Vertebrate Paleontology
3 Credits

Instructor: Daniel Lawver, PhD.
Dept. of Anatomical Sciences
Stony Brook University
Stony Brook, NY 11794
danlawver@gmail.com (use THIS email, not D2L to contact me!)


Course Description: This course will focus on the evolution of vertebrate life throughout Earth’s history. As a result of this course, students will demonstrate an understanding of evolutionary processes. Through class discussions and assignments, students will identify the vast diversity of both extinct and extant vertebrates, and their interrelationships with one another.

Expected learner outcomes: At the end of the course, students will be able to

- Describe the evolution and processes involving in organismal change through time
- Identify the diversity within vertebrate clades
- Describe phylogenetics and the interrelationships of vertebrates
- Create a unit of study specific to their teaching situation that incorporates major course content specific to the evolution of vertebrate life

Assessments:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percent</th>
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<tbody>
<tr>
<td>A</td>
<td>93</td>
</tr>
<tr>
<td>A-</td>
<td>90</td>
</tr>
<tr>
<td>B+</td>
<td>87</td>
</tr>
<tr>
<td>B</td>
<td>83</td>
</tr>
<tr>
<td>B-</td>
<td>80</td>
</tr>
<tr>
<td>C+</td>
<td>77</td>
</tr>
<tr>
<td>C</td>
<td>70</td>
</tr>
<tr>
<td>C-</td>
<td>67</td>
</tr>
<tr>
<td>D</td>
<td>57</td>
</tr>
<tr>
<td>F</td>
<td>&lt;57</td>
</tr>
</tbody>
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Rounding: Your final grade percentage will be rounded – to TWO decimal places – based on calculation using all class assessments. Therefore, if a final grade is 89.6274%, it will be rounded to 89.63%, NOT to 90%! The student in question would earn a B+. The cutoffs should be considered ‘hard decks’; you need to meet the minimum percentage of the range to earn the respective grade.

Academic dishonesty will not be tolerated. First offense will result in a zero grade for that particular assignment/test and a meeting with me and/or your academic advisor and communication with college administration. Subsequent violations will result in course failure.

Maintaining Intellectual Integrity (Plagiarism): Paraphrasing or quoting another’s work without citing the source is a form of academic misconduct. Even inadvertent or unintentional misuse or appropriation of another’s work (such as relying heavily on source material that is not expressly acknowledged) is considered plagiarism. All sources of information that are not your original thoughts need to be cited. This includes, but is not limited to, journal articles, textbooks and online resources. Adapted from MSU Syllabus language page: [http://www.montana.edu/teachlearn/TLResources/SyllabusLanguage.html](http://www.montana.edu/teachlearn/TLResources/SyllabusLanguage.html)

The Dropbox of D2L has a plagiarism checking feature attached to it called Turnitin. It will be activated for all submitted assignments.
Discussion Seminar Participation: Each week, you must participate in the general discussion of that weeks assigned readings. One student will be assigned to lead each discussion and is responsible for posing discussion topics and lesson plan ideas. Students are expected to engage in weekly discussions early and frequently. The discussion assessment will be based on the self-assessment reflection rubric, which each student will submit at the end of each week to the Assignments folder. If you are assigned Discussion Leader for the week, you are exempt from that weeks reflection. The self-assessment reflections are designed for students to provide a summary of the topics discussed during the week and reflect on their participation.

Laboratory:
Virtual laboratories will be made available during the course.

Final Project:
Students will create a unit of study specific to their teaching situation that incorporates major course content specific to the evolution of vertebrate life.

Final Exam:
The essay based final exam will cover topics from throughout the course readings. Students are expected to demonstrate their knowledge of the evolution of vertebrate clades throughout Earth’s history.

Grades: Current grades and your standing in the course will be available by checking the Grades link on the course. If you have questions or concerns about your grades, be sure to ask.

Student Conduct: Montana State University expects all students to conduct themselves as honest, responsible and law-abiding members of the academic community and to respect the rights of other students, members of the faculty and staff and the public to use, enjoy and participate in the University programs and facilities. For additional information reference see

www2.montana.edu/policy/student_conduct/student_conduct-code_2008-2009.htm

Collaboration: University policy states that, unless otherwise specified, students may not collaborate on graded material. Any exceptions to this policy will be stated explicitly for individual assignments. If you have any questions about the limits of collaboration, you are expected to ask for clarification.

Academic Misconduct: Section 420 of the Student Conduct Code describes academic misconduct as including but not limited to plagiarism, cheating, multiple submissions, or facilitating others’ misconduct. Possible sanctions for academic misconduct range from an oral reprimand to expulsion from the university.

Semester Schedule:
Week 1: Vertebrate Origins (Ch. 1 pg. 1–15)
Week 2: How to Study Fossil Vertebrates (Ch. 2 pg. 16–36)
Week 3: Early Palaeozoic Fishes (Ch. 3 pg. 38–73)
Week 4: Early Tetrapods and Amphibians (Ch. 4 pg. 74–105)
Week 5: Evolution of Early Amniotes (Ch. 5 pg. 106–134)
Week 6: Tetrapods of the Triassic (Ch. 6 pg. 136–157)
Week 7: Evolution of Fishes after the Devonian (Ch. 7 pg. 158–186)
Week 8: The Age of Dinosaurs (Ch. 8 pg. 187–219)
Week 9: The Age of Dinosaurs (Ch. 8 pg. 220–255)
Week 10: Evolution of Birds (Ch. 9 pg. 256–286)
Week 11: Evolution of Mammals (Ch. 10 pg. 288–328)
Week 12: Evolution of Mammals (Ch. 10 pg. 229–362)
Week 13: Human Evolution (Ch. 11 pg. 363–387)
## Rubric for self-assessment of discussion posts

<table>
<thead>
<tr>
<th>Score</th>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Synthesizing</td>
<td>Insightful. Your comments/questions help us to see the issue in a new way, add a new dimension to the discussion or bring together diverse ideas. Information is accurate and from reliable sources and posted in a timely manner. This is 'A' work.</td>
</tr>
<tr>
<td>4</td>
<td>Clarifying</td>
<td>Your comments/questions help us to better understand the issue or aptly summarize what others are saying so as to meaningfully advance the development of ideas in the discussion. This is 'B' work... above average.</td>
</tr>
<tr>
<td>3</td>
<td>Contributing</td>
<td>Your comments/questions make a substantive contribution to the ideas in discussion. This is 'B-'/'C+' work.</td>
</tr>
<tr>
<td>2</td>
<td>Participating</td>
<td>Your comments/questions demonstrate a basic understanding of the ideas in the discussion thread. This is 'C' work.</td>
</tr>
<tr>
<td>1</td>
<td>Present</td>
<td>Your comment/question shows you were in the discussion group and reading posts from others.</td>
</tr>
<tr>
<td>0</td>
<td>Absent</td>
<td>No participation evident.</td>
</tr>
</tbody>
</table>

Participation in the discussion will be self-evaluated according to the criteria above. Also consider the number of posts and their timeliness. For example, one insightful comment preceded and followed by silence is not as valuable as an insightful comment, followed by supporting comments and clarifications as the discussion evolves. In addition, waiting until the last minute to post provides little opportunity for furthering the discussion. Also, please use the writing skills in your posts that you would want to “model” for your students.

Your posts should also reflect the assigned readings and not depend heavily on outside sources. If you discuss information from outside internet sites, use scientifically reliable ones sponsored by universities, government agencies such as a NASA, USGS, etc. Finally, if a significant part of your post comes from the internet rather than assigned readings (i.e. lecture notes, text and internet), please provide its source and URL.

Discussions will represent 25% of your grade.

### Weekly Reflections

Please provide a brief summary of the previous weeks content and describe three of the important concepts. This may be completed at the end of your self-assessment of your discussion posts.

Weekly reflections will represent 25% of your grade.