Honors LS 1510, Perspectives in the Life Sciences  
Tangled Banks and Tangled Trees: Exploring the History of Life  
Fall 2019

Instructor: John Mull; TY 414—my office is near the main Zoology office at the southeast corner of Tracy Hall; x6173; email address: jmull@weber.edu

Office Hours: Monday 12:30 – 2:30, Thursday 8:30 – 9:30, Friday 10:30 – 11:30 and by appointment at other times

Meeting time and venue: Monday, Wednesday, and Friday 11:30 – 12:30 in LI 325

Required text: Tangled Banks and Tangled Trees: A Radical New History of Life, David Quammen. Simon and Schuster, 461 pp. New copies are available at the WSU Bookstore. Both new and used copies are available from various online booksellers.

Other readings: Other readings will be provided as handouts in class or will be posted to the course Canvas page. In addition to the main course reading above, each of you will read one book on a conservation biology/biological diversity topic. You will select at title from a list that I provide during the first week of class. You will complete a writing assignment and give a presentation related to the book that you choose. Each of these will be explained in separate handouts provided early in the semester.

Course description: Life on Earth is nearly 4 billion years old. Fossils provide important, but fragmentary evidence of life’s history. The genomes of organisms provide another record of the history of life, when read by geneticists and evolutionary biologists. This section of LS 1510 will consider the insights provided by the techniques and interpretations of a field of contemporary biology called phylogenetics. The course will also give a broad overview of the major evolutionary milestones and processes associated with the origin and diversification of life on Earth. Finally, it will also consider the contemporary decline of biological diversity and its main causes.

Honors LS1510 will largely follow a discussion format, but will be punctuated by occasional and brief periods of explanation. It will encompass topics in general biology (cells, genetics and taxonomy), ecology (populations, communities, and ecosystems), evolution (natural selection and modes of speciation), and conservation.

Students with Disabilities: Any student requiring accommodations or services due to a disability must contact Services for Students with Disabilities (SSD) in room 118 of the Student Services Center. SSD can arrange to provide course materials in alternative formats if necessary. For more information see the SSD website or contact their office at: 801-626-6413.
Course evaluation: Your course grade will be based on a total of 325 points having the following breakdown. All assignments listed below will be explained in detail in class or through a separate handout when the assignment is given.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
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<tbody>
<tr>
<td>Attendance and participation in discussion throughout the semester</td>
<td>100 points</td>
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<tr>
<td>Midterm take-home exam</td>
<td>50 points</td>
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<tr>
<td>Final take-home exam</td>
<td>50 points</td>
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<tr>
<td>Book review of a selected title</td>
<td>30 points</td>
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<tr>
<td>Peer evaluation of another student review</td>
<td>20 points</td>
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<tr>
<td>Presentation on your selected book</td>
<td>30 points</td>
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<tr>
<td>General Education Signature Assignment</td>
<td>45 points</td>
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In the final syllabus provided on the first day of class in the fall, I will provide a schedule for the semester that includes reading dates and chapters for the Quammen book, due dates for assignments and exams, and specific examples of how this section of LS 1510 meets the Foundations of Natural Sciences Learning Outcomes and the Life Sciences Learning Outcomes.

Foundations of the Natural Sciences Learning Outcomes

1. **Nature of science.** Scientific knowledge is based on evidence that is repeatedly examined and can change with new information. Scientific explanations differ fundamentally from those that are not scientific.

2. **Integration of science.** All natural phenomena are interrelated and share basic organizational principles. Scientific explanations obtained from different disciplines should be cohesive and integrated.

3. **Science and society.** Science provides explanations that have significant impacts on society, including technological advancements, improvement of human life, and better understanding of human influences on the earth’s environment.

4. **Problem solving and data analysis.** Science relies on empirical data, and such data must be analyzed, interpreted, and generalized in a rigorous manner.

The Life Sciences Learning Outcomes

1. **Levels of organization:** All organisms share an organization that is based on molecules and cells and extends to organisms and ecosystems.

2. **Metabolism and homeostasis:** Living things obtain and use energy and maintain homeostasis via organized chemical reactions known as metabolism.

3. **Genetics and evolution:** Shared genetic processes and evolution by natural selection are universal features of all life.

4. **Ecological interactions:** All organisms, including humans, interact with their environment and other living organisms.