SJSU SAN JOSÉ STATE UNIVERSITY

College of Social Sciences · Psychology

Seminar in Physiological Psychology Section 01

PSYC 230

Spring 2023   3 Unit(s)   01/25/2023 to 05/15/2023   Modified 01/25/2023

👤 Contact Information

Class information:

Schedule	Tu/Th, 9:00-10:15am
Location	DMH 339

Instructor: Dr. Valerie Carr

Office	DMH 318
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Faculty page	https://www.sjsu.edu/people/valerie.carr/index.html (https://www.sjsu.edu/people/valerie.carr/index.html)
Lab website	https://www.carrlabsj.org (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—neuroanatomy, neuro- pharmacology, neurophysiology, neuropsychology, and neuroimaging. Both classic and recent research findings will be covered in lectures and via student-led discussions. Given that the function of the nervous system is never as conspicuous and astonishing as when it fails us, we will also focus on dysfunction of the nervous system and advances in understanding the underlying causes of such dysfunction.

Course format

This course will meet in-person each week during our scheduled class days/times. PSYC 230 is a graduate seminar, and as such, student presentations and 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. Regular participation is a great way to ensure optimal performance in the course. Keeping pace with the reading schedule and being proactive about seeking help are similarly important. 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

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.

I hope that you will maintain professional and courteous behavior during our time together, particularly during student-led discussions. Finally, I encourage you to silence your phones and use laptops for course-related purposes only (although I strongly encourage you to take notes by hand given that hand-writing notes is better for learning!).

Technology requirements

To use Canvas, you will need access to the internet and either a computer or mobile device. Additionally, we will utilize several different websites, computer applications, and mobile apps to allow you to learn about neuroanatomy and research methods used in conducting neuroscience research. All of these tools are free and publicly available, as well as easy to install. You will need access to the internet, a computer, and a mobile device in order to utilize these tools.

If you do not have access to these resources, please reach out to me and I can point you to university resources. An excellent place to start is the Technology page (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) course website. Please regularly check Canvas to learn of any updates and adjust your Canvas notification settings so that you receive all course announcements as soon as they are posted.

For help with using Canvas see Canvas Student Resources page (http://www.sjsu.edu/ecampus/teaching-tools/canvas/student_resources).

📋 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 neuroanatomy, neurophysiology and psychopharmacology.
- **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 sensory and motor systems, attention, language, learning and memory, emotion, and sleep processes.
- **CLO4**: Describe dysfunction of the nervous system and its association with various mental health issues.
- **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 scientific literature concerning topics relevant to the course.
- **CLO7**: Given a topic of your choosing related to neuroscience, review the relevant literature and perform a meta-analysis that will further knowledge of said topic.

📘 Course Materials

(No) Textbook

There is NOT a 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, but additional suggestions include:

- Bear, M. F., Connors, B. W., and Paradiso, M.A. (2015). Neuroscience: Exploring the Brain (North American edition, Edition 4). Lippincott, Williams, and Wilkins.
- Pinel, J. and Barnes, S. (2021). Biopsychology (11th edition). Pearson.
- Carlson, N. R. and Birkett, M. A. (2021). Physiology of Behavior (13th edition). Pearson.

Other resources

Digital tools

At various points in the semester, we will use the following tools, all of which are free and publicly available. Please note: I will provide detailed installation instructions for each tool later in the semester; as such, there is no need to download anything in advance.

- Sleuth and GingerALE (computer)
- 3D brain (mobile)
- Brain tutor 3D (mobile)

General student resources

- SJSU Learn Anywhere (https://www.sjsu.edu/learnanywhere/) has a number of helpful resources for learning in an online environment, including help with Zoom and Canvas, finding free or affordable internet and computer resources, FAQs, workshops, and more.
- SJSU Health Advisories (http://www.sjsu.edu/healthadvisories/) has the latest campus COVID policies.
- The Academic Counseling Center for Excellence in Social Sciences (ACCESS) Success Center (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/) 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.
- [Final exam resources (https://www.sjsu.edu/getinvolved/campus-events/finals-resources.php)](https://www.sjsu.edu/getinvolved/campus-events/finals-resources.php) offered by the university each semester.
- [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) 924-5910 or email counseling.services@sjsu.edu
- The [Santa Clara county crisis (https://www.sccgov.org/sites/bhd/Services/SP/Pages/SPC.aspx)](https://www.sccgov.org/sites/bhd/Services/SP/Pages/SPC.aspx) hotline (800-704-0900, press 1) and crisis text line (text RENEW to 741741) are great resources for students in crisis or experiencing extreme stress
- [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).

☰ Course Requirements and Assignments

Assignment categories

Assignments in this class will be grouped into the following categories:

Category	Points
Reaction papers	27
Paper presentations	8
Midterms	30
Project milestones	15
Final paper	30
Final presentation	10
Total	120

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

Participation (35 points total)

Starting with the second unit of the course, we will alternate one day of lecture with one day of assigned reading discussion. Reaction papers and paper presentations will address CLOs 1-6. Your participation grade relates to these discussion days and will be based on:

- Weekly reaction papers + discussion (9 papers, 3 points each)
  - Each week, you'll submit a short response to the assigned readings via Canvas. Reaction papers will be 1 page, single spaced and due at 11:59pm the night **before** each discussion. In other words, for a discussion on Thursday morning at 9am, the reaction paper is due Wednesday night at 11:59pm. This gives me time to review your discussion points and questions in advance of class. Your reaction paper should briefly summarize each article and include discussion points and questions you plan to raise during class.
  - To receive full credit for these reaction papers, you must *also* participate in the relevant class discussion, during which time you should raise the points/questions described in your reaction paper.
- Paper presentation (2 presentations, 4 points each)
  - For each assigned reading, one student will create a slide presentation highlighting the aims, methods, results, and conclusions of the study and will lead the class through a critical discussion of the study. Given the size of the class this semester, this means that each student will do two presentations.

Midterms (30 points total)

Two midterms (15 points each) will be completed at home and will involve essay questions that cover lecture content as well as the assigned readings. Midterms will be turned in via Canvas by the beginning of class on the dates noted in the schedule below. Midterms will address CLOs 1-5.

Final project (55 points total)

Your final project centers around a meta-analysis of neuroimaging data pertaining to a topic of your choosing. It will include several smaller assignments, termed project milestones, throughout the semester (5 total, 3 points each) as well as a final paper (30 points) and presentation (10 points). This project will be discussed in greater detail around the midpoint of the semester. The final project will address CLOs 1-7.

Submitting assignments

Most assignments, with the exception of reaction papers, are due by the beginning of lecture (i.e., at 9am) on the specified due date. Reaction papers are due at 11:59pm the night before a given class session as described above.

All assignments will be submitted via Canvas. Please ensure that submitted files are properly uploaded and complete by the due date. 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.

Late assignments

Late assignments will be accepted with no penalty if an extension has been approved, as described in more detail below. I will also accept late final papers in cases where an extension hasn't been approved with the following penalty: For each 24-hr period your final paper is late, your score will drop 10%. I.e., if you submit your paper one hour late (within the first 24-hr period), your grade will drop by 10%; if you submit it 25 hours late (within the second 24-hr period), it will drop by 20%, and so on.

Requesting extensions

If you encounter an unexpected emergency outside of your control (e.g., COVID infection, 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/orqXWDRY74U5t5338)](https://forms.gle/orqXWDRY74U5t5338) in advance of the assignment deadline. 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 this crisis situation.

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.

✔ Grading Information

Grades will be based on participation (35 points), midterms (30 points), and a final project (55 points) out of a total of 120 points. Letter grades will be assigned as follows:

Letter grade	Percentage	Points
A plus	> 97.5%	117 - 120 pts
A	92.5 - 97.5%	111 - 116 pts
A minus	90 - 92.5%	108 - 110 pts

B plus	87.5 - 90%	105 - 107 pts
B	82.5 - 87.5%	99 - 104 pts
B minus	80 - 82.5%	96 - 98 pts
C plus	77.5 - 80%	93 - 95 pts
C	72.5 - 77.5%	87 - 92 pts
C minus	70 - 72.5%	84 - 86 pts
D plus	67.5 - 70%	81 - 83 pts
D	62.5 - 67.5%	75 - 80 pts
D minus	60 - 62.5%	72 - 74 pts
F	< 60%	0 - 71 pts

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 (equivalent to ~1.7%).

Attendance and grading

As per the [University Attendance and Participation Policy F15-12 (http://www.sjsu.edu/senate/docs/F15-12.pdf)](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 discussions is an incredibly effective way of succeeding in this course!

Academic integrity

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

Plagiarism refers to using materials that you did not create (i.e., published works, work of other students, material created by artificial intelligence tools such as Chat GPT) and submitting it as your own creation without proper citation/attribution. When in doubt, remember this rule: All assignments in this course must be your own work and you must properly cite any resources that were used. Written assignments will be checked by TurnItIn and may be submitted to AI detection tools, as well.

Academic dishonesty also includes helping other students gain unfair academic advantage, such as posting or distributing midterms, answers to other assignments, or papers. Any students who share such materials (e.g., via sites like Course Hero, Uloop, etc.) or who otherwise distribute such materials will be referred to the Student Conduct and Ethical Development office.

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/)](http://www.sjsu.edu/studentconduct/policies/) for more information.

🏛 University Policies

Per [University Policy S16-9 (http://www.sjsu.edu/senate/docs/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 [Syllabus Information web page (https://www.sjsu.edu/curriculum/courses/syllabus-info.php)](https://www.sjsu.edu/curriculum/courses/syllabus-info.php) (https://www.sjsu.edu/curriculum/courses/syllabus-info.php). Make sure to visit this page to review and be aware of these university policies and resources.

📅 Course Schedule

The schedule is subject to modification, with fair warning, as the instructor deems necessary. All assignments are due at the start of class (i.e., 9am), with the exception of reaction papers.

* Reaction papers are due 11:59pm the night before class.

DATE	TOPIC	READING	ASSIGNMENT
Jan 26	Welcome and intro		
Jan 31	Review: Neurophysiology		
Feb 2	Review: Neurotransmission		
Feb 7	Review: Neuroanatomy I		
Feb 9	Review: Neuroanatomy II		
Feb 14	Virtual neuroanatomy lab		
Feb 16	Neuroimaging I	Ward, p49-63	
Feb 21	Neuroimaging II	Ward, p64-77	
Feb 23	Neuropsychology	MoCA + instructions	
Feb 28	Vision		Midterm 1
Mar 2	Vision: Discussion	Harley, Cereb Cortex, 2009 Kraft, Cortex, 2014	Vision reaction paper *
Mar 7	Attention		
Mar 9	Attention: Discussion	Hoogman, Am J Psy, 2019 Basagni, Neuropsych, 2019	Attn reaction paper *
Mar 14	Movement		
Mar 16	Movement: Discussion	Odekerken, Neurology, 2016 Tabrizi, Lancet Neuro, 2009	Move reaction paper *
Mar 21	Language		

Mar 23	Language: Discussion	Heim, Neurobio Aging, 2019 Romeo, Cerebral Cortex, 2018	Lang reaction paper *
Mar 28	*No class, spring break*		
Mar 30	*No class, spring break*		
Apr 4	Project overview, MRI meta-analysis I	Sleuth manual	**Midterm 2**
Apr 6	MRI meta-analysis II	GingerALE manual	
Apr 11	Memory		**Milestone 1:** Sleuth materials
Apr 13	Memory: Discussion	Corkin, Nat Rev Neuro, 2002 Liu, Nat Rev Neuro, 2021	Memory reaction paper *
Apr 18	Emotion		**Milestone 2:** Hypothesis + refs
Apr 20	Emotion: Discussion	Guillory, SCAN, 2014 Touroutoglou, SCAN, 2015	Emotion reaction paper *
Apr 25	Mood disorders		**Milestone 3:** GingerALE results
Apr 27	Mood: Discussion	Pirnia, Trans Psychiatry, 2016 Kasai, Bio Psychiatry, 2008	Mood reaction paper *
May 2	Sleep		**Milestone 4:** Results paragraph
May 4	Sleep: Discussion	Redline, JAMA Int Med, 2004 Chang, PNAS, 2015	Sleep reaction paper *
May 9	Schizophrenia		**Milestone 5:** Table

May 11	Schizophrenia: Discussion	Van Erp, Bio Psychiatry, 2018	Schiz reaction paper *
		Correl, JAMA Psy, 2020	
May 17	Last day		**Final paper + pres**
			7:15 – 9:30am