part II Patterns of speciation Convergence	167-175	PS 2 due on Blackboard @ 5PM
April 30 <sup>th</sup>	<b>Midterm</b>		

May 4 <sup>th</sup> Discussion 6	Phylogenetics exercise	330-336 Discussion 6 Phylogenetics handout	Discussion 6 handout Project paper due in discussion
May 5 <sup>th</sup> Lecture 10	Co-evolution	177-194	
May 7 <sup>th</sup> Lecture 11	Evolution of social behavior	207-214	
May 11 <sup>th</sup> Discussion 7	Poster Session		
May 12 <sup>th</sup> Lecture 12	Early earth	61-74	
May 14 <sup>th</sup> Lecture 13	Time, Fossils, and Fossilization	19-38	
May 18 <sup>th</sup>	Fast Plants: plant 2 <sup>nd</sup> generation Discuss paper & answer questions		Paper discussion questions
May 19 <sup>th</sup> Lecture 14	Extinctions and Their Consequences	227-246	
May 21 <sup>st</sup> Lecture 15	Human origins I	249-268	
May 25 <sup>th</sup>	Holiday NO LAB		
May 27 <sup>th</sup> Lecture 16	Human origins II	271-284	
May 29 <sup>th</sup> Lecture 17	Evolution and Pathogens	302-316	
June 1 <sup>st</sup> Discussion 10	Fast Plants: measure 2 <sup>nd</sup> gen Review for final		Fast plants handout
June 2 <sup>th</sup> Lecture 18	Humans and Evolution	Stay tuned	PS 3 due on Blackboard @ 5PM
June 9 <sup>th</sup>	Final Exam @ 8am		