

**Introduction to Behavioral Neuroscience**  
**Psychology / Cog Sci 2230, Fall 2022**  
**MWF 10:10 - 11 am, G-76 Goldwin Smith**

**Instructor:**

Timothy DeVoogd, Email: [tjd5@cornell.edu](mailto:tjd5@cornell.edu)  
Office: 278B Uris Hall  
Office Hours: Wed 1 pm – 2 pm, and by appt.

**Teaching Assistants:**

Celia McLean, crm338	Hetvi Doshi, hsd37
Office: B-59 Uris Hall	Office: 160 Human Ecology Building (connected to Martha Van Renssalaer Hall)
Office Hours: Tues 10 am – 11 am, and by appt.	Office Hours: Mon 1 – 2, and by appt

**Required Textbook:** *Behavioral Neuroscience*, **Ninth Ed.**, Breedlove and Watson.

**Class Canvas Site:**

<https://canvas.cornell.edu/> Search for Psychology or CogStudies 2230. Power Points for the lectures will generally be posted shortly before class

**Learning Goals:**

- 1) Students will develop proficiency with the basics of cognitive and behavioral neuroscience.
- 2) Students will learn how various neural systems (e.g. sensory systems, memory systems) are integrated, with a particular emphasis on how these systems accomplish adaptive tasks.
- 3) Students will learn how to think like neuroscientists. More specifically, I want students to understand the logic behind neuroscience experiments, what constitutes evidence and how controversies are resolved through experimentation and replication.
- 4) Students will learn about the ways in which neuroscience influences thinking in related fields, including other areas of psychology, medicine, engineering, etc.

**Getting Help:**

All students are encouraged to make use of the extensive help that is available. You are welcome to stop by during my regular office hours (or those of the TAs) with questions or just to chat. We are also happy to arrange a Zoom appointment to meet with you if the regular office hours don't work for you. You should also make use of email and we will hold optional review sessions as needed.

**Redundant Courses:**

Due to overlap in the covered material, this course should not be taken by students who are registered in, or have completed, Intro to Neuroscience BIONB2220. If you have taken other biopsychology courses, please come see me to determine whether it is appropriate to take Psych 2230.

**Attendance:**

Much of the material discussed in the lectures will add to or complement the text. Therefore, it will be difficult to do well in this course if you don't attend all the lectures.

**Exams:**

There will be two preliminary exams given in the evening (**Sep 20, Oct 25**, 26% each) and a comprehensive final exam (36%). All students must take the final exam. *I am very reluctant to give makeup exams. If you know now of a conflict (due to athletics, religious holidays, etc.), you should discuss it with me immediately. Otherwise, the class policy is that make up exams will only be given for cases of unusual need (e.g. unanticipated emergency or documented illness).*

## **Two Written Assignments:**

Assignment one (2%) requires you to email me (tjd5) within your 1<sup>st</sup> week in the course. Mention a bit about yourself, including why you're taking the class, and one issue/question that you hope the class deals with. **Attach a recent picture of yourself.**

The second assignment (10%) will require you to find an article in the popular press about behavioral neuroscience, published in 2021 or 2022 (no earlier!). Look up the original scientific paper and write a short (3-4 pages) paper that **a)** summarizes the popular press article, **b)** describes whether it covered all the important parts of the original paper, and **c)** assesses how important the discovery was (for example, whether it would be important enough to be added to our class).

## **Extra Credit:**

Knowledge in the field of Psychology is advanced through research and the Cornell Psychology Department is internationally renowned for its research. You can learn about research and get extra credit for participating in psychological experiments. You will be given 1 extra credit point for each hour of participation, up to a total of 3 points. We will use the SONA system for signup instructions and a list of experiments. In order to get the credits, you will need to email a brief (~5 sentences) description of the procedures and goals of the experiments. Details will be given in class. *EC activities are entirely optional. Your grade will not suffer in any way if you do not to participate.* You may also receive extra credit by joining a study group with some students at the Asian University for Women who will be participating in our class via zoom (details in class).

## **Grading:**

The final grade will be computed on the basis of the two regular exam scores, the final, and the written assignments. The grades will be computed on a curve in which the range between the top grade and 55% will be divided evenly into As, Bs, Cs and Ds. Any extra credit points you earn for participation in psychological experiments will be added onto your score after the curve is determined.

## **Academic Integrity:**

Academic dishonesty will not be tolerated. This includes plagiarism (presenting someone else's ideas or writing as one's own) and cheating on exams. Refer to the Cornell University Academic Integrity Handbook: <http://web.cornell.edu/UniversityFaculty/docs/AIC.pdf> for official university policies. Students agree that by taking this course all required papers may be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Usage Policy posted on the Turnitin.com site.

## **Schedule**

The following schedule is *tentative* and is intended only as a general guide to the structure of the course. Upcoming material, readings and important dates will be given in class.

Week 1	Aug 22: Introduction, Functional Neuroanatomy. Aug 24 Neuroanatomy Aug 26 Brains and Neurons	<u>Readings: Chapters 1.</u> Chapters 2 & 3
Week 2	Aug 29 Neurophysiology (Action Potentials, Synaptic Transmission). Aug 31 Synaptic Transmission 1 Sep 2 Synaptic Transmission 2	<u>Readings: Chapter 2, 3.</u>

- Week 3      **Sep 5 Labor Day, no class**  
 Sep 7 Neuropharmacology (Basics) Reading: Chapter 4  
 Sep 9: Neuropharmacology, (therapeutic drugs, Drugs of Abuse)
- Week 4      Sep 12, 14 Hormones and Behavior Reading: Chapter 5  
 Sep 16 Development Readings: Chapter 6, 7
- Week 5      **No Class Sep 19. Exam 1 Tuesday, Sep 20 7:30 pm**  
                  **GSHG76, GSHG64**  
 Sep 21 Developmental Disorders  
 Sep 23: Sensation and Perception Principles Reading: Chapter 8
- Week 6      Sep 26 Touch Reading: Chapter 9  
 Sep 28, 30 Hearing
- Week 7      Oct 3: Taste and Smell  
 Oct 5, 7: Vision. Reading: Chapter 10
- Week 8      **Oct 10 Fall Break, no class**  
 Oct 12, 14 Motor Systems. Reading: Chapter 11. Case Study: Parkinson's Disease
- Week 9      Oct 17 Sex and the Brain Reading: Chapter 12.  
 Oct 19: Neurobiology of Social Interactions.  
 Oct 21: Homeostasis: Temperature Reading: Chapter 13
- Week 10     **No Class, Oct 24. EXAM 2 Tuesday, Oct 25, 7:30 PM**  
                  **GSH132, GSHG64**  
 Oct 26 Homeostasis: Eating and drinking  
 Oct 28 Biorhythms, sleep Reading: Chapter 14
- Week 11     Oct 31, Nov 2: Emotion and Emotional Learning, Stress. Reading: Chapter 15  
 Nov 4: Neural bases of psychopathology Reading: Chapter 16
- Week 12     Nov 7: Psychopathology II  
 Nov 9: Mental Retardation  
 Nov 11: Learning and Memory Reading: Chapter 17.
- Week 13     Nov 14, 16: Learning and Memory  
 Nov 18: Animal Cognition Reading: Chapter 18
- Week 14     Nov 21: Attention  
**Nov 23, 25 Thanksgiving vacation**
- Week 15     Nov 28: Language Reading: Chapter 19  
 Nov 30, Dec 2: Cognitive Neuroscience.
- Week 16     Dec 5: Overview, synthesis
- Final Exam    TBA**