

PSYCH 4240: Cognitive Neuroscience (Fall 2018)

Class meetings: MW 3-4:15 pm, Arts & Science Building, Room 310

Instructor: Jeff Johnson, PhD (johnsonjeffre@missouri.edu)

Office: McAlester Hall, Room 21

Office hours: Tue 9:30-11:30 am, or just email me if another time works better

Course objectives and structure

In this course, you will learn what we currently know about how the brain provides different aspects of cognition, such as perceiving the world, remembering the past, experiencing emotions, and making decisions. The beginning of the course will cover basic functions of the nervous system and brain anatomy, along with the modern methodology common to cognitive neuroscience. The course will then focus on synthesizing important findings from animal studies, studies of humans with brain damage and disorders, and neuroimaging.

Class meetings will consist of lecture material designed to help you understand the main principles of cognitive neuroscience and to generate discussions exploring further aspects of these principles. Class attendance is strongly encouraged, as you are responsible for all announcements made, policies set, and materials covered in class. If you have attendance issues due to official university activities, please let me know ASAP.

Exams

Three interim exams will take place on September 24, October 29, and December 5. The exams will consist of multiple-choice, short-answer, and essay questions, and will be worth 50 points each. An optional comprehensive final exam will take place on Wednesday, December 12, at 3-5 pm in our regular classroom (unless otherwise specified). The final exam will also be worth 50 possible points and can be used to replace your lowest-scored interim exam (i.e., it will not lower your grade in any way). Due to this flexibility, no make-up exams will be administered.

Assignments

There will be seven in-class/homework assignments administered throughout the semester on unannounced dates. Each assignment will be worth 10 possible points, and I will count your five best scores (50 total points) toward the final grade. The assignments are meant to encourage class attendance and staying current on the readings and lecture material.

Grading

Of the 200 possible points (3 out of 4 exams x 50, 5 assignments x 10), your point total will earn you a grade as follows:

A+ = 193	B+ = 173+	C+ = 153+	D+ = 133+	F = <119
A = 185+	B = 165+	C = 145+	D = 125+	
A- = 179+	B- = 159+	C- = 139+	D- = 119+	

Readings

The readings for the course will be a combination of peer-reviewed journal articles (empirical papers, reviews, and opinions) and magazine/newspaper articles. The readings should be read by the date listed on the course schedule, so that we can discuss them in class. The links for the readings should be easily accessible from on campus or through the VPN (<https://anyconnect.missouri.edu>), but let me know if you have any problems.

If you want to read more on the topics we cover or just have a structured textbook to fall back on, I'd recommend this one:

Gazzaniga, Ivry, & Mangun. 2013. *Cognitive Neuroscience: The Biology of the Mind* (4th ed.). W.W. Norton & Company (New York). ISBN: 978-0393913484.

It will also be available on reserve at Ellis Library, or you can borrow my copy if necessary.

For Exam 1

- 1) <http://www.sciencemag.org/careers/2008/02/no-youre-not-impostor>
- 2) <http://www.sciencemag.org/careers/2016/03/how-seriously-read-scientific-paper>
- 3) <https://doi.org/10.1111/j.1745-6924.2009.01134.x>
- 4) <https://doi.org/10.1038/526147a>
- 5) <https://arstechnica.com/science/2017/01/can-modern-neuroscience-understand-donkey-kong/>
- 6) <https://doi.org/10.1016/j.tins.2008.11.001>

For Exam 2

- 7) <https://www.economist.com/technology-quarterly/2018-01-06/thought-experiments>
- 8) <http://dx.doi.org/10.1016/j.cub.2017.05.053>
- 9) <https://doi.org/10.3389/fpsyg.2013.00651>
- 10) <http://dx.doi.org/10.1016/j.tics.2016.02.005>

For Exam 3

- 11) <https://doi.org/10.1016/j.tics.2006.10.012>
- 12) <https://doi.org/10.1016/j.cobeha.2017.08.007>
- 13) <https://doi.org/10.1016/j.tics.2013.01.006>
- 14) <https://doi.org/10.1016/j.tics.2012.07.006>

Course Schedule

(Any changes will be announced in class and on Canvas.)

TOPIC	DATE	READINGS DUE
Syllabus	Aug 20	
Introduction/History	Aug 22	
Brain anatomy and function	Aug 27	1 , 2
	Aug 29	
	Sept 3	3
	Sept 5	4
Methodology	Sept 10	
	Sept 12	5
	Sept 17	6
	Sept 19	
EXAM 1	Sept 24	
Motor control and action	Sept 26	
	Oct 1	7
Sensation and perception	Oct 3	
	Oct 8	8
	Oct 10	
	Oct 15	9
Object recognition	Oct 17	
	Oct 22	10
	Oct 24	
EXAM 2	Oct 29	
Attention & consciousness	Oct 31	
	Nov 5	11
Memory	Nov 7	
	Nov 12	12
	Nov 14	13
NO CLASS (Thanksgiving Break)	Nov 19	
	Nov 21	
Emotion	Nov 26	14
	Nov 28	
	Dec 3	
EXAM 3	Dec 5	
FINAL EXAM	Wednesday, Dec 12, 3-5 pm	

University policies and resources

Academic integrity

Academic integrity is fundamental to the activities and principles of a university. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards breaches of the academic integrity rules as extremely serious matters. Sanctions for such a breach may include academic sanctions from the instructor, including failing the course for any violation, to disciplinary sanctions ranging from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, collaboration, or any other form of cheating, consult the course instructor.

Disability services

If you anticipate barriers related to the format or requirements of this course, if you have emergency medical information to share with me, or if you need to make arrangements in case the building must be evacuated, please let me know as soon as possible.

If disability related accommodations are necessary (for example, a note taker, extended time on exams, captioning), please register with the Office of Disability Services (<http://disabilityservices.missouri.edu>), S5 Memorial Union, 882-4696, and then notify me of your eligibility for reasonable accommodations. For other MU resources for students with disabilities, click on "Disability Resources" on the MU homepage.

Intellectual pluralism

The University community welcomes intellectual diversity and respects student rights. Students who have questions or concerns regarding the atmosphere in this class (including respect for diverse opinions) may contact the Departmental Chair or Divisional Director; the Director of the Office of Students Rights and Responsibilities (<http://osrr.missouri.edu/>); or the MU Equity Office (<http://equity.missouri.edu/>), or by email at equity@missouri.edu. All students will have the opportunity to submit an anonymous evaluation of the instructor(s) at the end of the course.

Academic inquiry, course discussion, and privacy

University of Missouri System Executive Order No. 38 lays out principles regarding the sanctity of classroom discussions at the university. The policy is described fully in Section 200.015 of the Collected Rules and Regulations. In this class, students may NOT make audio or video recordings of course activity, except students permitted to record as an accommodation under Section 240.040 of the Collected Rules. All other students who record and/or distribute audio or video recordings of class activity are subject to discipline in accordance with provisions of Section 200.020 of the Collected Rules and Regulations of the University of Missouri pertaining to student conduct matters.

Those students who are permitted to record are not permitted to redistribute audio or video recordings of statements or comments from the course to individuals who are not students in the course without the express permission of the faculty member and of any students who are recorded. Students found to have violated this policy are subject to discipline in accordance with provisions of Section 200.020 of the Collected Rules and Regulations of the University of Missouri pertaining to student conduct matters.