Syllabus

Cellular, Neurophysiological, and Pharmacological Neuroscience
NEUR 327 / BENG 327, Section 002, Spring 2023
MW: 12:00-1:15 PM, Peterson Hall, Rm. 2413

Instructor: Ted Dumas
Contact Information: tdumas@gmu.edu, 3-9170
Office Hours: Tuesday, 11:00am – 12:00pm or by appointment
Office Location: Krasnow Hall, Room 109
Last day to add: 01/30/2023
Last days to drop: 02/06/2023 (0% tuition liability), 02/13/2023 (50% tuition liability)

COURSE INFORMATION

COURSE OBJECTIVES
This is a core neuroscience course. At the end of the course, students will understand basic concepts of cellular and physiological neuroscience. Some neuropharmacology will be covered in so far as drugs have been effective in elucidating the cell biology of individual neurons and functional activity of brain circuits. The scope of the course will include an in-depth survey of neuronal properties, including cellular anatomy and membrane function, electrical properties of neurons, intracellular and intercellular signaling, and synaptic transmission and plasticity.

Education Mode
This class will be delivered in person!

Textbook
Neuroscience, Purves et al., 6th Edition, Sinauer Associates, Inc.

Covid-19
Masks are optional while indoors for individuals who have been vaccinated. Masks are required for individuals who have not been vaccinated. Masks are available at the SUB I information desk and HUB Suite 2300.

Grading
There will be a total of three scheduled exams, one being your final examination. Exam 1 will contribute 20% and Exams 2 and 3 each contribute 40% of your final grade. There are no make-up exams. **Changes to exam dates or times or make-up exams are not allowed unless the student presents written medical documentation in advance of the exam.** Medical documentation for a family member or friend is not sufficient to request a make-up exam. Please do not put the instructor in a difficult position by requesting a make-up exam without written medical documentation.

Homework
There will be eleven homework assignments, each counting as one exam point. These assignments are not graded, but they must be completed and submitted on time for credit.

Grading Policy
A score of 90% or above generally results in a grade of A- or above, 80 or above corresponds to a B- or above, and 70 or above results in a C- or above. These number-to-letter grade

conversions serve as a guideline and are not absolute. The final grades may be determined on a curve if this is in the students favor and justified in the opinion of the instructor.

Academic Integrity
GMU is an Honor Code university; please see the University Catalog for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously. Violations have penalties. What does academic integrity mean in this course? Essentially this: when you are responsible for a task, you will perform that task. When you rely on someone else's work in an aspect of the performance of that task, you will give full credit in the proper, accepted form. Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions. When in doubt (of any kind) please ask for guidance and clarification.

GMU Email Accounts
Students must use their Mason email accounts to receive important University information, including messages related to this class.

USEFUL CAMPUS RESOURCES

Office of Disability Services
Disability Services at George Mason University is committed to providing equitable access to learning opportunities for all students. If you are seeking accommodations for this class, please first visit https://ds.gmu.edu/ for detailed information about the Disability Services registration process. Then please discuss your approved accommodations with me. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: ods@gmu.edu | Phone: (703) 993-2474

Writing Center
Johnson Center, Floor 2, Room 227E; (703) 993-1200 – https://writingcenter.gmu.edu

University Libraries
"Ask a Librarian" – http://library.gmu.edumudge/IM/IMRef.html

Counseling and Psychological Services (CAPS)
(703) 993-2380 – http://caps.gmu.edu

UNIVERSITY POLICIES
The University Catalog, http://catalog.gmu.edu, is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. Other policies are available at http://universitypolicy.gmu.edu/. All members of the university community are responsible for knowing and following established policies.

CLASS POLICIES
The instructor of this course reserves the right to enter a failing grade to any student found guilty of an honor code violation. Use of cell phones, pagers, and other communicative devices are not allowed. Please keep out of sight. Laptops or tablets may be permitted for the purpose of taking notes only. Regarding electronic devices (such as laptops, cell phones, etc.), please be respectful of your peers and your instructor and do not engage in activities that are unrelated to class. Such disruptions show a lack of professionalism and may affect your grade.

Week of Semester	Monday	Wednesday
Week 1 Jan. 23rd, Jan. 25th	Studying the Nervous System, Chapter 1.1	Studying the Nervous System, Chapter 1.2
Week 2 Jan. 30th, Feb. 1st	Electrical signals of neurons, Chapter 2.1	Electrical signals of neurons, Chapter 2.2
Week 3 Feb. 6th, Feb. 8th	Voltage-dependent membrane permeability, Chapter 3	*No Class!*
Week 4 Feb. 13th, Feb. 15th	Voltage-dependent membrane permeability, Chapter 4.1	Ion channels and Transporters, Chapter 4.2
Week 5 Feb. 20th, Feb. 22nd	Ion channels and Transporters, Chapter 4.3	**Exam 1 Review**
Week 6 Feb. 27th, Mar. 1st	**Exam 1 (Ch. 1-4)**	*No Class!*
Week 7 Mar. 6th, Mar. 8th	Synaptic transmission, Chapter 5.1	Synaptic transmission, Chapter 5.2
Week 8 Mar. 13th, Mar. 15th	*Spring Break, No Class!*	*Spring Break, No Class!*
Week 9 Mar. 20th, Mar. 22nd	Synaptic transmission, Chapter 5.3	Neurotransmitters and receptors, Chapter 6.2
Week 10 Mar. 27th, Mar. 29th	Neurotransmitters and receptors, Chapter 6.1	Neurotransmitters and their protein receptors, Chapter 6.3
Week 11 Apr. 3rd, Apr. 5th	**Exam 2 Review**	**Exam 2 (Ch. 5-6)**
Week 12 Apr. 10th, Apr. 12th	*No Class!*	Molecular signaling within neurons, Chapter 7.1
Week 13 Apr. 17th, Apr. 19th	Molecular signaling within neurons, Chapter 7.2	Sensory Transduction, Chapters 9,10,11,13,15
Week 14 Apr. 24th, Apr. 26th	Synaptic plasticity, Chapter 8.1	Synaptic plasticity, Chapter 8.2
Week 15 May. 1st, May. 3rd	Synaptic plasticity, Chapter 8.3	**Final Exam Review**
Week 16 May. 8th, May. 10th	*No Class!*	*No Class!*
Final Exams Monday May. 15th	**Final Exam (Ch. 7-8), 10:30am - 1:15pm**	