Riechert Bio158 Honors Organismal & Ecological Biology 2015

Course Schedule
Buehler 415

Readings assigned below are from: 1) lecture notes provided in the Bio 158 blackboard site that you should bring to lecture and add to; 2) in, urls listed here; 3) in pdfs of original literature (available under course materials at Bio158 Blackboard Site); and 4) from the Book titled The 6th Extinction, by Elizabeth Kolbert, which is available from the book store. There may also be assigned literature that you must search for under Google Scholar.

CHECK BLACKBOARD UNDER BOTH ASSIGNMENTS & MATERIALS AS WELL FOR EACH LECTURE DATE WHEN PREPARING FOR CLASS. YOU WILL BE QUIZZED ON ASSIGNED READINGS & LECTURE NOTES AT THE BEGINNING OF CLASS.

1. August 20 THURS. Introduction to the Course; Assignment to Teams & Evaluation of Personality as it affects team performance.

2. August 25 TUES. Challenge: Case in Point for Active Learning
Assignment. Read and complete preliminary analysis required for Challenge 1: A Case in Point-From Active Learning to the Job Market.

3. August 27 THURS. The Nature of Science and Science Method
Reading Assignment - Introduction to Peirce; Understanding Science 101 at http://undsci.berkeley.edu/; and examine how science works flowchart in detail at http://undsci.berkeley.edu/article/scienceflowchart

4. September 1 TUES. Introduction to Life and Biodiversity: Introduction to your Diversity Assessment assignment – plan measure and complete data collection; individual (calculate own indices and write up in report format to turn in and oral presentation Sept 8)
Reading Assignment - Pimm et.al., The future of Biodiversity pdf available on black board; & Chapter I of the 6th Extinction.

5. September 3 THURS. Challenge: Threats to Biodiversity
Reading assignment- Threats to Biodiversity Background pdf under; & Chapter 2 of 6th Extinction (The Mastodon’s Molars).


7. September 10 THURS. Climate Creates Environments Favoring Diversity of Life:
Biogeographical Realms Produced by Climate & Topography: Biomes

Reading Assignment: for more information besides lecture notes consult: http://www.ecn.ac.uk/what-we-do/education/tutorials-weather-climate/tutorial-welcome/climate/factors-affecting-climate; & Chapter 4 of the 6th Extinction (The Luck of the Ammonites.)

8. September 15 TUES. Challenge: Global Climate Change; Reading assignment- Chapter V of 6th Extinction: (Welcome to the Anthropocene).

10. September 22 TUES. Challenge: Trophic Structure; Reading Assignment - Chapter VII of 6th Extinction (Dropping Acid).


12. September 29 TUES. Natural Selection Challenge. Reading Assignment – Chapter IX of 6th Extinction (Islands on Dry Land)

13. October 1 THURS. Evolution Part II. Evolutionary Trees. Challenge: Trees based on Molecular Evidence


15. October 8 THURS. Challenge: Mendelian Genetics; Reading Assignment- Chapter XI of 6th Extinction: The Rhino gets an Ultrasound


October 15 THURS. FALL BREAK

17. October 20 TUES. Challenge: Chromosomal Inheritance; Reading Assignment- Chapter XIII of the 6th Extinction (The Thing with Feathers).

18. October 22 THURS. Population Genetics Challenge: Blue Paper Clip Syndrome

19. October 27 TUES. Challenge: Speciation

(Take Home EXAM Due -Nov. 5 100 pts)*

20. October 29 THURS. Beginnings/Origins of Life

Readings: 2 pdfs: The Origins Divide & Prebiotic soup – Revisiting the Miller Experiment

21. November 3 TUES. Challenge: Replication vs Metabolism First

22. November 5 THURS. Biodiversity through Geological Time

23. November 10 TUES. From Prokaryotes to the First Eukaryotes. Final Q&As Bloom Taxonomy questions due.
24. November 12 THURS.  Advances in the Seas

25. November 17 TUES. Mountain Building – from plants to pollinators

26. November 19 THURS Vertebrate Success

27. November 24 TUES Human Evolution

November 26 THURS Thanksgiving Break

28. December 1 TUES. Challenge: From Primates to Humans

FINAL EXAM MONDAY DEC 7 10:15 AM-12:15 PM

---

2015 Student Learning Expectations/Outcomes for Freshmen Honors Bio 158

The following five learning outcomes are common to both semesters of the biology core sequence for biology majors, of which honors Bio 158 is a part. These can be summarized under the overall goal:

To understand the conceptual basis of the interconnectedness of all life as it relates to the environment, physical processes, evolutionary processes and genetic underpinnings.

1. **ON Evolution**: To have a deep understanding of the mechanisms underlying the fact that populations of organisms and their cellular components have changed over time through both selective and non-selective evolutionary processes.

2. **ON Structure & Function**: To recognize that all levels of life (organisms, populations, communities and ecosystems, etc. are made of structural components whose arrangement determines system function.

3. **On Information Flow & Storage**: To learn the basic structure of how information (DNA, composing genes) is exchanged within and among organisms to direct their functioning.

4. **On Transformations of Energy and Matter**: To understand that all living things acquire, use, and release matter and energy for cellular functioning. And that while nutrients recycle, energy does not.
5. **ON Systems**: To learn how living systems are interconnected, and interact and influence each other.

**BIO158 Honors Grading Scheme**

<table>
<thead>
<tr>
<th>Graded Component</th>
<th>Points</th>
<th>TOTAL</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning readiness quizzes</td>
<td>100 pts</td>
<td></td>
<td>12.5%</td>
</tr>
<tr>
<td>• 15 assigned book</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 85 assigned readings, lecture notes</td>
<td>(2 two pt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ 1 one pt Q/lecture &amp;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>case challenge objectives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1 one pt/challenge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lecture session</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exams</td>
<td>300 pts</td>
<td></td>
<td>37.5%</td>
</tr>
<tr>
<td>• Midterm exam 100 pts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Final Exam 200 pts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self &amp; Peer reviews</td>
<td>50 pts</td>
<td></td>
<td>6.25%</td>
</tr>
<tr>
<td>• 5 pts each for completing mid-term &amp; final evaluation forms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 15 pts possible score for mid-term evaluation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 25 pts possible score for final evaluation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diversity Index Assignment</td>
<td>25 pts</td>
<td></td>
<td>3%</td>
</tr>
<tr>
<td>The Sixth Extinction Book</td>
<td>100 pts</td>
<td></td>
<td>12.5%</td>
</tr>
<tr>
<td>Blooms Taxonomy Q&amp;As</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participation pts</td>
<td>75 pts (5 pts/lecture on task)</td>
<td></td>
<td>9.4%</td>
</tr>
<tr>
<td>Team Challenge Pts</td>
<td>150 pts</td>
<td></td>
<td>18.8%</td>
</tr>
<tr>
<td>• 15 pts each for 10 challenges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>800 potential points</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
24. **November 12 THURS.** Advances in the Seas

25. **November 17 TUES.** Mountain Building – from plants to pollinators

26. **November 19 THURS** Vertebrate Success to Human Evolution

27. **November 24 TUES**

**November 26 THURS** Thanksgiving Break

28. **December 1 TUES.** **Challenge:** From Primates to Humans

**FINAL EXAM MONDAY DEC 7 10:15 AM-12:15 PM**
24. November 12 THURS. Advances in the Seas

25. November 17 TUES. Mountain Building – from plants to pollinators

26. November 19 THURS Vertebrate Success to Human Evolution

27. November 24 TUES

November 26 THURS Thanksgiving Break

28. December 1 TUES. Challenge: From Primates to Humans

FINAL EXAM MONDAY DEC 7 10:15 AM-12:15 PM