

Term Information

Effective Term Autumn 2020

General Information

Course Bulletin Listing/Subject Area Psychology
Fiscal Unit/Academic Org Psychology - D0766
College/Academic Group Arts and Sciences
Level/Career Graduate
Course Number/Catalog 6880
Course Title Techniques and Topics in Cognitive Neuroscience
Transcript Abbreviation Topics cog neuro
Course Description This course is required for all Cognitive Neuroscience graduate students and for Cognitive Neuroscience concentration students. Students will attend talks given by internal faculty and engage in group discussions about relevant topics and techniques in the field of cognitive neuroscience.
Semester Credit Hours/Units Fixed: 3

Offering Information

Length Of Course 14 Week, 12 Week, 8 Week, 7 Week, 6 Week, 4 Week
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? No
Grading Basis Letter Grade
Repeatable No
Course Components Lecture
Grade Roster Component Lecture
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites None
Exclusions
Electronically Enforced Yes

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 26.1501
Subsidy Level Doctoral Course
Intended Rank Doctoral

Requirement/Elective Designation

Required for this unit's degrees, majors, and/or minors

Course Details

Course goals or learning objectives/outcomes

- Gain familiarity with classic as well as new methods for the analysis of data in neuroscience.
- Gain familiarity with a broad range of important topics within the field of cognitive neuroscience.
- Learn how to engage in scientific discussions by aggregating many sources of information and thinking critically about the material.

Content Topic List

- History of neuroimaging
 - Neuroanatomy
 - Neurons / systems-level / principles of neural science
 - Neuroimaging methods (fmri/eeg/patients/etc)
 - Sensation/perception
 - Memory
 - Learning
 - Language
 - Attention
 - Cognitive control / executive function
 - Reward / decision
 - Emotional / affective
 - Social neuro / theory of mind
 - Developmental & aging
 - Clinical neuroscience
- No

Sought Concurrence

Attachments

- Psych 6880 syllabus--Turner.docx: syllabus
(Syllabus. Owner: Paulsen, Alisa Marie)
- Psych 6880 syllabus--revised NOV 2019.docx: syllabus
(Syllabus. Owner: Paulsen, Alisa Marie)
- Psych 6880 syllabus-Turner-revised Dec 2019.docx: syllabus
(Syllabus. Owner: Paulsen, Alisa Marie)

Comments

- See 11-27-19 email (by Vankeerbergen,Bernadette Chantal on 11/27/2019 10:50 AM)
- The cognitive neuroscience concentration refers to graduate students also.

11/18/19 Course has been updated to be 3 credit hours. Other changes have been addressed in the revised syllabus. (by Paulsen,Alisa Marie on 11/18/2019 02:43 PM)

- 10/24/19: Both the syllabus and the course description above say, "Cognitive Neuroscience graduate students and for Cognitive Neuroscience concentration students." If the Neuro concentration students refer to students in the undergrad program, shouldn't this be a 5000-level course? (by Haddad,Deborah Moore on 10/24/2019 05:59 PM)

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Paulsen,Alisa Marie	10/24/2019 04:16 PM	Submitted for Approval
Approved	Paulsen,Alisa Marie	10/24/2019 04:17 PM	Unit Approval
Revision Requested	Haddad,Deborah Moore	10/24/2019 05:59 PM	College Approval
Submitted	Paulsen,Alisa Marie	10/24/2019 06:03 PM	Submitted for Approval
Approved	Paulsen,Alisa Marie	10/24/2019 06:03 PM	Unit Approval
Approved	Haddad,Deborah Moore	10/24/2019 06:04 PM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	11/15/2019 02:49 PM	ASCCAO Approval
Submitted	Paulsen,Alisa Marie	11/18/2019 02:43 PM	Submitted for Approval
Approved	Paulsen,Alisa Marie	11/18/2019 02:43 PM	Unit Approval
Approved	Haddad,Deborah Moore	11/18/2019 05:01 PM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	11/27/2019 10:50 AM	ASCCAO Approval
Submitted	Paulsen,Alisa Marie	12/13/2019 12:25 PM	Submitted for Approval
Approved	Paulsen,Alisa Marie	12/13/2019 12:26 PM	Unit Approval
Approved	Haddad,Deborah Moore	12/13/2019 02:49 PM	College Approval
Pending Approval	Jenkins,Mary Ellen Bigler Hanlin,Deborah Kay Oldroyd,Shelby Quinn Vankeerbergen,Bernadette Chantal	12/13/2019 02:49 PM	ASCCAO Approval

Syllabus
Fall 2020 PSYC 6880: Techniques and Topics in Cognitive Neuroscience
Section X (X) TURNER
Tuesday & Thursday 12:15PM – 2:05PM; Psychology Building, Room X

Instructor: Brandon Turner Email: turner.826@gmail.com Office: Lazenby Hall, 200C Office hours: By appointment

Prerequisites and Enrollment Information:

No prerequisites required. This course is required for ALL Cognitive Neuroscience graduate students and for Cognitive Neuroscience concentration students. Other students wishing to take the course for credit should contact the instructor.

Credit Hours: 3

Course Readings:

Each week will consist of a set of readings (articles, chapters, etc) assigned by the faculty presenter that week. In addition, the first week we will read/discuss the following paper to help improve presentation skills:

- Anderson, C. (2013) How to give a killer presentation. *Harvard Business Review*.

Course Description:

Cognitive Neuroscience is a rapidly expanding scientific discipline that probes classical questions of human cognitive psychology via a broad array of cutting-edge methodological approaches, which include but are not limited to brain imaging (e.g., functional MRI and electroencephalography), lesion studies, single-cell recording, and examinations of brain injuries and other neurological disorders. The purpose of the course is to survey many important topics in the field of cognitive neuroscience, while highlighting specific contributions of techniques in advancing our understanding of said topic. Each week covers a different topic, where one half of the week will be lead by an expert in the field, and the other half will be student led on a set of preselected readings (see below). Some additional general goals of the course pertain the Cognitive Neuroscience graduate program. Namely, the course is intended to establish a common grounding on important areas within Cognitive Neuroscience, facilitate a community within the area, and providing exposure to faculty members that are difficult to establish otherwise.

Course Goals:

- Gain familiarity with classic as well as new methods for the analysis of data in neuroscience.
- Gain familiarity with a broad range of important topics within the field of cognitive neuroscience.
- Learn how to engage in scientific discussions by aggregating many sources of information and thinking critically about the material.

Tasks:

Presentation (50%): All students will be responsible for presenting an empirical paper and leading a discussion on the paper. You will choose the date and paper to present from the available readings below. Every participant will be expected to present at least once and perhaps more, depending on the total number of class participants. The presentation should be a 15-minute powerpoint, keynote, or equivalent presentation of the background, methods, results, and implications of the paper. Presenters for each week should upload their presentations on Carmen. These slides will only be viewable by the instructor until the presentation takes place. The presenters can edit their slides and re-upload their presentation up until their talk, but a draft talk should be there one day before the presentation. This exercise will limit last minute preparation and make the presentations more enjoyable and educational for everyone. The presentation slides will be available for the class to view after the presentation takes place. Presenters need to give a brief overview of the questions answered by the paper (talk about some background research as needed), present the methods in a clear manner such that we can all understand it, and discuss the results of the paper. In order to have productive conversations, please discuss one or more things the paper accomplishes well and one or more things that the paper fails to do well. Think about whether the paper answers the question(s) it set out to answer and how you would have set out to answer that question.

Attendance and Participation (25%): All students are expected to attend class and participate in the lectures and discussions.

Response Papers (25%): Students must submit weekly discussion questions/response papers (half-page, due Wednesday at 10pm). The weekly response can either compare the assigned papers and discuss their merits in answering important questions within cognitive neuroscience; OR find an alternative empirical paper that better addresses the current topic and discuss why.

Course grades will be determined as follows:

93-100%	A	73-76.99%	C
90-92.99%	A-	70-72.99%	C-
87-89.99%	B+	67-69.99%	D+
83-86.99%	B	60-66.99%	D
80-82.99%	B-		
77-79.99%	C+	<59.99%	E

Class attendance policy:

Attendance is mandatory. Illness and personal/professional obligations may be accepted as an excuse for missing class. You will still be responsible for turning in discussion questions for the day that you were absent, with a reasonable (~1 week) delay. If you cannot present on the day that you are scheduled to present, you will need to present on another day on another topic. *If you are sick/contagious but feeling up to it, email me if you want to Skype/video chat in to class.*

Academic Integrity:

CHEATING AND PLAGIARISM WILL NOT BE TOLERATED AND WILL BE REPORTED TO THE COMMITTEE ON ACADEMIC MISCONDUCT. IGNORANCE IS NOT AN EXCUSE!

“It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct http://studentlife.osu.edu/pdfs/csc_12-31-07.pdf”

Please be aware that every assignment you turn in on Carmen will be compared via advanced software to a vast database of past assignments and those of your current peers. If you plagiarize, the detection software will alert me! See example from Class 1 lecture slides.

Missed Classes:

If you miss a class, please contact fellow students for relevant notes and handouts. The instructor or course assistants are available to meet with you after you have reviewed the notes and readings to answer additional questions. It will help to get the contact info of some fellow students.

Accommodation:

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Cell Phones and Electronic Devices in Class:

An increasing amount of research has pointed to negative cognitive effects of excessive electronic device use, something that will likely come up in class. Many of us find it hard to resist texting or even surfing the web during class. And there is evidence that it dramatically worsens performance for you and your neighbors (see lecture slides from Class 1).

With all of this in mind, I have established the following policies:

1. If you bring a laptop to class, it can be used only to take notes. Do not use it for web surfing or engaging in social media. Students found to be surfing the web or

- otherwise using their computers in a manner that is distracting to their classmates will be asked to close their laptops. If a student continues this inappropriate laptop use, he/she will be asked to leave the classroom.
2. If students need to text or make a phone call, they are required to first excuse themselves from the classroom.

Class Schedule (subject to change):

Week 1: History of neuroimaging

Tuesday, 8/25: Lecture from Expert

Thursday, 8/27: Presentations from Students

Example reading: Raichle, M. E. (2009). A brief history of human brain mapping. *Trends in Neuroscience*. 32, 118–126.

Week 2: Neuroanatomy

Tuesday, 9/1: Lecture from Expert

Thursday, 9/3: Presentations from Students

Example reading: Martin, J. H. (1996). *Neuroanatomy Text and Atlas*. 2nd Edition. Appleton and Lange, Stanford Connecticut.

Week 3: Neurons / systems-level / principles of neural science

Tuesday, 9/8: Lecture from Expert

Thursday, 9/10: Presentations from Students

Example reading: Kandel et al. (2012). *Principles of Neural Science*. 5th edition. McGraw-Hill Education

Week 4: Neuroimaging methods (fmri/eeg/patients/etc)

Tuesday, 9/15: Lecture from Expert

Thursday, 9/17: Presentations from Students

Example reading: Bandettini, P.A. (2009). What's new in neuroimaging methods? *Annals of the New York Academy of Science*. 1156, 260–293.

Week 5: Sensation/perception

Tuesday, 9/22: Lecture from Expert

Thursday, 9/24: Presentations from Students

Example reading: Yantis, S. (2013). *Sensation and perception*. Palgrave Macmillan.

Week 6: Memory

Tuesday, 9/29: Lecture from Expert

Thursday, 10/1: Presentations from Students

Example reading: Squire, L. R., Knowlton, B. & Musen, G. (1993). The structure and organization of memory. *Annual Review of Psychology*. 44, 453–95.

Week 7: Learning

Tuesday, 10/6: Lecture from Expert

Thursday, 10/8: Presentations from Students

Example reading: Souza, D. A. (2016). *How the brain learns*. Fifth Edition. Corwin Press.

Week 8: Language

Tuesday, 10/13: Lecture from Expert, and Presentations from Students

Thursday, 10/15: Fall Break; No classes

Example reading: Baddeley, A. (2003). Working memory and language: an overview. *Journal of Communication Disorders*. 36, 189-208.

Week 9: Attention

Tuesday, 10/20: Lecture from Expert

Thursday, 10/22: Presentations from Students

Example reading: Posner, M. I. (1995). Attention in cognitive neuroscience: An overview. In: *The cognitive neurosciences*, ed. M. S. Gazzaniga. MIT Press.

Week 10: Cognitive control / executive function

Tuesday, 10/27: Lecture from Expert

Thursday, 10/29: Presentations from Students

Example reading: Ridderinkhof, K. R., Nieuwenhuis, S., Braver, T. S., (2007). Medial frontal cortex function: an overview and introduction. *Cognitive Affective Behavioral Neuroscience*. 7, 261–265.

Week 11: Reward / decision

Tuesday, 11/3: Lecture from Expert

Thursday, 11/5: Presentations from Students

Example reading: Brown, J. W., Braver, T. S., (2007). Risk prediction and aversion by anterior cingulate cortex. *Cognitive Affective Behavioral Neuroscience*. 7, 266–277.

Week 12: Emotional / affective

Tuesday, 11/10: Lecture from Expert

Thursday, 11/12: Presentations from Students

Example reading: Ochsner, K. N. & Gross, J. J. (2005). The cognitive control of emotion. *Trends in Cognitive Science*. 9, 242–249.

Week 13: Social neuro / theory of mind

Tuesday, 11/17: Lecture from Expert

Thursday, 11/19: Presentations from Students

Example reading: Harmon-Jones, E., & Winkielman, P. (2007). A brief overview of social neuroscience. *Social neuroscience: integrating biological and psychological explanations of social behavior*, 3-11.

Week 14: Developmental & aging

Tuesday, 11/24: Lecture from Expert

Thursday, 11/26: Thanksgiving break; No classes

Example reading: Munakata, Y., Casey, B. J., Diamond, A. (2004). Developmental cognitive neuroscience: progress and potential. *Trends in Cognitive Science*. 8, 122–128.

Week 15: Developmental & aging (cont); Clinical neuro

Tuesday, 12/1: Presentations from Students

Thursday, 12/3: Lecture from Expert

Example reading: Waxman, S. G. (2003). *Clinical Neuroanatomy*. McGraw-Hill, New York.

Week 16: Clinical neuro

Tuesday, 12/8: Presentations from Students