

This course explores how cognitive functions are supported by neural activity in the brain. It provides a broad survey of the emerging field of cognitive neuroscience, with emphasis on major theories and research on the neural basis of cognitive processes as well as the methods that are employed (e.g., EEG, fMRI). Cognitive neuroscience has become a “hot” field and there is much enthusiasm about the applications of this research. This is evidenced by the regularity with which articles appear on this topic in the popular press. Understanding the intricacies of cognitive neuroscience research will help you to evaluate claims made by the media and policymakers concerning the applications of this kind of research. After completing this course, you will have a basic understanding of neuroscientific methods and ideas about how the brain gives rise to cognition, action, and emotion. This knowledge will help you interpret how this research should be used and to what extent these findings are applicable to more wide-ranging issues.



*Time & Place:* Online asynchronous

*Instructor:* Taosheng Liu PhD (tsliu@msu.edu )  
*Office:* https://msu.zoom.us/j/7786539856  
*Office hours:* Monday, Tuesday 1 – 2pm and by appointment

*Teaching Assistant:* Beau Zhang (zhangb42@msu.edu)  
*Office:* https://msu.zoom.us/j/4616215169  
*Office hours:* Wednesday, Thursday 2 – 3 pm and by appointment

*Required reading:* Purves et al., Principles of Cognitive Neuroscience (2<sup>nd</sup> Edition 2012, Sinauer)

**Evaluation scheme:**

Exams (4 exams, 22% each)	88%
Reaction paper	12%

**Exams:** There will be four online exams. Each exam will be composed of two parts: 1) multiple choice; 2) short answers. *Exams are conducted on D2L on the exam dates.*

**Reaction paper:** You are to write a short reaction paper for this class. You will read an original research articles and summarize it and provide critical analyses. A detailed description of the assignments is provided in a separate handout.

**Grade scale:** The final grades will be assigned according to the following scale:

Letter grade:	4.0	3.5	3.0	2.5	2.0	1.5	1.0	0
Raw score:	100	-----91	-----85	-----79	-----73	-----67	-----61	-----55

The upper bound is exclusive and the lower bound is inclusive (e.g., 3.0=79.00%-84.99%)

**Getting Help and Contact Guidelines:**

In this special and difficult semester, we are here to help you succeed in this course.

Both the instructor and teaching assistant will hold online office hours via zoom. We encourage you to come to our office hours. We are also available at other times, by appointment. We will be very happy to answer any questions you have regarding the course.

Also feel free to ask questions via e-mail. Please be courteous and respectful to the instruction team when sending emails. We suggest that when you do write an email, include “Psy 301” in the subject line, which will help us process your emails. We will make every attempt to respond to your emails within one business day. However, occasionally your message may be unnoticed (e.g., routed to the spam folder), so if you don’t hear back in a day, please send the message again.

## Schedules (tentative)

Wk	Date	Topic	Reading
1	9/2-9/4	Introduction	Ch 1
2	9/7-9/11	Neural signaling	Appendix
2		Human nervous system	Appendix
3	9/14-9/18	Methods I	Ch 2
3		Methods II	Ch 2
4	9/21-9/25	Vision I	Ch 3
4		Vision II	Ch 3
5	<b>9/28</b>	<b>Exam 1</b>	
5	9/30	Audition	Ch 4
6	10/5-10/9	Mechanical/Chemical senses	Ch 4
6		Motor systems	Ch 5
7	10/12-10/16	Attention I	Ch 6-7
7		Attention II	Ch 6-7
8	10/19-10/20	Attention III	Ch 6-7
8	<b>10/22</b>	<b>Exam 2</b>	
9	10/26-10/30	Memory I	Ch 8
9		Memory II	Ch 9
10	11/2-11/6	Executive control	Ch 13
10		Decision making I	Ch 14
11	11/9-11/10	Decision making II	Ch 14
11	<b>11/12</b>	<b>Exam 3</b>	
12	11/16-11/20	Emotion	Ch 10
12		Social cognition	Ch 11
13	<b>11/24</b>	<b>Paper due</b>	
13	11/26	<i>Thanksgiving</i>	
14	11/30-12/4	Language	Ch 12
14		Evolution	Ch 15
15	<b>12/11</b>	<b>Exam 4</b>	

Dates are only suggestive to keep an even pace throughout the semester. You can adjust it based on your own circumstances. Note the dates in bold (exam and paper) are fixed.

**Academic Honesty:** Article 2.3.3 of the Academic Freedom Report states that "The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards." The Department of Psychology adheres to the policies on academic honesty as specified in General Student Regulations 1.0, Protection of Scholarship and Grades; see <https://www.msu.edu/~ombud/academic-integrity/index.html>). Cheating will be taken very seriously and any student that violates MSU rules (i.e. is caught cheating on any assignment) will be given a failing grade for the class, the incident will appear permanently on the students' record and the case will be brought to the attention of the Psychology Department advisors who may take further action.

**Equal opportunity:** Please be aware that it is against University policy for an instructor to give any one student a special opportunity that is not provided to all students.