

Behavioral Neuroscience 1

PSYC 321 Behavioral Neuroscience 1, 3:30→4:50 T, TR, Forestry 105

Professor: Ethan Gahtan

Office Hours: M-Thurs 11am-noon and by appointment, BSS 428 or BSS 122

Contact: Email eg51@humboldt.edu **please put Psyc 321 in the subject line**

Teaching assistant:

Brian Griffiths, brian@bbg2.com

Course Description & Learning Goals

The effort to understand the neurobiological basis of thought and behavior is called 'Behavioral Neuroscience,' and that is the topic of this course. Behavioral Neuroscience is a very broad field, ranging from studies of the molecular biology of single cells, to anatomy, to the control of reaching movements, sexual behavior, memory, addiction, motivation, and the ability to recognize familiar faces, to name just a few. This course will provide a broad overview of the field of behavioral neuroscience. Behavioral neuroscience may never be able to explain every subtlety of human behavior and mental life in terms of physical causes, but the field has made many amazing discoveries that can powerfully inform our understanding of ourselves, humanity, and the nature of reality.

Required materials

Text: Biological Psychology, An Introduction to Behavioral and Cognitive Neuroscience, 4th Edition Mark R. Rosenzweig, S. Marc Breedlove, and Neil V. Watson. Sinauer Associates, 1994.

Moodle: File uploads and downloads on moodle are required

Student responsibilities and grading

Exams: There are 4 in-class exams, each is worth 15% of your total grade, and a cumulative final worth 20%. Exams will be mostly multiple choice. Late exams offered only with prior notice.

In-class assignments: There are 4 in-class assignments. Each is worth 5% of your total grade (20% overall for assignments). They will consist of short problem sets and other activities to be described and completed in class. No make ups for unexcused absences.

Participation: can help your grade, but not participating will not hurt your grade.

Attendance: Consistent attendance is strongly advised if you want to learn effectively and do well in this class. If you skip a class, it's up to you to get notes from a classmate.

Grading:

Exams 1-4:	15% each	60%	[A ≥90]
Final Exam:		20%	[B range: ~89-80]
In-class assignments:		20%	[C range: ~79-70]

Students with Disabilities: Persons who wish to request disability-related accommodations should contact the Student Disability Resource Center in House 71, 826-4678 (voice) or 826-5392 (TDD). Some accommodations may take up to several weeks to arrange. <http://www.humboldt.edu/~sdr/>

Add/Drop policy: Students are responsible for knowing the University policy, procedures, and schedule for dropping or adding classes. <http://www.humboldt.edu/~reg/regulations/schedadjust.html>

Emergency evacuation: Please review the evacuation plan for the classroom (posted on the orange signs) , and review http://studentaffairs.humboldt.edu/emergencyops/campus_emergency_preparedness.php for information on campus Emergency Procedures. During an emergency, information can be found campus conditions at: **826-INFO** or www.humboldt.edu/emergency

Academic honesty: Students are responsible for knowing policy regarding academic honesty: http://studentaffairs.humboldt.edu/judicial/academic_honesty.php or <http://www.humboldt.edu/~humboldt/catalogpdfs/catalog2007-08.pdf>

Attendance and disruptive behavior: Students are responsible for knowing policy regarding attendance and disruptive behavior: http://studentaffairs.humboldt.edu/judicial/attendance_behavior.php

Course calendar - Reading & Assignments

Section 1: Theoretical Basis of Behavioral Neuroscience; Physiology of the Neuron; Neural circuits

8/26	Intro to behavioral neuroscience & evolution	P. 16-23 (Ch.1), Moodle reading #1
8/28	Functional neuroanatomy	Assignment 1 on Moodle reading #1
9/2	Functional neuroanatomy cont.	Text Ch.2
9/4	Neurophysiology	Text Ch.3
9/9	Neurophysiology cont.	
9/11	Review for exam #1	
9/16	Exam #1	

Section 2: Neurotransmitters and Hormones

9/18	Neurotransmitters	Text P.90-105 (Ch.4)
9/23	Continue neurotransmitters, begin hormones	
9/25	Hormones	Text P.123-131 (Ch.5)
9/30	Finish Hormones	Moodle Reading #2, Assignment 2
10/2	Review for exam #2	
10/7	Exam #2	

Section 3: Sensation - focus on vision and audition

10/9	General principles of sensation; Begin vision	Text P.217-222
10/14	Cont. Vision	Text Ch. 10
10/16	Finish vision, begin auditory system	Moodle reading #3, Assignment 3
10/21	Auditory system	Text P. 249-264 (Ch.9)
10/23	Finish Auditory system	
10/28	Review for exam #3	
10/30	Exam #3	

Section 4: Sex, Homeostasis, and Happiness *Gahtan will be away 11/13, 11/18 and 11/20*

11/4	Reproductive strategies of animals	Text P. 366-373 (Ch.12)
11/6	Why sex? Red Queen hypothesis	
11/13	Behavior Genetics- guest lecture by Amy Sprowles (Biology)	TBA; attendance mandatory
11/18	Purpose of emotions; Lecture and in-class assignment run Brian Griffiths, TA	Moodle reading #4, Assignment 4
11/20	Exam 3 review run by Brian Griffiths, TA	
12/02	Exam #4	

Section 5: Psychopathology and Cognitive neuroscience

12/04	Biological basis of psychopathology- genetics, Schiz.	Text P.488-502 (Ch.16)
12/9	Biological basis of psychopathology- Depression	Text P. 502-505 (Ch.16)
12/11	Neuroethics, neurophilosophy	Moodle reading #5
	Review for Final Exam	

Final exam is Tuesday 12/16 at 3-4:50pm in BSS 204

Moodle readings

1. Evolutionary Psychology primer, By Cosmides and Tooby, 1997 (Partial)
2. Oxytocin and trust – Kosfeld et al 2005
3. Corticothalamic feedback in vision – Cudeiro and Silliti 2006 (Partial)
4. Evolutionary Psych of Happiness – Nesse 2004
5. Farah- Neuroethics from TICS 2005

