Animal and Human Physiology (BIOL 3440) Lecture Syllabus

Spring 2024

Class meets in Miller 233

I. Instructor Information:

Dr. Jason Bruck
Office: 112 Miller Science Building
E-mail: Jason.Bruck@SFASU.edu
Zoom meetings available
Office Hours: W/F 12:00-2:30

Appointments:
→ Please feel free to drop by my office anytime if my door is open
→ You may also schedule an appointment via email if you prefer.

II. Lecture Materials:


III. Course Objectives for BIOL 3440:

Core Content Knowledge
1. Students will acquire an understanding of the basic principles of physiology, including the organ systems of the human body, how they function to maintain homeostasis, and what pathologies can arise when homeostasis fails.
2. Students will gain an appreciation for the essential role of comparative animal research in our understanding of human physiology.

Research and Communication Skills
3. Students will understand the scientific method and its application to physiology, including the concept of peer-review and how to access peer-reviewed literature.
4. Students also will demonstrate the critical thinking ability to summarize and evaluate basic scientific information published in the peer-reviewed literature.

Career, Ethical, and Social Awareness
5. Students will understand the central role of science in documenting how the world works.
6. Students will be able to formulate evidence-based arguments on matters of science that generate controversy, including the role of evolution in unifying all of the life sciences.
IV. **Grading:**
Overall grade to be determined out of 600 points. The grade will come from FOUR semester exams (100 points each; lowest score dropped) and a semi-cumulative FINAL Exam (100 points; can NOT be dropped) in addition to 200 points for lab (see lab syllabus for breakdown):

- **Exam 1** → Feb. 14
  - 40-50 questions, 2-5 points each, 100 points total
- **Exam 2** → Mar. 8
  - 40-50 questions, 2-5 points each, 100 points total
- **Exam 3** → Apr. 12
  - 40-50 questions, 2-5 points each, 100 points total
- **Exam 4** → Apr. 26
  - 40-50 questions, 2-5 points each, 100 points total

**Final Exam** → *Monday of finals week- May 6th*. (25-50% new material, 50-75% similar from Exams 1-4, 100 pts. total)

Exams will be multiple-choice format, designed to assess your understanding of the material discussed in lecture. Exams are open book and will be conducted through Brightspace.

**Make-up Exam Policy:**
There will be NO MAKE-UP OR EARLY EXAMS given for Exams 1-4. If you miss one of these exams for ANY reason, it will count as your dropped score, thereby not penalizing you. Note that this does not apply to the Final Exam – this exam cannot be dropped. Everyone must take the Final Exam. **You will have 24 hours to complete exams on D2L.**

**Extra Credit Points:** Extra credit questions MAY be available throughout the semester. More details to follow.

**Final Course Grades:** The scale for your final course grade is shown below (out of 600 pts):

- **A =**  > 90%   > 535 points
- **B =**  80-89%  475-534 points
- **C =**  65-79%  385-474 points
- **D =**  55-64%  331-384 points
- **F =**  < 55%   < 330 points

V. **General Class Information:**

**Course Management:**
We will use Brightspace by “Desire2Learn” (D2L) in this course; here you will find the syllabus and course announcements, pre-lecture handouts (powerpoint files posted before lecture when possible), recordings of lectures already given if/when available, supplementary materials related to class topics, and discussion forums designed to increase student-student and student-faculty interaction. We will also use D2L to post exam grades. **Regarding exam grades, any concerns about your score on a particular exam (e.g., questions you think may have been graded incorrectly, issues with the D2L, etc.) MUST be addressed prior to the next exam.** It is to your advantage to check your scores carefully and see me promptly if you have any questions or concerns.

**Important Dates, Course Policies Established by SFA:**
Please see the SFA website for questions regarding add, drop, & withdraw dates, final exam overloads, where to go for help, etc.

**Attendance:**
You are expected to be in class. If you cannot make class that is your choice as an adult. I will provide Swivl videos on D2L that should cover the material, however, the technology is finnicky and I provide no guarantee of a recording of any lecture you miss.

**Academic integrity:**
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.

**Academic Integrity Policy (4-106)**

[The Code of Student Conduct and Academic Integrity](https://www.sfasu.edu/docs/policies/10.4.pdf) outlines the prohibited conduct by any student enrolled in a course at SFA. It is the responsibility of all members of all faculty, staff, and students to adhere to and uphold this policy.

Articles IV, VI, and VII of the new Code of Student Conduct and Academic Integrity outline the violations and procedures concerning academic conduct, including cheating, plagiarism, collusion, and misrepresentation. Cheating includes, but is not limited to: (1) Copying from the test paper (or other assignment) of another student, (2) Possession and/or use during a test of materials that are not authorized by the person giving the test, (3) Using, obtaining, or attempting to obtain by any means the whole or any part of a non-administered test, test key, homework solution, or computer program, or using a test that has been administered in prior classes or semesters without permission of the Faculty member, (4) Substituting for another person, or permitting another person to substitute for one’s self, to take a test, (5) Falsifying research data, laboratory reports, and/or other records or academic work offered for credit, (6) Using any sort of unauthorized resources or technology in completion of educational activities.

Plagiarism is the appropriation of material that is attributable in whole or in part to another source or the use of one’s own previous work in another context without citing that it was used previously, without any indication of the original source, including words, ideas, illustrations, structure, computer code, and other expression or media, and presenting that material as one’s own academic work being offered for credit or in conjunction with a program course or degree requirements.

Collusion is the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on academic dishonesty, including disclosing and/or distributing the contents of an exam.

Misrepresentation is providing false grades or résumés; providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment for the purpose of obtaining an academic or financial benefit for oneself or another individual or to injure another student academically or financially.

**Withheld Grades Semester Grades Policy (2-206):**

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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 coursework 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 to compute the grade point average. For additional information, go to https://www.sfasu.edu/policies/course-grades-5.5.pdf.

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 promptly may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Student Wellness and Well-Being:
SFA values students’ overall well-being, mental health and the role it plays in academic and overall student success. Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, emotional well-being, alcohol and other drugs, identities, finances, etc.

If you are experiencing concerns, seeking help, SFA provides a variety of resources to support students’ mental health and wellness. Many of these resources are free, and all of them are confidential.

On-campus Resources:
The Dean of Students Office (Rusk Building, 3rd floor lobby)
www.sfasu.edu/deanofstudents
936.468.7249
dos@sfasu.edu

SFA Human Services Counseling Clinic Human Services, Room 202
www.sfasu.edu/humanservices/139.asp
936.468.1041

The Health and Wellness Hub “The Hub”
Location: corner of E. College and Raguet St.

To support the health and well-being of every Lumberjack, the Health and Wellness Hub offers comprehensive services that treat the whole person – mind, body and spirit. Services include:

- Health Services
- Counseling Services
- Student Outreach and Support
- Food Pantry
- Wellness Coaching
- Alcohol and Other Drug Education
Crisis Resources:

- Burke 24-hour crisis line: 1.800.392.8343
- National Suicide Crisis Prevention: 9-8-8
- Suicide Prevention Lifeline: 1.800.273.TALK (8255)
- johCrisis Text Line: Text HELLO to 741-741

Credit Hour Justification/Mode of Teaching:
The federal definition of a credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates:

1. Not less than one hour of classroom or direct faculty instruction and a minimum of two hours out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or 10 to 12 weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time, or;
2. At least an equivalent amount of work as outlined in item 1 above for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.

As such, as this is a four-credit course, we will meet each week for three 50 min lecture/discussion meetings & 1 3-hour laboratory per week. You will need to do work out of class to be successful in discussions.

Final Thoughts:

- It is the responsibility of the professors to maintain a productive learning environment where every student has the equal opportunity to perform their best, and we take this responsibility very seriously.
- If at any time you have a problem with an instructor, a member of the class, or the course in general, please do not hesitate to inform me so I may have the opportunity to address the problem.
- For work outside of lecture SFA Policy guided by the Texas Board of Regents requires 2-3 hours of work outside of course content. It is recommended that you use that time to read your textbook in preparation for class.
- Additional Asynchronous Hours Will be Covered in Extended Virtual Lectures given on April 19th

Good luck and have a great semester!

VI. Tentative Semester Schedule (dates and topics subject to change)

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic/Activity</th>
<th>Corresponding Silverthorn Chapters</th>
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</thead>
<tbody>
<tr>
<td>Jan. 19</td>
<td>Introduction; What is physiology?</td>
<td>Chapter 1</td>
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<tr>
<td>Date</td>
<td>Topic</td>
<td>Chapter(s)</td>
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<tr>
<td>Jan. 22</td>
<td>Science &amp; non-science</td>
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<td>Jan. 24</td>
<td>Human evolution &amp; the comparative approach</td>
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<td>Jan. 26</td>
<td>Human evolution &amp; the comp. approach II</td>
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<td>Jan. 29</td>
<td>Physiology basics – biomolecules, cells, &amp; tissues I</td>
<td>Chapters 2-5</td>
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<tr>
<td>Jan. 31</td>
<td>Physiology basics – bioenergetics &amp; metabolism I</td>
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<tr>
<td>Feb. 2</td>
<td>Membrane transport I</td>
<td>Chapter 6</td>
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<tr>
<td>Feb. 5</td>
<td>Membrane transport II</td>
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<tr>
<td>Feb. 7</td>
<td>Cell communication I</td>
<td></td>
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<tr>
<td>Feb. 9</td>
<td>Cell communication II</td>
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<td>Feb. 12</td>
<td>Cell communication III/Endocrine preview</td>
<td>Chapter 7</td>
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<tr>
<td>Feb. 14</td>
<td><strong>Exam 1 (DO NOT COME TO CLASS- Test on D2L)</strong></td>
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<td>Feb. 16</td>
<td>Endocrine system I</td>
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<td>Feb. 19</td>
<td>Endocrine system II– cont’d</td>
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<td>Feb. 21</td>
<td>Endocrine system III– cont’d</td>
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<td>Feb. 23</td>
<td>Endocrine system IV– cont’d</td>
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<td>Feb. 26</td>
<td>Endocrine system V– cont’d</td>
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<tr>
<td>Feb. 28</td>
<td>Endocrine system VI– cont’d</td>
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<td>Mar. 1</td>
<td>Nervous system I</td>
<td>Chapter 8</td>
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<td>Mar. 4</td>
<td>Nervous system II</td>
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<td>Mar. 6</td>
<td>Nervous system III</td>
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<td>Mar. 8</td>
<td><strong>Exam 2 (DO NOT COME TO CLASS- Test on D2L)</strong></td>
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<td>Mar. 11</td>
<td><strong>SPRING BREAK</strong></td>
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<td>Mar. 13</td>
<td><strong>SPRING BREAK</strong></td>
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<td>Mar. 15</td>
<td><strong>SPRING BREAK</strong></td>
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<td>Mar. 18</td>
<td>CNS I</td>
<td>Chapter 9</td>
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<td>Mar. 20</td>
<td>CNS II</td>
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<td>Mar. 22</td>
<td>CNS III</td>
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<td>Mar. 25</td>
<td>Sensory Physiology I</td>
<td>Chapter 10</td>
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<td>Mar. 27</td>
<td>Sensory Physiology II</td>
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<td>Mar. 29</td>
<td>Sensory Physiology III</td>
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<td>Apr. 1</td>
<td>Sensory Physiology IV</td>
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<td>Apr. 3</td>
<td>Sensory Physiology V</td>
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<td>Apr. 5</td>
<td>Sensory Physiology VI</td>
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<td>Apr. 8</td>
<td>Sensory Physiology VII</td>
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<td>Apr. 10</td>
<td>Sensory Physiology VIII</td>
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<td>Apr. 12</td>
<td><strong>Exam 3 (DO NOT COME TO CLASS- Test on D2L)</strong></td>
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Apr. 15  Autonomic/Somatic nervous system  Chapter 11
Apr. 17  Skeletal & smooth muscle physiology  Chapter 12-13
Apr. 19  Cardiovascular physiology  Chapter 14 and 15

Virtual D2L  Blood and Immune system*,  Chapter 15-18,
Virtual D2L  Respiratory Physiology*  Chapter 24
Virtual D2L  Digestive physiology*  Chapter 21-22

Apr. 22  Urinary physiology I  Chapter 19
Apr. 24  Urinary physiology II
Apr. 26  Exam 4 (DO NOT COME TO CLASS- Test on D2L)

Apr. 29  Reproduction & development  Chapter 26
May 1  Reproduction & development – cont’d
May 3  Reproduction & development – cont’d

May 6  FINAL on D2L

About your professor:
Dr. Bruck was born On Long Island and mostly raised in Syracuse, NY (with stints in Ohio and Texas). He received his B.S. in Biology/Psychology from Long Island University (Southampton, NY) in 2002. After working for a year as an Adjunct Professor at LIU, he went to The University of Chicago for his M.A. and Ph.D. in Comparative Human Development specializing in Behavioral Biology (with a dissertation focused on determining the limits of dolphin memory), earning those degrees in 2007 and 2013 respectively. He then spent time serving as an educator in an inner-city public-school system. In 2014 Dr. Bruck was hired as a Visiting Assistant Professor in the Department of Integrative Biology at OK State. After one year teaching in Oklahoma Dr. Bruck received a two-year Marie Curie Fellowship to study dolphins at the Sea Mammal Research Unit of the University of St. Andrews in Scotland (Est. 1410). In 2017 Dr. Bruck took a position as a Teaching Assistant Professor back at OK State where he was awarded a Woodrow Wilson Fellowship for Excellence in Teaching in 2019. In 2021 he was awarded the 4-year section Excellence in Biology Instruction Award from the National Association of Biology Teachers and in 2022 he was awarded the Outstanding Undergraduate Science Teacher Award from the Society of College Science Teachers. He joined SFA in 2020 as an Assistant Professor and is happy to be in TX. Dr. Bruck is married and has one daughter in Hudson public schools.


https://www.nationalgeographic.com/animals/article/dolphins-use-their-sense-of-taste-to-identify-friends

https://theconversation.com/dolphins-use-signature-whistles-to-represent-other-dolphins-similarly-to-how-humans-use-names-188332