

**Mammalian Neurobiology**  
**PSY 531**  
**Fall 2017**

**Time:** Mon/Wed 3.00pm – 4.15pm  
**Room:** Music/Theater 1008  
**Instructor:** James Thompson  
Room 2056  
David King Hall  
email: [jthompz@gmu.edu](mailto:jthompz@gmu.edu) tel: 703-993-9356

**Office Hours:** Mon 2.00pm – 3.00pm or by appointment (email only)

**Required Readings:**

Kandel et al (2013) Principles of Neural Science. 5<sup>th</sup> edition. McGraw-Hill.  
DeArmond et al (1989) The Structure of the Human Brain 3<sup>rd</sup> Edition. Oxford

Additional readings will be distributed via Blackboard.

**Objectives:** The objective of this class is to provide knowledge about the anatomy and function of the mammalian (especially human) central nervous system. We will take a systems neuroscience perspective to understanding brain anatomy and function: we will place particular emphasis on the way that nuclei and regions interconnect and work together in the service of function. The course will provide a detailed look at different sensory, motor, cognitive, and regulatory systems, including a detailed examination of the anatomy and physiology of key regions/nuclei, and connections between structures, that comprise these systems. At the end of this course I hope you will have gained the following:

1. Knowledge of the gross anatomy of the human brain
2. Be able to identify the major anatomical structures and pathways that comprise sensory, motor, cognitive, and regulatory systems
3. An understanding of the relationship between brain structure and function

**Class Format:** Weekly classes will be divided into two sections, each lasting approximately one hour and 15 minutes (with a break in the middle of each class). A seminar format will be used for these classes, with active student participation expected. Mandatory homework and readings will be assigned for each class, and students will be called upon on a regular basis to explain to the class how he or she answered the questions contained in the homework. The Monday class of most weeks will be devoted to covering material from the assigned chapter(s) from Kandel et al (2013), while the Wednesday class will review of relevant material from DeArmond et al (1989) as well as the other assigned material. I expect that much of the material covered in the course will be new to you, so keeping up with the readings etc will be critical.

**Assessment:** Assessment will consist of in class discussion of homework (50%) and a take home, open book final exam with items very similar to those covered in the weekly assignments (50%).

**Technology:** Powerpoint, videos, and white board will be used to present class materials. Materials will be distributed via email, in class, and via Blackboard.

**Important Dates:** Last day to add: Sep 5. Last day to drop Sep 29. Labor Day Sep 4. Columbus Day Oct 9. Thanksgiving recess Nov 22-26.

**Grades:** A (100-90); B (89-80); C (79-70); D (69-60); F (below 59)

**Attendance:** While you will not be graded on attendance, this is a graduate-level course and you are expected to attend each week in order to complete in class participation requirements.

**Honor Code:** All exams must follow the guidelines of the GMU Honor Code. George Mason University has an Honor Code, which requires all members of this community to maintain the highest standards of academic honesty and integrity. Cheating, plagiarism, lying, and stealing are all prohibited. All violations of the Honor Code will be reported to the Honor Committee. See [honorcode.gmu.edu](http://honorcode.gmu.edu) for more detailed information. Students may consult with other students and use books, notes, and other sources in preparing for exams. However, when taking exams, no books, notes, or student interaction will be allowed. Cheating and plagiarism of any sort will not be tolerated.

**Students with Disabilities:** If you are a student with a disability and you need academic accommodations, please see me and contact the Disability Resource Center C(DRC) at 703-993-2474. All academic accommodations must be arranged through that office.

### **Access to Computers**

Students must have access to their GMU Email account. Students should feel free to communicate with me via email. Updates and notifications will be sent to the class email list using your GMU email address. If you need to use university facilities, you can find out about location and hours of university facilities at <http://www.labs.gmu.edu/> or ask at the information desk at the Johnson Center. I will ONLY use your GMU Email address to contact you. Please use and check this address frequently. You may forward your GMU email to another address if you like, but please ensure that you are receiving the email to your GMU Email address.

**Cancellation Policy** In case class needs to be canceled due to an unexpected event, students will be informed via email as soon as possible. Make-up sessions will be arranged for canceled classes.

## SCHEDULE

Aug 28 Aug 30	Introductions and overview Gross Brain Anatomy	<b>Mesulam</b>
Sep 4 Sep 6	Labor Day Neuronal Activity & Synaptic Integration	<b>Kandel Ch 7, 10</b>
Sep 11 Sep 13	Visual System Visual System	<b>Kandel Ch 25, 27 Fellerman &amp; Van Essen</b>
Sep 18 Sep 20	Auditory System Auditory System	<b>Kandel Ch 31 Bizley &amp; Cohen</b>
Sep 25 Sep 27	Somatosensory System Somatosensory System	<b>Kandel Ch 22, 23 Catania</b>
Oct 2 Oct 4	Smell & Taste Smell & Taste	<b>Kandel Ch 32 McGann</b>
Oct 10* Oct 11	Motor Systems Motor Systems	<b>Kandel Ch 37, 38 Graziano</b>
Oct 16 Oct 18	Cerebellum Basal Ganglia	<b>Kandel Ch 42 Kandel Ch 43</b>
Oct 23 Oct 25	Arousal & homeostasis Neuromodulatory systems	<b>Kandel Ch 47 Kandel Ch 46</b>
Oct 30 Nov 1	Spine Brain Stem	<b>Kandel Ch 35, 36 Kandel Ch 45</b>
Nov 6 Nov 8	Frontoparietal Systems Frontoparietal Systems	<b>Kaas Barbas</b>
Nov 13 Nov 15	Memory & hippocampus Memory & hippocampus	<b>Kandel Ch 67 Squire</b>
Nov 20 Nov 22	Review of Brain Anatomy Thanksgiving	
Nov 27 Nov 29	Emotion & Affect Emotion & Affect	<b>Kandel Ch 48 Namburi</b>
Dec 4 Dec 6	Pleasure & Pain Pleasure & Pain	<b>Berridge Kandel Ch 24</b>
Dec 6 Dec 13	Take home final exam distributed Take home final exam due	