

## BIOL 4395: Behavioral Neuroscience Fall 2024 CRN: 17218

**Course leader:** Bruce S. Cushing  
Time/date: T/TR 10:30 -11:50  
Office Hours: Thursday 12 – 2:00

**Contact:** [bcushing@utep.edu](mailto:bcushing@utep.edu)  
Location: UGLC 336  
Office: Bio Sci Res RM 4.128

**TEXT** – *Neuroscience, 7th Edition* by Dale Purves, *et al.*; Sinauer Publishers. (Sixth edition is acceptable) (E-book version available at the bookstore online: <https://www.bkstr.com/texaselpasostore/home>). Supplemental reading material will be provided for specific subjects.

**Attendance:** Is required. For every two unexcused absences your grade will be reduced by one letter.

**Course format:** This is a lecture/discussion course that will be presented in person. It will include student presentations and classroom discussion. A PDF of lecture notes will be provided on Blackboard prior to each lecture. Login using your **UTEPnet ID and password**).

**Blackboard and Computer Access:** This course is **absolutely dependent** on your being able to access and use Blackboard. While tests will be taken in the classroom, at the scheduled time, they will be given through the course website.

**PREREQUISITES:** You must be a junior or above in good standing. Courses: BIOL 2324 or PSYCH 2344

**COURSE DESCRIPTION:** In short, behavioral neuroscience is that aspect of the broad, interdisciplinary field of neuroscience concerned with the biological bases of behavior.

From: [International Encyclopedia of the Social & Behavioral Sciences, 2001](#)

**Behavioral Neuroscience is the study of how the brain regulates behavioral responses. Both through internal interactions as well as the influence of experience and external factors.** While the discipline of behavioral neuroscience is frequently associated with, focused on, understanding human behavior and motivation, normal and those associated with psychiatric disorders, our class will take the more broadly defined definition.

### **Learning Objectives and Outcomes:**

*At the end of this course, the student should be able to:*

- 1) Understand the neural and hormonal regulation of behavioral responses.
- 2) A general knowledge of some of the major neural networks/circuits that play a critical role in regulating behavior and interpreting external social cues.
- 3) Understanding basic principles of the importance of external and internal factors, as well as evolutionary effects on the neural regulation of behavior.
- 4) To have a general understanding of basic techniques used to study behavioral neuroscience such as behavioral testing, neural imaging and neural manipulation.

- 5) Understand the research goals and objectives associated with behavioral neuroscience, as related to both human and non-human animals.

### **Grading and Exams**

Grades will be determined by 4 midterm exams, plus student presentations.

Tests: Each exam will be worth 100 points. Exams may consist of multiple choice, matching, fill in the blank and/or essay questions. Tests will be taken in class using Respondus lockdown browser through Blackboard. In answering essay questions incorrect information will be considered wrong and result in a reduction of points. There will be four midterm tests each of equal value with each test covering the material between tests. **You will have 5 class days following posting of the answers/results to discuss questions. Following this period there will be no further reconsideration of exam scores.**

Make-up Policy: There will be no scheduled make-up exams. In order to avoid a ZERO on that exam:

You must notify the instructor **before 5pm on the day of the test** in order for the instructor to determine if the excuse is valid. Only legitimate excuses will be accepted (such as serious illness or a death in the family). I reserve the right to request proof/verification of absences. A note that you visited a physician on the day of the test does not validate an illness.

Presentation:

Students will be randomly assigned to a group (consist of no less than 2 and no more than 3 students). Groups will pick a paper related to behavioral neuroscience of their choice approved by Dr. Cushing. This will be done no less than two weeks prior to their presentation. As a group students will present the methods and results of the paper via a 15-minute PowerPoint presentation. There will be 5 to 10 minutes for questions followed by a brief summation by the group. **Presenters will conclude with two multiple choice or short answer questions to be discussed by the class.** Presentations will be given once a week starting no earlier than week 4 of the class. The day of the week may vary based upon the exam schedule. Grades (50 points) will be based upon presentation, slide design (groups will indicate to the instructor who prepared each slide, all students in a group must present) and their ability to answer questions. Students will submit slides at least two days prior to presentation to allow instructor editing and suggestions.

Participation in discussions:

Active participation in discussions, asking questions etc will be considered bonuses/additions to your score. This means that participation will improve your overall grade points in class.

**DROP POLICY:** In order to receive a W you must drop the course prior to the official drop

date of **November 1st**.

**GRADING POLICY:**

A = 90 -100%      B = 80 – 89.9%      C = 70 – 79.9%      D = 60 – 69.9%  
F = 59.9% and below

**Academic integrity:** Students are expected to be aware of, and abide by, UTEP Handbook of Operating Procedures - Student Conduct and Discipline. Information on this policy can be found at <https://www.utep.edu/hoop/section-2/student-conduct-and-discipline.html> (see

**1.2.3 Prohibited Conduct.** All tests shall be taken by the student enrolled in the class without communication between students or the use of any notes or other sources, unless in association with special accommodation (see below). Failure to meet these requirements will be considered cheating and result in a zero on any exam in addition to other possible actions.

**Special accommodations:** If you need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to [cass@utep.edu](mailto:cass@utep.edu), the campus office is located in UTEP Union (current renovations may result in a new location). For additional information, please visit the CASS website at [www.sa.utep.edu/cass](http://www.sa.utep.edu/cass). If accommodation is provided you are responsible for contacting Dr. Cushing to provide the CASS accommodation letters and instructions and discussing how these will be effectively addressed for the course.

Topics to be covered: The following is a list of topics to be covered. The order of presentations and timing may vary. It is your responsibility to know the material to be covered on exams.

I. Introduction to Behavioral Neuroscience – the interface of behavior and the brain. (Assign reading – Suggested refresh reading Chapter 1

II. The Brain

- a) Development - Chapter 22 (7<sup>th</sup> edition)
- b) Neuroanatomy - Chapter 27 (7<sup>th</sup> edition)
  - 1) General
  - 2) Limbic and Networks associated with behavioral regulation

III. Evolution of the Brain and Behavior – Assigned readings

A) Life-Span Development of the Brain and Behavior

IV. Techniques measuring Behavior, Neural manipulation and imaging (assigned readings)

V. Endocrine and Neural Regulation of behavior (Assigned readings)

VI. Emotions, Aggression, and Stress (Chapters 30 and 32)

VII. Social Behavior (Assigned readings)

Test and Other important dates

Classes Begin	August 26th
Last Day to Drop with a W	November 1st
Thanksgiving Break	November 28-29th

## **EXAMS**

<b>1<sup>st</sup> Midterm</b>	<b>TDB</b>
<b>2<sup>nd</sup> Midterm</b>	<b>TDB</b>
<b>3<sup>rd</sup> Midterm</b>	<b>TDB</b>
<b>4<sup>th</sup> Midterm</b>	<b>Finals Schedule</b>