

NEURL-UA 100 — *Introduction to Neural Science* — Fall 2019

Instructor

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Teaching assistants

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Lectures. Mondays and Wednesdays, 2:00 to 3:15, classroom C95, Global Center for Academic and Spiritual Life (GCASL, 238 Thompson Street).

Recitations. 4:55–6:10 Monday–Thursday and 11–12:15 Friday. If you cannot make the recitation for which you are registered, and there is space in another, you can arrange with the responsible TA to switch to a different section. Carla will lead the Monday recitations, Kathryn will lead the Tuesday and Wednesday recitations, and Pam will lead the Thursday and Friday recitations.

Office hours. The instructor or a TA will have set office hours on Mondays and Wednesdays from 3.30 to 4.30, in room 631 Meyer. You can also see any of us at other times by appointment.

Text. *Neuroscience: Exploring the Brain*, 4th edition, by Mark F. Bear, Barry W. Connors and Michael A. Paradiso; Baltimore: Lippincott Williams and Wilkins, 2016 (“BCP”). For most purposes the 3rd edition (2006) is an acceptable substitute. Supplementary readings will be distributed via NYU Classes. It is a good idea to do the assigned reading before class because lectures will assume that you have some familiarity with the material. You will probably wish to read it again after each lecture.

Many of the slides used in class are taken from *Principles of Neural Science*, by Eric R. Kandel and others (McGraw-Hill), or from *Neuroscience*, by Dale Purves and others (Sinauer/OUP). Some of you may find one of these more advanced books a valuable source of additional readings. Any relatively recent edition of either book is acceptable.

If you find the main text too challenging, you may find *Behavioral Neuroscience*, by S. Marc Breedlove and others, to be a useful source of background material. Any recent edition will be acceptable (the 8th is the current edition, earlier editions were titled *Biological Psychology*).

Online material. All course information will be distributed through NYU Classes. Lecture slides, additional readings and supplementary materials, and other course information will be available there. Slides will generally be posted before each lecture. Lectures will be recorded through the NYU Course Capture system, and the resulting video and audio recordings will be available through NYU Classes.

Exams and grading. Your grade will be determined for the most part by your performance on examinations, with the rest based on class and recitation participation.

- There will be two midterm examinations, each covering about one third of the course, and a comprehensive final. The 75-minute midterm examinations will be in class on October 3rd and November 7th. The final will be a 110-minute exam on December 17th.
- Exams will all be in the form of short essays. You will have some choice of which questions to answer.
- The better of your two midterm examination scores will be combined with your score on the final to determine the examination component of your grade. The worse of the two midterm scores will be discarded.
- No makeup midterms will be given. If you miss a midterm for any reason, you will get a 0 for that midterm.
- Study questions will be distributed through NYU Classes before each examination.

Schedule of lectures and readings

Date	Lecture topic	Readings
9/4/19	Introduction and history of neuroscience	BCP1
9/9/19	Structure of the nervous system	BCP7, Appendix
9/11/19	Neurons and glia	BCP2
9/16/19	Membrane properties of the neuron (Carter)*	BCP3
9/18/19	Action potentials and impulse propagation (Carter)*	BCP4
9/23/19	Synaptic transmission	BCP5
9/25/19	Synaptic integration	BCP5, 6
9/30/19	Neurotransmitters and neuromodulators	BCP6
10/2/19	Midterm 1	
10/7/19	Sensory transduction and the chemical senses	BCP8
10/9/19	Visual system 1	BCP9
10/15/19	Visual system 2	BCP10
10/16/19	Visual system 3	BCP10
10/21/19	Auditory system 1 (Reyes)*	BCP11
10/23/19	Auditory system 2 (Reyes)*	BCP11
10/28/19	Somatic sensory system	BCP12
10/30/19	Motor system 1	BCP13
11/4/19	Motor system 2	BCP14
11/6/19	Midterm 2	
11/11/19	Chemical control of brain and behavior	BCP15
11/13/19	Motivation and emotion	BCP16, 18
11/18/19	Mental illness (Rodríguez)*	BCP22
11/20/19	Language (Popp)*	BCP20
11/25/19	Eye movements, attention, awareness	BCP21
12/2/19	Development and plasticity	BCP23
12/4/19	Memory systems	BCP24
12/9/19	Memory mechanisms	BCP25
12/11/19	Computational and theoretical neuroscience (McClain)*	TBD

*Guest lecturer