Seminar in Physiological Psychology Section 01

PSYC 230

Spring 2025   In Person   3 Unit(s)   01/23/2025 to 05/12/2025   Modified 01/22/2025

👤 Contact Information

BASIC CLASS INFORMATION

Modality and location	In-person, DMH 347
Schedule	Tu/Th 3:00-4:15pm

PROFESSOR

Name	Valerie Carr, PhD
Email	valerie.carr@sjsu.edu
Office	DMH 318
Drop-in hours	Tu/Th, 1:30-2:30pm in DMH 318 or book a Zoom appt here (https://calendar.app.google/pfFF7hSp4JX4YZTJ7)
Web pages	Dr. Carr's faculty page (https://www.sjsu.edu/people/valerie.carr/index.html) and CLIMB lab (https://www.carrlabsj.org/)

💻 Course Description and Requisites

An advanced consideration of the neurophysiological correlates of behavior.

Prerequisite: PSYC 129 (or equivalent).

Letter Graded

✳ Classroom Protocols

Course overview

The goal of this course is to help you build a strong theoretical and methodological foundation for understanding the nervous system. The field of neuroscience is incredibly extensive and interdisciplinary; as such, we will explore the nervous system through a variety of approaches—neurophysiology, neurochemistry, neuroanatomy, neuropsychology, and neuroimaging. Recent cognitive neuroscience research findings will be covered via in-class discussions.

Course format

This course will meet in-person, twice per week during our scheduled class days/times. Class discussions will comprise a large portion of the course. Lectures will also be provided, particularly early in the course, to ensure basic understanding of assigned topics prior to group discussions. Participation is essential for optimal performance in the course. Keeping pace with the reading schedule and being proactive about seeking help are similarly important in achieving a successful outcome. Please ask questions when you don't understand information in lecture, in the readings, or during discussions – asking questions and offering ideas is welcomed and encouraged!

Classroom environment and professionalism

I aim to provide an inclusive learning environment in which diverse backgrounds and perspectives are recognized, respected, and seen as a source of strength. It is my intent to present materials and activities that are respectful of diversity with respect to gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions on how I can make this course more equitable and inclusive to all forms of diversity are encouraged and appreciated. In turn, I hope that you will maintain courteous behavior in this course and respect your fellow students.

This is a small, graduate-level seminar. As such, expectations for preparedness and professionalism are higher than they would be for an undergraduate course. Please respect my time and that of your fellow students by arriving on time, completing the assigned readings in advance, and actively participating in class discussions.

Technology requirements

To use Canvas and to complete course assignments, you will need access to the internet and a computer. If you do not have access to these resources, please visit the [Technology page (https://www.sjsu.edu/learnanywhere/equipment/index.php)](https://www.sjsu.edu/learnanywhere/equipment/index.php) on SJSU's Learn Anywhere website. It includes resources relating to low-cost or free Wi-Fi, as well as computer loans from the university.

Course Canvas page

Course materials such as the syllabus, assignments, announcements, grades, etc. can be found on the [Canvas learning management system (http://sjsu.instructure.com/)](http://sjsu.instructure.com/). You are responsible for regularly checking Canvas to learn of any updates. For help with using Canvas see SJSU's Canvas Student

Drop-in hours

Drop-in hours give students the opportunity to ask questions and explore points of confusion or interest that can't be fully addressed in class. Drop-in hours are a great opportunity to chat about questions you might have that are related to class, study skills, your research or career interests, graduate school, or anything else that requires a longer conversation.

Program Information

Program learning outcomes (PLOs) are skills and knowledge that students will have achieved upon completion of the MA in Research and Experimental Psychology degree. Each course in our curriculum contributes to one or more of these PLOs. The PLOs for the degree are:

1. Advanced Knowledge Base in Research and Experimental Psychology. Students completing the Research and Experimental Psychology MA program will be able to demonstrate advanced knowledge of the major theoretical perspectives and research methods across areas of experimental psychology (e.g., Developmental, Social, Cognitive, and Physiological).
2. Research Skills and Scholarship. Graduates of our program will possess an advanced level of competence in research methods, statistical techniques, and technical writing skills. Students completing the Research and Experimental Psychology MA program are required to complete a thesis. The thesis will demonstrate:
   2.1 creative problem-solving in the design and implementation of empirical research.
   2.2 project management skills in the implementation of empirical research.
   2.3 advanced competency in the statistical analysis and interpretation of empirical research findings.
   2.4 communication (oral and written) of research findings at a professional level.
3. Career Enhancement. Students completing the Research and Experimental Psychology MA program will achieve career enhancement through placement in a doctoral program or acceptance of a position requiring a master's in psychology in the public or private sector.

Course Learning Outcomes (CLOs)

Upon successful completion of this course, students will be able to:

- CLO1: Apply major concepts related to basic neurophysiology, neurochemistry, and neuroanatomy.
- CLO2: Evaluate methodological approaches and associated findings used in neuroscience, with an emphasis on cognitive neuroscience methods.
- CLO3: Explain the major transduction mechanisms, neuroanatomical pathways and theoretical perspectives associated with neurodevelopment, sensory and motor systems, language, memory, aging, and the resting brain.

- CLO4: Describe dysfunction of the nervous system and its association with neurological and psychological disorders.
- CLO5: Use knowledge of the nervous system to interpret a wide range of behavioral phenomena, including your own.
- CLO6: Present and discuss empirical findings from the neuroscientific literature.
- CLO7: Create a mock funding proposal to support neuroscience research or neuroscience-related technology.

📘 Course Materials

Readings

There is no required textbook for this course. Instead, required readings will include a number of scientific journal articles pertaining to neuroscience, each of which will be available on Canvas.

For those wishing to consult a reference textbook throughout the course, your undergraduate BioPsych/Neuro textbook should work well. You might also consider the following free, online resources created by researchers at the University of Texas Houston:

- [Neuroscience textbook (https://nba.uth.tmc.edu/neuroscience/)](https://nba.uth.tmc.edu/neuroscience/)
- [Neuroanatomy lab (https://nba.uth.tmc.edu/neuroanatomy/index.html)](https://nba.uth.tmc.edu/neuroanatomy/index.html)

Student resources

I encourage you to take advantage of the following SJSU resources:

- [SJSU Learn Anywhere (https://www.sjsu.edu/learnanywhere/)](https://www.sjsu.edu/learnanywhere/) has a number of helpful resources related to learning technology, including help with Zoom and Canvas and finding free or affordable internet and computer resources.
- [Accessible Education Center (AEC) (https://www.sjsu.edu/aec/index.php)](https://www.sjsu.edu/aec/index.php) provides comprehensive services in support of the educational development and success of students with disabilities in a student-centered and professional environment.
- The [Academic Counseling Center for Excellence in Social Sciences (ACCESS) Success Center (http://www.sjsu.edu/access/)](http://www.sjsu.edu/access/) provides general education (GE) advising for undergraduate students majoring or intending to major in any of the departments in The College of Social Sciences.
- [SJSU Peer Connections (https://peerconnections.sjsu.edu/)](https://peerconnections.sjsu.edu/) offers free mentoring, tutoring, and supplemental instruction services for students at SJSU. Peer Educators are students just like you; they understand the triumphs and challenges of being a student at SJSU.
- [The SJSU Writing Center (http://www.sjsu.edu/writingcenter/)](http://www.sjsu.edu/writingcenter/) offers a variety of resources to help students become better writers. All of their services are free for SJSU students.
- [SJSU Counseling and Psychological Services (http://www.sjsu.edu/counseling/)](http://www.sjsu.edu/counseling/) provides free counseling services and a 24/7 crisis line for SJSU students. To get connected, call (408) 924-

5678 or use the [Student Wellness Center Patient Portal (https://sjsuportal.pointnclick.com/)](https://sjsuportal.pointnclick.com/).

- [SJSU Cares (https://www.sjsu.edu/sjsucares/)](https://www.sjsu.edu/sjsucares/) provides resources and services for students facing a financial crisis, including trouble paying for food or housing, trouble paying bills (including medical), and housing and food insecurity.
- [Career Center (https://www.sjsu.edu/careercenter/)](https://www.sjsu.edu/careercenter/): Resources for students, including help with resumes and cover letters, interviewing, networking, and job-search strategies; hosts internships and career fairs which can be found on [SJSU Handshake (https://sjsu.joinhandshake.com/login)](https://sjsu.joinhandshake.com/login).

For a comprehensive list of student resources both on- and off-campus, please see this [Google Doc (https://docs.google.com/document/d/1AKHxBvERpDPlEvGyDzY4kGQXw-dExoEp2fM8IWJmmqw/edit?usp=sharing)](https://docs.google.com/document/d/1AKHxBvERpDPlEvGyDzY4kGQXw-dExoEp2fM8IWJmmqw/edit?usp=sharing).

☰ Course Requirements and Assignments

Assignments in this class will be grouped into several categories.

Category	Num. of assignments	Pts. per assignment	Total pts.
Quizzes	2	10	20
Article analyses	8	3	24
Class participation	10	2	20
Lightning presentation	1	4	4
Final project milestones	4	2	8
Final paper	1	24	24
Total			100

Assignment categories

See details below regarding each type of assignment, and please also see "Grading Information" and "Schedule."

Quizzes: 20 points total (CLOs 1, 2, 5)

Two quizzes (10 points each) will be completed at home and will involve essay questions that cover material from the first two units of the course (review and methods, respectively). Quizzes will be turned in via Canvas by the beginning of class on the dates noted in the schedule below.

Article analyses: 24 points total (CLOs 3 - 6)

Starting with the third unit of the course, we will alternate one day of lecture with one day of discussion relating to recent neuroscience research. For each of 8 journal articles, you will be assigned a specific role such as tutor, cheerleader, skeptic, historian, etc. For each article, you will contribute to a shared Google Doc due at the start of class on the dates noted below, with your contribution relating to your assigned role.

Class participation: 20 points total (CLOs 1 - 6)

Unit 1 (review) and Unit 2 (methods) each include one in-class, hands-on activity. Additionally, for each of 8 journal articles, we will have an in-class discussion in which you are expected to actively participate based on your assigned role.

Lightning presentation: 4 points (CLOs 3 and 6)

Our final topic of the semester will be resting-state fMRI. Rather than read an article predetermined by me, you will instead be asked to (1) find an article that uses rs-fMRI to explore a topic of your choosing, and (2) provide a brief presentation to your classmates about your chosen paper.

Final project: 32 points total (CLO 7)

Your final project is designed to both showcase your knowledge of neuroscience as well as prepare you careers in either academia or the tech sector. You will be asked to choose from one of the following:

- An NSF graduate fellowship proposal
- An NIH graduate fellowship proposal
- An application to Y Combinator

Your project will include several project milestones (8 points total) as well as a final paper (24 points). This project will be discussed in greater detail around the midpoint of the semester.

Extra credit

Students can choose to complete one of several extra credit opportunities offered throughout the semester, which will add 2 pts to your overall grade.

Submitting assignments

All assignments are due by the beginning of class (i.e., at 3pm) on the specified due date and will be submitted via Canvas. It is your responsibility to ensure that submitted files are properly uploaded and complete by the due date. As such, blank/incomplete/corrupt files will not be accepted, similar to how a blank piece of paper would never be accepted in class. I suggest beginning the submission process at least 30 mins in advance of each deadline to ensure sufficient time to correctly upload your files and address any Canvas-related difficulties.

Extensions and late work

Late work and make-up quizzes will only be allowed if you request an extension and you in turn are granted an extension. If you encounter an unexpected emergency outside of your control (e.g., illness, loss of housing, daycare closure, etc.) and you would like to request extension on an assignment, please fill out this Google Form (https://forms.gle/x1QTDYKyxpVKK81T8). Although filling out this form is not a guarantee that your request will be approved, I take all requests seriously and will work with you to find appropriate resources and a path forward for completing your coursework.

Please note that my flexibility with respect to deadlines relates to situations beyond your control, and that this flexibility does not apply to vacation travel, conflicts with your work schedule, or other foreseeable circumstances that are within your control. I expect you to act ethically and honorably, and not to take advantage of extension policy.

Finally, partial credit will be given for late final papers as follows: For each 24-hr period your paper is late, your score will drop 10%. I.e., if you submit your paper three hours late (within the first 24-hr period), your grade will drop by 10%; if you submit it 27 hours late (within the second 24-hr period), it will drop by 20%, and so on.

Expected effort

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

Please review the following sources and policies, as well:

- University Syllabus Policy S16-9 (http://www.sjsu.edu/senate/docs/S16-9.pdf)
- The university's syllabus Information web page (https://www.sjsu.edu/curriculum/courses/syllabus-info.php)

✔ Grading Information

Letter grades will be based on categories and assignments weights described above.

Letter Grade	Range
A plus	> 97.0
A	93.0 - 96.9
A minus	90.0 - 92.9
B plus	87.0 - 89.9
B	83.0 - 86.9

B minus	80.0 - 82.9
C plus	77.0 - 79.9
C	73.0 - 76.9
C minus	70.0 - 72.9
D plus	67.0 - 69.9
D	63.0 - 66.9
D minus	60.0 - 62.9
F	< 60.0

Attendance and grading

As per the University Attendance and Participation Policy F15-12 (http://www.sjsu.edu/senate/docs/F15-12.pdf), "Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading." Thus, although attendance will not be used in determining your grade, regularly participating in class and in partner activities is essential for success in the course.

Academic integrity

Cheating, plagiarism, or other forms of academic dishonesty that are intended to gain unfair academic advantage will not be tolerated.

Plagiarism. Plagiarism refers to using materials that you did not create (e.g., another student's work, content generated or modified by generative AI) and submitting it as your own work. Plagiarism thus includes failure to cite another's work, even if you're paraphrasing (e.g., failing to cite paraphrased content from a textbook, website, or research article).

Generative AI. All assignments in this course can and ideally should be completed without assistance from generative AI. However, an AI zero tolerance policy given the ubiquity and ease of using such AI tools is neither realistic nor productive.

- Permitted uses: You are permitted to use AI to help you understand complex topics and technical jargon – especially terminology used in journal articles. I recommend against ChatGPT and instead suggest Perplexity (https://www.perplexity.ai/) for this purpose; the latter provides direct links to sources, allowing you to verify AI-generated responses. Thus, using Perplexity as a "reading partner" to help you understand technical jargon in journal articles is permitted.
- Non-permitted uses: The use of AI to generate or modify answers to quiz questions or to generate or modify text for your final project is not permitted.

Cheating. Cheating refers to obtaining credit, attempting to obtain credit, or assisting others to obtain credit for class assignments through the use of any dishonest, deceptive, or fraudulent means. This includes, for example, discussing quiz questions via messaging apps such as Discord or posting questions and answers on sites like Course Hero, Uloop, etc.

Consequences. If evidence of academic misconduct is found, you will receive a zero on the assignment(s) in question, and I will file a report with the Office of Student Conduct & Ethical Development. See the office's website (http://www.sjsu.edu/studentconduct/policies/) for more information.

🏛 University Policies

Per University Policy S16-9 (PDF) (http://www.sjsu.edu/senate/docs/S16-9.pdf), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on the Syllabus Information (https://www.sjsu.edu/curriculum/courses/syllabus-info.php) web page. Make sure to visit this page to review and be aware of these university policies and resources.

📅 Course Schedule

Note: The schedule is subject to modification (with fair warning) as the instructor deems necessary.

DATE	TOPIC	READING	ASSIGNMENT DUE
Jan 23	Welcome and intro		
Jan 28	Review: Neurophysiology		
Jan 30	Review: Neurotransmission		
Feb 4	Review: Neuroanatomy I		
Feb 6	Review: Neuroanatomy II		
Feb 11	Review: Neuroanatomy III		Hands-on session 1
Feb 13	Methods: Neuropsychology	MoCA + instructions	Quiz 1
Feb 18	Methods: Neuroimaging I	Ward, p49-55	

Feb 20	Methods: Neuroimaging II	Ward, p50-51	
Feb 25	Methods: Neuroimaging III	Ward, p56-68	Hands-on session 2
Feb 27	Methods: Clinical trials		
Mar 4	Neurodevelopment		Quiz 2
Mar 6	Neurodevelopment: Discussion	Stuempflen et al., 2023	Neurodev article analysis
Mar 11	Vision		
Mar 13	Vision: Discussion	Herald et al., 2023	Vision article analysis
Mar 18	Movement		
Mar 20	Movement: Discussion	Pagano et al., 2022	Movement article analysis
Mar 25	Language		Project milestone 1
Mar 27	Language: Discussion	Nichols et al., 2021	Language article analysis
Apr 1	*No class, spring break*		
Apr 3	*No class, spring break*		
Apr 8	Memory		
Apr 10	Memory: Discussion	Allen et al., 2022	Memory article analysis
Apr 15	Aging and dementia		Project milestone 2
Apr 17	Aging and dementia: Discussion	Van Dyck et al., 2023	Aging article analysis
Apr 22	Depressive disorders		Project milestone 3

Apr 24	Depressive disorders: Discussion	Long et al., 2025	Depression article analysis
April 19	Schizophrenia		Project milestone 4
May 1	Schizophrenia: Discussion	Kaul et al., 2024	Schizophrenia article analysis
May 6	Resting state		
May 8	Resting state: Discussion	Your choice!	Lightning presentation
May 15	Final paper (5:15pm)		Final paper