NSC 3361.006 INTRODUCTION TO NEUROSCIENCE— Fall 2022

MONDAY + WEDNESDAY 8:30-9:45 AM
JSOM 2.903

Instructor Contact Information Dr. Diana Kim
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Office hours By appointment via MS Teams
Email with Name, Course Name, Available dates/times

Supplemental Instructor: John Ham – John.Ham@utdallas.edu

Course Description:
This is an introductory science course that explored the basic structure and function of the nervous system with emphasis on the neurophysiological processes that underlie behavior. The course includes an overview of neuroanatomy, cellular neuroscience, neuropharmacology, sensory and motor systems, cognitive neuroscience, behavioral neuroscience, and disorders of the nervous system.

Course Content:
To begin to study complex behaviors and treat neurological diseases in humans, one must first understand how the brain works. Since this is an introductory neuroscience course, we will first cover the cells of the nervous system and their physiological roles in processes such as the propagation of nerve impulses and the transfer of information between neurons. This will include a survey of basic neuroanatomy and the organization as well as the development of the nervous system. Next, we will explore how sensory systems including touch, vision, and hearing, as well as, motor systems control behavior. We will then delve deeper into emotion and motivation including drugs, sex, hunger, thirst, and sleep. Finally, we will discuss learning and memory, intelligence, psychological disorders, and language. Whenever possible, clinically relevant examples will be incorporated into lectures leading to discussions of current research.

Course Learning Objectives:
Students who complete this course should be able to: 1. Analyze the contributions of anatomical, physiological, behavioral, cell and molecular, developmental, pharmacological, and biological studies to the cross-disciplinary field of neuroscience. 2. Compare and contrast how neurons and glia cells will react in different disease states. 3. Explain how action potentials propagate along neurons, how information is transferred from neuron to neuron, and how glial cells influence these processes. 4. Predict how damage to neuro-anatomical structures will impact specific behaviors. 5. Evaluate the changes that the nervous system undergoes during typical development and how this is influence by genes vs. the environment. 6. Describe the anatomical structures and mechanisms associated with motivation, emotion, sensation, movement, and complex behaviors at the cellular and systems levels. 7. Demonstrate how scientists create and test hypotheses to study complex behaviors, neurological diseases, and psychiatric disorders. 8. Display a basic understanding of neurochemistry and neuropharmacology as it relates to neuronal function and mental disorders 9. Integrate pathological findings from psychology, psychiatry, physiology, and neurology with basic scientific work in the neurosciences. 10. Apply neuroscience concepts, theories, and research findings to issues in everyday life.

Required Textbook and Materials:
Watson and Breedlove. The Mind's Machine 3rd edition ISBN: 9781605357300.
Textbooks and some other bookstore materials can be ordered online or purchased at the UT Dallas Bookstore.

Technical Requirements: In addition to a confident level of computer and Internet literacy, certain minimum technical requirements must be met to enable a successful learning experience. Please review the important technical requirements on the Getting Started with eLearning webpage.

Course Access and Navigation: This course can be accessed using your UT Dallas NetID account on the eLearning website. Please see the course access and navigation section of the Getting Started with eLearning webpage for more information. To become familiar with the eLearning tool, please see the Student eLearning Tutorials webpage. UT Dallas provides eLearning technical support 24 hours a day, 7 days a week. The eLearning Support Center includes a toll-free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service.

Lectures:
Attendance of classes is strongly recommended, as tests will be based on material taken from the classes and will not be restricted to the topics and textbooks indicated in this syllabus, which serves predominantly as a guideline to the course.

Class Materials:
PDFs of lecture slides will be posted on eLearning in clearly labeled folders. These will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course; however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved Office of Student Accessibility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Examinations:
Students will be evaluated with 4 midterm lecture exams and a comprehensive final exam. All assessments will consist of multiple-choice questions and true/false questions covering the preceding lectures. The lowest exam grade, including the final exam, will be dropped. All midterm and final lecture exams will be worth 100 points each. Midterm exams will include 50 questions (60 minute duration); final exam will include 100 questions (120 minute duration). The midterms exams will be scheduled during the scheduled class time (8:30am-10am); the exam will close at 10am. However, if you have important (and verifiable) reasons why you require a different test time, please let the instructor know ASAP. Missed midterm exams may be made up by taking the final exam. If more than one midterm lecture exam is missed, the absence must be excused by the instructor – please see below. The instructor reserves the right to change the evaluation criteria at their discretion throughout the semester. The final exam will be administered at the testing center, unless otherwise stated.

Note: Grades will not be rounded up. No extra credits will be offered. All assessments will not be curved.

Quizzes:
Quizzes will be administered via Blackboard. 8 quizzes will be offered throughout the semester of which the lowest 3 will be dropped. Each quiz will be worth 10 points each. These quizzes will include 10 multiple choice and true/false questions taken over 10 minute time period with 1 submission attempt. There will be no makeups or extensions for missed quizzes, even excused absences and technical difficulties.

Academic Integrity:
Academic Dishonesty including but not limited to cheating on exams and sharing or posting exam questions (with or without the correct answers) will not be condoned in my class or at UTD. Any action deemed as potential academic dishonesty will be reported to the Office of Community Standards and Conduct for official review.

Course and Instructor Policies:
Excused absences for exams will be given only if:

- you are seriously ill and have verifiable documentation from a physician
- you made prior arrangements to attend a verifiable religious or important family event
- represent UTD in a university-sanctioned event
- you were detained by law at the exam time

In ALL of these cases except the last, you must notify the instructor IN ADVANCE of the scheduled exam by email and you need to provide documentation (for the last point, your court order will suffice). Otherwise, you will receive a zero for that exam. A maximum extension of one week (7 days) beyond the scheduled exam date can be granted, except for the final exam, which must be taken on the final exam date.

Extra help:
Supplemental Instruction (SI) is offered for this course. SI sessions are collaborative group study sessions, scheduled two times per week. Sessions are facilitated by an SI Leader, who has taken the course and received a high final grade. Attendance is voluntary. For information about the days, times, and locations of SI sessions refer to http://www.utdallas.edu/studentsuccess/help-with-courses/supplemental-instruction/.
Review sessions will be held each week by our undergraduate TAs, who have previously taken the course. In these sessions, TAs will review lecture material presented that week and answer questions. These sessions are not mandatory.
Individual help is also available. You are welcome and indeed encouraged to meet with the instructor or our TAs during virtual office hours or by appointment to go over difficult concepts, discuss learning strategies, and review exams.

Grading Policy:
Grading is based on the following criteria:

≥90% (or 405+ points) correct for A
A+ = 436.5-450 pts A = 423-436.4 pts A- = 405-422.9 pts
≥80% (or 360+ points) for B
B+ = 391.5-404.9 pts B = 378-391.4 pts B- = 360-377.9 pts
≥70% (or 315+ points) for C
C+ = 346.5-359.9 pts C = 333-346.4 pts C- = 315-332.9 pts
≥60% (or 270+ points) for D
D+ = 301.5-314.9 pts D = 288-301.4 pts D- = 270-287.9 pts
Less than 60% (269.9 points and below) is automatically an F

GRADING WORKSHEET

ASSESSMENT	TOTAL POINTS EARNED	TOTAL POINTS POSSIBLE	NOTE
Quiz 1		10	LOWEST 3 QUIZZES DROPPED
Quiz 2		10	
Quiz 3		10	
Quiz 4		10	
Quiz 5		10	
Quiz 6		10	
Quiz 7		10	
Quiz 8		10	
Lecture Exam 1		100	LOWEST EXAM GRADE DROPPED
Lecture Exam 2		100	
Lecture Exam 3		100	
Lecture Exam 4		100	
Final Exam		100	
Total:		450	

TENTATIVE SCHEDULE

WEEK	DATE	LECTURE	TOPIC	TEXT	QUIZ
1	Mon, Aug 22	1	Introduction	1	
	Wed, Aug 24	2	Neuron and Glia	2	
2	Mon, Aug 29	3	Electrical Signaling	3	
	Wed, Aug 31	4	Synaptic Transmission	3	#1 due 9/3
3	Mon, Sept 6		NO CLASS – LABOR DAY		
	Wed, Sept 7	4	Neurotransmitters	4.1	#2 due 9/10
4	Mon, Sept 12	4	Neuropharmacology	4	
	Wed, Sept 14	5	Neuroanatomy	2	
5	Mon, Sept 19		**LECTURE EXAM 1 (lectures 1-5)**		
	Wed, Sept 21	6	Development of the Nervous System	13.3	
6	Mon, Sept 26	7	Somatosensory System	5	
	Wed, Sept 28	8, 9	Auditory + Vestibular Systems	6	#3 due 10/1
7	Mon, Oct 3	10	Chemical Senses	6	
	Wed, Oct 5	11	Visual System	7	#4 due 10/8
8	Mon, Oct 10		Clinical Case		
	Wed, Oct 12	12	Motor Control I	5	
9	Mon, Oct 17		**LECTURE EXAM 2 (lectures 6-11)**		
	Wed, Oct 19	12	Motor Control II	5	
10	Mon, Oct 24	13	Neuroendocrinology	8	
	Wed, Oct 26	14	Neurobiology of Sex	8	#5 due 10/29
11	Mon, Oct 31	15	Hunger, Thirst, and Homeostasis	9	
	Wed, Nov 2	16	Biological Rhythms and Sleep	10	#6 due 11/5
12	Mon, Nov 7		**LECTURE EXAM 3 (lectures 12-16)**		
	Wed, Nov 9	17	Emotions	11	
13	Mon, Nov 14	18	Stress and Aggression	11	
	Wed, Nov 16	19	Psychopathology	12	#7 due 11/19
14	Mon, Nov 21	20	NO CLASS – THANKSGIVING BREAK	13	
	Wed, Nov 23		NO CLASS – THANKSGIVING BREAK		
15	Mon, Nov 28		Learning + Memory		
	Wed, Nov 30	21, 22	Cognition and Language	14, 15	#8 due 12/3
16	Mon, Dec 5		**LECTURE EXAM 4 (lectures 17-22)**		
	Wed, Dec 7		Final Exam Review		
	TBD		**CUMULATIVE FINAL EXAM (lectures 1-22)**		

Schedule:
This schedule is tentative. There may be unforeseen outside factors (e.g. illness, weather) that necessitate adjustments to this schedule, including the dates of reviews and tests. Any such adjustments will be announced in class and/or via e-learning. All descriptions of the didactic material and the timelines are subject to change at the discretion of the instructor. The information 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.