

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*).*

6. September 8 TUES. Teams present diversity study results. *Reading Assignment- Chapter 3 of 6th Extinction (*The Original Penguin*).*

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*).

9. September 17 THURS. Transformation of Energy & Matter Supports a Diversity of Organisms: Part I. Trophic Structure; Part II: Biogeochemical Cycles; *Reading Assignment - Chapter VI of 6th Extinction (The Sea Around US).*

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

11. September 24 THURS. Evolution: Part I. Natural Selection & History;

Reading assignment- Evolution 101 review materials provided at http://evolution.berkeley.edu/evolibrary/search/topics.php?topic_id=13 (Read & digest to fill in lecture notes for lectures 6,-7) & Chapter VIII of 6th Extinction: The Forest and the Trees.

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

14. October 6 TUES. Mechanisms of Evolutionary Change. Part I. Mendelian Genetics; *Reading Assignment- Chapter X of 6th Extinction: The New Pangaea*

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

16. October 13 TUES. 9 Mechanisms of Evolutionary Change. Part II. Chromosomal Inheritance; *Reading Assignment - Chapter XII of the 6th Extinction (The Madness Gene).*

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

Graded Component	Points TOTAL	%
Learning readiness quizzes	100 pts <ul style="list-style-type: none"> • 15 assigned book • 85 assigned readings, lecture notes (2 two pt + 1 one pt Q/ lecture & case challenge objectives (1 one pt/challenge lecture session 	12.5 %
Exams	300 pts <ul style="list-style-type: none"> • Midterm exam 100 pts • Final Exam 200 pts 	37.5%
Self & Peer reviews	50 pts <ul style="list-style-type: none"> • 5 pts each for completing mid-term & final evaluation forms • 15 pts possible score for mid-term evaluation • 25 pts possible score for final evaluation 	6.25%
Diversity Index Assignment	25 pts	3%
The Sixth Extinction Book Blooms Taxonomy Q&As	100 pts	12.5%
Participation pts	75 pts (5 pts/ lecture on task)	9.4%
Team Challenge Pts	150 pts <ul style="list-style-type: none"> • 15 pts each for 10 challenges 	18.8%
Grand Total	800 potential points	

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