

Introduction to Neuroscience, NSC 3361.HN1

Course and Contact Information

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Class Time & Location: Mondays and Wednesdays 4-5:15pm, CB2 1.202

Office Hours: Thursdays 2-3pm, Fridays 11am-12pm, and by appointment.

Course Description

This course serves as an introduction to the field of neuroscience. It is a survey of neurobiology from the cellular building blocks of the brain regions and processes that underlie vision, hearing, language, sex, emotion, hunger, thirst, and more. We'll also discuss psychoactive drugs, mental illness, and how we learn and remember.

Learning Objectives

Students will describe the anatomy and organization of the nervous system as it relates to a number of important physiological processes and behaviors. Students will describe the basic cell biology and pharmacology of the nervous system, with a focus on synaptic transmission. Students will apply this knowledge to analyze how perturbing specific brain regions or neurotransmission may alter behavior. Students will also describe central principles of behavioral neuroscience such as homeostasis and plasticity.

Required Textbooks and Materials

The main textbook for this course is *The Mind's Machine, 2nd Ed* by Breedlove and Watson. While concise and clear, this text does not always cover topics with adequate depth. Thus, additional material for this course will be drawn from *Biological Psychology, 7th Ed.*, also by Breedlove and Watson. Some students prefer *Brain and Behavior, 4th Ed.*, by Bob Garrett. Copies of all these texts are available in the CV Library if you wish to review them before deciding whether to rent or purchase them.

Additional reading may be assigned throughout the course at my discretion. These will be handed out in class or distributed electronically. **If you are unable to attend class, you are responsible for contacting me to let me know.** You **must** email me in advance for an absence to be excused, or in the case of emergencies, as soon as is reasonably possible.

Assignments and Academic Calendar

Reading assignments corresponding to the lecture topic from The Mind's Machine (MM), Biological Psychology (BP), or Brain and Behavior (BB) are indicated. Please note homework assignments for the course are numbered H1, H2, and so on. They will be distributed on Wednesdays and will be due at the beginning of class the following Monday. Answer keys will be distributed at the end of class on Mondays. Late work will not be accepted.

Date	Agenda	Reading	Homework
22-Aug	Introduction	MM Ch.1&2, BP Ch.1&2	
24-Aug	How we study the brain: Neuroanatomy I	MM Ch.1&2, BP Ch.1&2	H1 handed out
29-Aug	How we study the brain II: Neurons & Morphology	MM Ch.2, BP Ch.3	H1 due
31-Aug	Membrane Potential, The Action Potential	MM Ch.3, BP Ch.3	H2 handed out
5-Sep	LABOR DAY	MM Ch.3, BP Ch.3 & 4	H2 due
7-Sep	Synaptic Transmission	MM Ch.3&4, BP Ch.4	Review Q's distributed
12-Sep	Molecules Involved in Synaptic Transmission		
14-Sep	In Class Review		
19-Sep	Exam I	MM Ch.4, BP Ch.4	
21-Sep	Neuropharmacology I: Neurotransmitters	MM Ch.4, BP Ch.4,	H3 handed out
26-Sep	Neuropharmacology II: Drugs	MM Ch.4, BP Ch.4	H3 due
28-Sep	Drugs of Abuse and Addiction	MM Ch.8, BP Ch.5, 12	H4 handed out
3-Oct	Development, Hormones & Sex	BP Ch.6 & 7	H4 due

5-Oct	Brain Evolution	MM Ch13-III, BP Ch.6 & 7	Review Q's distributed
10-Oct	Development	MM Ch.10, BP Ch. 14	
12-Oct	Circadian rhythms and sleep		
17-Oct	Exam II	MM Ch.5, BP Ch.8	
19-Oct	Sensory Processing I	MM Ch.5, BP Ch.8	H4 handed out
24-Oct	Sensory Processing II & Pain		
26-Oct	Visual System		
31-Oct	Visual System II	MM Ch.7, BP Ch.10	H4 due
2-Nov	Audition and Language I	MM Ch.7, BP Ch.10	H5 handed out
7-Nov	Audition and Language II	MM Ch.6, BP Ch.9, 19	H5 due
9-Nov	Motor Control	MM Ch.15, BP Ch.9, 19	H6 handed out
14-Nov	In Class Review	MM Ch.5, BP Ch.11	H6 due, Review Q's distributed
16-Nov	Exam III		
21-Nov	FALL BREAK		
23-Nov	Hunger, Thirst, Homeostasis	MM Ch.9, BP Ch.13	
28-Nov	Emotions, Aggression & Stress	MM Ch.11, BP Ch.15	
30-Nov	Psychopathology	MM Ch.12, BP Ch.16	H7 handed out
5-Dec	Learning & Memory I	MM Ch.13, BP Ch.17	H7 due, Review Q's distributed
7-Dec	Learning and Memory II	MM Ch.13, BP Ch.17	
TBA	Final Exam: Time TBA		

Grading Policies

Your grade for the course will be based on attendance, participation, homework completion, and exams.

The grading scale for letters from percentages will be as follows: A+: 97-100%, A: 93-96%, A-: 90-92%, B+:87-89%, B: 83-86%, B-: 80-82%, C+: 77-79%, C:73-76%, C-: 70-72%, D: 60-69%.

The contribution of each assignment/exam toward the final grade is as follows: Attendance and participation- 5%, Homework- 10%; Exam I- 20%, Exam II- 20%, Exam III- 20%, Final Exam- 25%.

Homework and Review Questions: Each homework assignment will consist of approximately 5-7 questions related to the most recent material. Grades will be based on completeness and effort , *not correctness*.

Note: Longer review question sets will be handed out before exams, but these will not be turned in or graded. They are for study purposes only.

Exams: In-class exams will be cumulative in nature, but focused on the most recent material. The cumulative final will draw on the all the course material.

Attendance and Class Participation: I expect students to come to class on time, having read the material and ready to contribute to the group discussion. **If you miss class, you must notify me in advance, or in case of emergencies, as soon as is reasonable.**

Bring the appropriate course reading and notes with you to class. Be respectful of your classmates. **Use of cell phones and laptops is prohibited during class.**

Exceptions may be made for e-readers used for class material. Class is short; cell phones and social media are distracting.

Nota bene: There will be no extra credit and late work will be accepted only in documented emergency situations and at the discretion of the professor.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please go to <http://go.utdallas.edu/syllabus-policies> for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.