Mammalogy (BIOL 4446, FORS 4446)
Fall 2023

General information

Instructor Information:

Dr. Jason Bruck
Office: 112 Miller Science Building
E-mail: Jason.Bruck@SFASU.edu

Appointments:
→ Office hours (in person or Zoom): M, W, 4-5 pm Tu, Th, 10:30-12
→ You may also schedule a zoom appointment if you prefer.

Meeting times
Lecture: T, R, 12:30-1:45, Miller 234
Lab: W, 1-4, Miller 218 (Check Lab Syllabus for your IN LAB weeks).

Textbook
  Jones & Bartlett Learning Titles in Biological Science, Burlington, MA. Paper copy
  available through local bookstores and online. Digital version: Vaughan,
  “Mammalogy, 6e” eBook on CourseSmart.com, ISBN: 9781449606473
  http://www.coursesmart.com

Lab materials and notebook
  Princeton University Press, Princeton, NJ. ---OPTIONAL but a good reference
to have on hand. http://www.press.princeton.edu/apps/ or

  keys to families of the World. 3rd edition. McGraw Hill, Boston, MA---
  OPTIONAL but a good reference to have on hand.

You are also required to bring a regular notebook to the lab to take notes (for a
grade). I recommend you use a notebook with somewhat heavier paper, because it
might get wet.

Other helpful resources
Check mammal textbooks and journals in the library! You will need these resources for your presentations.

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 two 75 min lecture/discussion meetings & 1 3-hour laboratory per week. You will need to do work out of class to be successful in discussions (see final thoughts for details related to SFA policy for outside class work).

Examinations: one open book 60-75 min mid-term examination and one open book comprehensive final examination over lecture material (both over Brightspace), 1 laboratory practical, 2 lab quizzes, 8-10 lecture quizzes/assignments and a YouTube Group Presentation. Unless specifically instructed otherwise all exams and quizzes are expected to be taken without help from anyone. You will have 24 hours to complete your exams. Quizzes must be completed within one-week of posting. There will be no opportunity to take missed quizzes or tests, so pay close attention to due dates (see missed exam policy below).

Course Description
Mammals comprise organisms most closely related to humans. They are often afforded the most protection in research and management- and are often the species for which we most easily identify with. The main objective of this course is for students to gain a basic understanding of the diversity, evolution, structure, function, life history, behavior and ecology of the major groups of mammals.

Approach and Philosophy
Invertebrates include about 31 phyla, each distinguished by a different “basic body plan”, while the more familiar vertebrates, including mammals, all exist in a single subphylum. Mammals themselves comprise about 5,000 species within about 26 orders. The greatest species diversity in this group is found in its smaller members including bats (Chiroptera: >1,200 species) and rodents (Rodentia: 2,277 species).
But this group also contains the largest species ever known (the blue whale) and has found success on their planet through even more unique and astounding adaptations. My goal is to teach you the basic biology of mammals, and to inspire in you a lasting appreciation for the complexity and conservation of these wonderful animals. To that end, I will provide you an opportunity to become acquainted with the history of mammalogy; learn definitive characteristics of the Class Mammalia and all orders therein; become acquainted with the origin, phylogenetics, systematics, biogeography, and unique biological features of mammals; understand some of the "whys" regarding the diversity in behavior and life history traits exhibited by mammals; learn the use of dichotomous keys for identifying mammals; learn to recognize representatives of mammalian orders and the common mammals of North America with emphasis on those of the Great Plains, gain understanding of their natural history, distribution, and habitat preferences; and learn proper field techniques for the study of mammals.

My role as instructor is to facilitate your learning about mammalian biology, ecology and behavior. Learning is not a passive activity in which you simply absorb and repeat back facts. Rather, learning requires you to take an active role. This means that in our class meetings, I will not just “lecture”, but also actively involve each of you in the learning process. I will guide you as you engage in activities that reflect how scientists build knowledge, such as working in collaborative groups, developing and testing hypotheses related to mammal form and function, engaging in fieldwork, evaluating models, interpreting evidence, connecting facts to theory, reasoning about problems, and communicating your understanding in multiple forms. Our goals are that, by the end of this course, you will be able to:

- **Apply the scientific method to approach new problems and questions.**
- **Critically assess information, especially in the form of data.**
- **Effectively communicate orally, in writing, and with technology.**
- **Explain the form and function of mammalian organisms living under different environmental conditions and to compare specific traits among species in the context of adaptation.**
- **Summarize the basic interactions of mammals with their environment to analyze factors challenging these species in their natural habitats.**

*Program Learning Outcomes (PLO)*
The course is designed to address the following Program Learning Outcomes, as given in the BS degree Program Matrix:

PLO1. The student will demonstrate a good knowledge base in biological concepts (Knowledge).

PLO4. The student will be able to design, carry out, and analyze experiments to answer biological questions using the scientific method (Methods).

PLO6. The student will demonstrate preparation for future career and educational goals (Career Preparation).

<table>
<thead>
<tr>
<th>Course</th>
<th>PLO 1 Knowledge</th>
<th>PLO2 Oral Skills</th>
<th>PLO3 Written Skills</th>
<th>PLO4 Methods</th>
<th>PLO5 Teamwork</th>
<th>PLO6 Career Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 4446</td>
<td>A</td>
<td>I</td>
<td>A</td>
<td>A</td>
<td>I</td>
<td>A</td>
</tr>
</tbody>
</table>

Definition of Rating Categories:
1. N/A – Not Applicable – course does not support the Program Learning Outcome.
2. B – Basic – course supports Program Learning Outcome by providing students with fundamental information, definitions, concepts, and lab activities relative to the expected outcomes.
3. I – Intermediate – course supports Program Learning Outcome by providing students with topic-specific information, concepts, applications, and lab activities that increase the students’ skills in making tactical implementation decisions relative to the expected outcomes.
4. A – Advanced – course supports Program Learning Outcome by providing students with transitional, high level topic-specific information, activities, and opportunities that enable the students to apply their critical thinking and tactical skills to resolved increasingly challenging strategic situations.
5. M – Mastery – course supports Program Learning Outcome by providing students with opportunities to independently apply tactical and strategic planning skills to successfully accomplish real-world, non-academic management objectives. Completes students’ preparedness for entry-level professional activity accomplishment.

To help achieve these outcomes, I ask that you to:
• Actively participate in the class meetings.
• Display curiosity and act in an ethical manner.
• Effectively work cooperatively in class and for assigned homework (when group work is required).
• Develop your own learning goals.

**Lecture Attendance and grading**

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. Lectures are complementary to the textbook, and both lecture and textbook content will be examined. The final grade will be based on performance in homework, in-class activities, Brightspace quizzes, lab content, as well as two exams. The final exam will be cumulative. Your grade in the course depends on performance on the grade items described below:

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**Weighing:**

<table>
<thead>
<tr>
<th>Assessment category</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes/assignments/HW</td>
<td>225</td>
</tr>
<tr>
<td>YouTube presentation</td>
<td>100</td>
</tr>
<tr>
<td>Lecture Exam I</td>
<td>100</td>
</tr>
<tr>
<td>Lecture Exam II</td>
<td>100</td>
</tr>
<tr>
<td>Lab Practical</td>
<td>100</td>
</tr>
<tr>
<td>Field Notebook</td>
<td>75</td>
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</tbody>
</table>

**Total: 700 points (200 from lab)**

**You must make 120 points in lab to pass the course regardless of your lecture points.**

**Grading scale:**

<table>
<thead>
<tr>
<th>Final Points</th>
<th>Grade</th>
</tr>
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<tbody>
<tr>
<td>630-700</td>
<td>A</td>
</tr>
<tr>
<td>560-629</td>
<td>B</td>
</tr>
<tr>
<td>490-559</td>
<td>C</td>
</tr>
<tr>
<td>420-489</td>
<td>D</td>
</tr>
<tr>
<td>0-419</td>
<td>F</td>
</tr>
</tbody>
</table>

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**Missed and late examinations**
There are no make-up exams. If you miss the first exam the % score on the Final Exam will be recorded as your score for the missed exam. If you miss an exam because of a reason not acknowledged by the university, you will automatically receive a zero. In general, I can do a lot more for you if you talk to me before a deadline, rather than after. The exam, is on Brightspace making it hard to miss for standard reasons.

**Quizzes/Assignments/HW**

Homework and quizzes will be solely announced during lectures and appear on Brightspace (all materials are to be turned in on Brightspace, no paper copies will be accepted). If you miss a lecture period, refer to your peers to learn about pending assignments. For Quizzes/Assignments/HW, I will give about 10 items and only count the highest 9 to calculate your average percentage in the Quizzes/Assignments/HW category (your drone quiz counts in this category and cannot be dropped - see lab syllabus). If you miss an assignment for whatever reason, consider that taken care of in the dropped score. Homework that is turned in late will not be graded and receive zero points.

Any other assignments in class, including assignments in the lab (part of notebook grade), presentation materials, project proposals etc., will not be graded and receive zero points if turned in late.

**YouTube Presentations**

You will work in your lab group (no more than 6 people) to present a video on one member species from a group of mammals topical to the week your video is due (see schedule). As a group you will have 15 minutes to present the material (+/- a minute), which will allow for a deep dive into a particular species. At the end you will give your fellow students a short on Brightspace quiz to see how well they learned (to be counted in the Quizzes/Assignments/HW category). Part of your point assessment for this project will be based on the performance of your classmates on this quiz. More information will be given in class and on Brightspace as the semester progresses. The group numbers on the tentative schedule correspond to your Team numbers from lab. Hence you will work with your lab partners to develop your YouTube video.

**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.

Academic Integrity Policy (4.1)

[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 (5.5)**
Please copy and paste the following information regarding Withheld Grades into your syllabus. Add additional information as needed to meet your departmental or course needs.
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**

Please copy and paste the following statement and place it in your course syllabus.

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](http://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](http://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

www.sfasu.edu/thehub
936.468.4008
thehub@sfasu.edu

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

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. If you send me a picture of your favorite mammal by email I will give you five bonus points.
- Additional Asynchronous Hours Will be Covered in YouTube Videos from Classmates
<table>
<thead>
<tr>
<th>Week/Date</th>
<th>Day</th>
<th>Topic</th>
<th>Reading</th>
<th>Notes/Presentation</th>
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<tbody>
<tr>
<td>1</td>
<td>29-Aug</td>
<td>T</td>
<td>Expectations &amp; Introduction</td>
<td>Notebook Lab starts this week at home</td>
</tr>
<tr>
<td>2</td>
<td>31-Aug</td>
<td>R</td>
<td>Introduction &amp; History</td>
<td>chap. 1</td>
</tr>
<tr>
<td>2</td>
<td>5-Sep</td>
<td>T</td>
<td>Phylogenetic Classification</td>
<td>chap. 1</td>
</tr>
<tr>
<td>2</td>
<td>7-Sep</td>
<td>R</td>
<td>Phylogeny of Mammals–Origins and earliest mammals</td>
<td>chap. 2</td>
</tr>
<tr>
<td>3</td>
<td>12-Sep</td>
<td>T</td>
<td>Phylogeny of Mammals–Origins and earliest mammals</td>
<td>chap. 2</td>
</tr>
<tr>
<td>3</td>
<td>14-Sep</td>
<td>R</td>
<td>Mammalian Characteristics</td>
<td>chap.3</td>
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<tr>
<td>4</td>
<td>19-Sep</td>
<td>T</td>
<td>Biogeography–Who’s Where &amp; Why 1</td>
<td>chap.25</td>
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<tr>
<td>4</td>
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<td>R</td>
<td>Biogeography–Who’s Where &amp; Why 2</td>
<td>chap.25</td>
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<tr>
<td>5</td>
<td>26-Sep</td>
<td>T</td>
<td>Mammalian Biodiversity–Overview, Monotremata &amp; Metatheria</td>
<td>chaps. 4, 5 &amp; 6</td>
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<tr>
<td>5</td>
<td>28-Sep</td>
<td>R</td>
<td>Mammalian Biodiversity–Metatheria</td>
<td>chap. 6</td>
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<tr>
<td>6</td>
<td>3-Oct</td>
<td>T</td>
<td>Mammalian Biodiversity–Afrosoricida, Macroscelidea, &amp; Tubulidentata</td>
<td>chaps. 7 &amp; 8</td>
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<tr>
<td>6</td>
<td>5-Oct</td>
<td>R</td>
<td>Mammalian Biodiversity–More Afrotheria &amp; Paenungulata</td>
<td>chaps. 7, 8 &amp; 9</td>
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<td>7</td>
<td>10-Oct</td>
<td>T</td>
<td>Mammalian Biodiversity–Cingulata, Pilosa, and Pholidota</td>
<td>chaps. 10</td>
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<tr>
<td>7</td>
<td>12-Oct</td>
<td>R</td>
<td>Mammalian Biodiversity–Dermoptera and Scandentia</td>
<td>chaps. 11</td>
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<tr>
<td>8</td>
<td>17-Oct</td>
<td>T</td>
<td>Mammalian Biodiversity–Primates</td>
<td>chaps. 12</td>
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<td>8</td>
<td>19-Oct</td>
<td>R</td>
<td>Mammalian Biodiversity–Primates</td>
<td>chaps. 12</td>
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<td>9</td>
<td>24-Oct</td>
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<td>Mammalian Biodiversity–Primates</td>
<td>chaps. 12</td>
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<td>9</td>
<td>26-Oct</td>
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<td>31-Oct</td>
<td>T</td>
<td>Mammalian Biodiversity–Rodentia</td>
<td>chap. 13</td>
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<td>2-Nov</td>
<td>R</td>
<td>Mammalian Biodiversity–Rodentia</td>
<td>chap. 14</td>
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<td>11</td>
<td>7-Nov</td>
<td>T</td>
<td>Mammalian Biodiversity–Lagomorpha, Erinaceomorpha and Soricomorpha</td>
<td>chap. 14</td>
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<td></td>
<td>9-Nov</td>
<td>R</td>
<td>Mammalian Biodiversity–Chiroptera 1</td>
<td>chap. 15</td>
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<td>12</td>
<td>14-Nov</td>
<td>T</td>
<td>Mammalian Biodiversity–Chiroptera 2</td>
<td>chap. 16</td>
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<td>Mammalian Biodiversity–Carnivora 1</td>
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<tr>
<td>14</td>
<td>23-Nov</td>
<td>R</td>
<td>Thanksgiving</td>
<td></td>
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<td>28-Nov</td>
<td>T</td>
<td>Mammalian Biodiversity–Carnivora 2 and Perissodactyla</td>
<td>D2L Readings</td>
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<td></td>
<td>30-Nov</td>
<td>R</td>
<td>Mammalian Biodiversity–Artiodactyla (cetaceans)</td>
<td>chap. 16, 17, 18, 19</td>
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<td>15</td>
<td>5-Dec</td>
<td>T</td>
<td>Biosonar and other mammalian oddities</td>
<td>D2L readings</td>
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<tr>
<td></td>
<td>7-Dec</td>
<td>R</td>
<td>Reproduction, kin selection, MHC</td>
<td>D2L Readings</td>
</tr>
<tr>
<td>16</td>
<td>11-Dec</td>
<td>M</td>
<td>FINAL COMPREHENSIVE EXAM, Chapters 1-21, 25 On Brightspace</td>
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**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, earning those degrees in 2007 and 2013 respectively. He then spent a year 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 OKState. 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 OKState where he was awarded a Woodrow Wilson Fellowship for Excellence in Teaching in 2019. He joined SFA last year as an Assistant Professor and is happy to be in TX. Dr. Bruck was named the 2021 recipient of the Four-Year Section Biology Teaching Award from National Association of Biology Teachers (NABT) and the 2022 recipient of the Society for College Science Teachers Outstanding Undergraduate Science Teacher Award. Dr. Bruck is married and has one daughter in Hudson public schools.


https://www.npr.org/2022/06/14/1104971354/dolphins-recognize-each-other-urine-study-stephen-f-austin