Comparative Vertebrate Zoology Lab

Synopsis – This course features an anatomical survey of the vertebrate subphylum, with emphasis on functional morphology and adaptive structures within representative taxonomic groups. Material presented in lecture will be supplemented with detailed laboratory dissections and examinations of preserved specimens representing various vertebrate species. Evolutionary relationships between major clades within the subphylum will be emphasized throughout the semester.

Prerequisites – Prior to taking this course, you should have successfully completed Bio133. I also strongly recommend that you have completed Bio125 and Bio130 prior to attempting this course. Concurrent enrollment in the lecture section is required.

Note, that there is a course fee that will appear on your tuition bill (i.e., you do not pay me or the dept. directly). This fee is assessed to all students to partially defray expenses associated with laboratory supplies.

Required Materials – laboratory:


[each student should purchase a copy of this text from a bookstore]

a dissection kit

[each student should purchase a kit from the instructor – $149°]

a lab animal pack

[pairs of students will be issued a pack to share; stored in walk-in cooler]

Optional Materials –

A laboratory coat/smock
A sketch notebook

Reserve Materials – Several resources will be available to help you with information presented throughout the course. I will have them available for check out during my office hours:

Attendance – Laboratory
Attendance is mandatory for the lab section (Mon. & Wedn. @ 1000-1250 h): more than two unexcused absences during the term will result in your receiving a failing (“F”) grade for the entire course. If you expect to miss a particular lab meeting because of a university-related function, please see me by the end of the prior week.

Lecture/Lab Etiquette
I would like to discourage distractions during our meeting times. Therefore, any student will be penalized ten (10) points if their pager/cellular telephone/alarm emits any audible noise (buzzing, humming, catchy tunes, etc.) during any class meeting. And, don’t even think about texting anybody. I understand, however, that photos taken with phones can serve as important sources of comparative reference. Please do not upload any photos taken during lab exercises to social media sites.

It is not unusual during any part of this class to use live humans as examples (we are vertebrates too, after all!). As such, we will likely learn more about each other than would normally be divulged in everyday conversation. I will not tolerate anyone making disparaging remarks about another student’s anatomical or physiological peculiarities.

Close-toed shoes must be worn during all lab exercises – I will send you home to change footwear if you show up with anything else.

Other classes that might be as “messy” as ours use the lab room. It is not my job to serve as your maid. Thus, any student failing to adequately clean their workspace will be penalized five (5) points per occurrence. Set a good example for your peers to follow!

Grading/Exams – Laboratory
There will be 3 practical exams (60 pts each) given over the course of the semester during lab periods – none of these exams will be comprehensive (each covering only material directly preceding the exam date). Practical exams consist of fill-in-the-blank responses, and are timed events (more details later).

There are no make-up exams for laboratory practicals under any circumstances.

English counts! One point will be deducted from your exam total for every 5 errors in spelling/grammar/syntax/context/punctuation on each exam.

Your awarded grade for the lab section of the course will be determined on a 180-point scale (60 points per lab exam). As you’ve probably figured out, the percentage that you earn for the lab section will then be forwarded to Dr. Kwiatkowski and he’ll incorporate that into the determination of your grade for the entire course. Generally, we follow the standard 10-%age point scale (90-100 % = ‘A’, 80-89 % = ‘B’, etc.).

Academic Integrity -- I expect that you will never passively or actively cheat on any of my exams, or those administered by any of your instructors. Any documented incidence of cheating or plagiarism will result in a failing grade (“F”) for the course and a notification to the Dean’s office and the Office of Student Rights & Responsibilities. Please feel free to speak with me, or consult your Student Handbook, if you have any questions concerning this matter.
Further Assistance with course material -- If you suddenly find yourself with a question that is burning a hole in your brain, and cannot reach me, there are several ways of obtaining the answer.

In addition to several sources in the library, here are some examples:

1. The authors of your lecture text have thoughtfully provided a variety of resources for you to follow up on presented material. The citations and websites are listed at the end of each chapter.

2. Help each other -- get to know your fellow students! Active learning through testing each other on the material is one of the most effective ways of learning where your weaknesses lie with this subject matter.

3. SFA provides the Academic Assistance & Resource Center (AARC) for all aspects of your academic achievement. To make an appointment, call 936.468.4108, or go to their office in the Steen Library.

4. I prepare for labs by reviewing all structures for all specimens on Monday mornings. If you’d like to join me (either reviewing on your own, or getting ahead with new material), feel free to show up bright and early and (within reason) we can work together.

Cool course-related websites!

<http://www.digimorph.org/>

<http://brainmuseum.org>

<http://animaldiversity.ummz.umich.edu/site/index.html>

<http://biology.about.com/od/onlinedissections/ig/Frog-Dissection-Images/>

<https://www.rcseng.ac.uk/museums-and-archives/hunterian-museum/>

(e-tours of the oldest museum of surgical instruments and preserved specimens)
## Schedule of Activities

<table>
<thead>
<tr>
<th><strong>Week of</strong></th>
<th><strong>Subject Matter</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Sept.</td>
<td><em>Squalus, Amia, and Perca</em> skeletons</td>
</tr>
<tr>
<td>10</td>
<td><em>Necturus</em>, chelonian, and <em>Gallus</em> skeletons</td>
</tr>
<tr>
<td>17</td>
<td><em>Felis</em> and <em>Homo</em> skeletons</td>
</tr>
<tr>
<td>24</td>
<td>comparative review + 1st practical exam</td>
</tr>
<tr>
<td>1 Oct.</td>
<td><em>Squalus</em> muscles</td>
</tr>
<tr>
<td>8</td>
<td><em>Necturus, Lithobates</em>, and <em>Columba</em> muscles</td>
</tr>
<tr>
<td>15</td>
<td><em>Felis</em> muscles I – abdominal &amp; thoracic regions</td>
</tr>
<tr>
<td>22</td>
<td><em>Felis</em> muscles II – cranial &amp; appendicular regions</td>
</tr>
<tr>
<td>29</td>
<td>comparative review + 2nd practical exam</td>
</tr>
<tr>
<td>5 Nov.</td>
<td><em>Squalus</em> visceral &amp; circulatory systems</td>
</tr>
<tr>
<td>12</td>
<td><em>Necturus, Lithobates</em> and squamate visceral &amp; circulatory systems</td>
</tr>
<tr>
<td>19</td>
<td>No lab – dissect a <em>Meleagris</em>!</td>
</tr>
<tr>
<td>26</td>
<td><em>Felis</em> visceral &amp; circulatory systems</td>
</tr>
<tr>
<td>3 Dec.</td>
<td>Comparative neuro-anatomy lab (<em>Squalus</em> and <em>Ovis</em>)</td>
</tr>
<tr>
<td>5 Dec.</td>
<td>3rd practical exam</td>
</tr>
</tbody>
</table>

Please plan on practical exams commencing at 1130 h on the day of the exam.
Reminder – please do not wear open-toed shoes to any lab session.
5. Demonstrate a competent knowledge of the binomial system of nomenclature. (EEO 1, 3, 4; PLO 1, 4, 6).

4. Demonstrate a proficient knowledge of the relationships of the organisms studied. (EEO 1, 3, 5; PLO 1, 4).

3. Demonstrate proper microscope usage skills. (EEO 1, 2, 5; PLO 1, 4, 6).

2. Demonstrate a competent knowledge of the binomial system of nomenclature. (EEO 1, 2, 6; PLO 1, 4).

1. Give concise and accurate answers to questions. (EEO 2, 3, 4; PLO 1, 4, 6).

The final lab grade counts 1/4 of their final Bio133 grade. Students who successfully complete the Principles of Zoology Lab will be graded on their ability to:

Student Learning Outcomes:

- Work effectively with others to support a shared purpose.
- Use appropriate technology to the study of natural sciences.
- Communicate findings, analyses, and interpretations both orally and in writing.
- Understand and apply method and appropriate technology to the study of natural sciences.
- To include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.
- To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
- To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>Course Assignment Title</th>
<th>Date Due in LiveText</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking Skills</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</td>
<td>Shoaling behavior in zebrafish</td>
<td>Provided in lab</td>
</tr>
<tr>
<td>Empirical &amp; Quantitative Skills</td>
<td>To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.</td>
<td>Shoaling behavior in zebrafish</td>
<td>Provided in lab</td>
</tr>
<tr>
<td>Teamwork</td>
<td>To include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.</td>
<td>Flatworm phototropism</td>
<td>Provided in lab</td>
</tr>
</tbody>
</table>

Miscellany as required by the University:

Students with Disabilities
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Academic Integrity (A-9,4)
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's own work without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

Withheld Grades Semester Grades Policy (A-54)
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

Program Learning Outcomes:

PLO 1: The student will demonstrate a good knowledge base in biological concepts.

PLO 4: The student will be able to design, carry out, and analyze experiments to answer biological questions using the scientific method.

PLO 6: The student will demonstrate preparation for future career and educational goals.

General Education Core Curriculum Objectives / Outcomes

EEO #1: To understand and apply method and appropriate technology to the study of natural sciences.

EEO #2: To recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretations both orally and in writing.

EEO #3: To identify and recognize the differences among competing models of scientific theories.

EEO #4: To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.

EEO #5: To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution, to modern culture.

General Education Core Curriculum

This course has been selected to be part of Stephen F. Austin State University’s core curriculum. The Texas Higher Education Coordinating Board has identified six objectives for all core courses: Critical Thinking Skills, Communication Skills, Empirical and Quantitative Skills, Teamwork, Personal Responsibility, and Social Responsibility. SFA is committed to the improvement of its general education core curriculum by regular assessment of student performance on these objectives.

The table below indicates the core objectives addressed by this course, the assignment(s) that will be used to assess the objectives in this course and uploaded to LiveText this semester, and the date the assignment(s) should be uploaded to LiveText. Not every assignment will be collected for assessment every semester.

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>Course Assignment Title</th>
<th>Date Due in LiveText</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking Skills</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</td>
<td>Shoaling behavior in zebrafish</td>
<td>Provided in lab</td>
</tr>
<tr>
<td>Empirical &amp; Quantitative Skills</td>
<td>To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.</td>
<td>Shoaling behavior in zebrafish</td>
<td>Provided in lab</td>
</tr>
<tr>
<td>Teamwork</td>
<td>To include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.</td>
<td>Flatworm phototropism</td>
<td>Provided in lab</td>
</tr>
</tbody>
</table>

Student Learning Outcomes:

Student’s understanding will be evaluated with weekly assignments and scheduled laboratory practical exams covering multiple exercises. The final lab grade counts 1/4 of their final Bio133 grade. Students who successfully complete the Principles of Zoology Laboratory will be able to:

1. Give concise and accurate answers to questions. (EEO 2, 3, 4; PLO 1, 4, 6).
2. Demonstrate a competent knowledge of the relationships of the organisms studied. (EEO 1, 3, 5; PLO 1, 4).
3. Demonstrate proper microscope usage skills. (EEO 1, 2, 5; PLO 1, 4, 6).
4. Demonstrate a proficient vocabulary of biological terms. (EEO 1, 2; PLO 1, 4, 6).
5. Demonstrate a competent knowledge of the binomial system of nomenclature. (EEO 1, 3, 4; PLO 1, 4, 6).