

PSYC 499: The Frontal Lobe: From Function to Philosophy

Spring 2016—Monday/Wednesday—4:00-5:50 PM

Location: GFS 210

Instructor: Leslie Berntsen

Office: SGM 612

Office Hours: Mutually convenient time TBD, as well as by appointment

Email: leslie.berntsen@usc.edu

Course Description

Part neuroscience lecture, part semester-long thought exercise, this course will examine what it means to be uniquely human—from the molecular to the metaphysical. Beginning with basic physiology, anatomy, and neuroscience research techniques, the majority of the course will focus on the frontal lobe's "higher order functions," including social cognition, empathy, impulse control and controlled processing, and moral decision-making. The course will also address adolescence as a period of frontal lobe development, and psychopathy and related conditions as frontal lobe syndromes.

Throughout the semester, special attention will be paid to the real-world applications of the course material, including (but not limited to) the consequences of dehumanization in intergroup conflict, the legal implications of finding someone "not guilty by virtue of neuroscience," and the role of neuroscience research in broader debates on fate vs. free will.

Recommended Preparation: PSYC 100: Introduction to Psychology and previous experience reading scientific journal articles (from any field)

Learning Objectives

- Exhibit mastery of the course material through completing assigned readings and participating in in-class lectures, discussions, and activities.
- Think critically to formulate opinions about the real-world implications of course material
- Become active consumers and communicators of contemporary empirical research in social and affective neuroscience.
- Apply in-class learning with field trips to the Southern California Twin Project Psychophysiology Lab, the Dana & David Dornsife Cognitive Neuroscience Imaging Center, and the Museum of Tolerance

Required Readings and Supplementary Materials

There is no textbook for this course. Required readings will consist of select empirical and review articles from peer-reviewed journals and handbooks, all of which will be posted on Blackboard.

Course Format, Organization, & Grading

This course will be organized as a recurring series of lectures and discussions. For each topic area, the first day will be devoted to lecture and the second day will be devoted to discussion. Between the first and second day of each topic, you will read a handbook chapter and/or empirical article and submit questions

to guide discussion on the second day. A quiz on each topic will take place on the lecture day immediately following completion of that topic. For more detail, see below:

Weekly Quizzes (40% of final grade)

Non-cumulative quizzes will be administered on every lecture day to assess your objective knowledge of the most recent topic. (For example, since we will finish covering Basic Principles of Neuroscience on January 25th, that quiz will be at the beginning of our next lecture day—January 27th.) Quiz questions will be derived from both lecture material and assigned readings. The single lowest quiz grade will be dropped at the end of the semester.

Discussion Questions & Participation (20% of final grade, 10% each)

In order to give our entire class ownership of the course material, everyone will be required to submit one or two questions on the assigned readings every week. These questions can address anything from methodology to implications, but should inspire critical thought and debate, rather than just check comprehension. I will synthesize these questions, possibly add my own, and provide a list at the beginning of each discussion day. In order to facilitate this process, these questions will be due by 11:59 PM on the night before each discussion day.

Final Paper & Presentation (40% of final grade, 20% each)

For these assignments, your task is to choose approximately five empirical articles (that have not already been assigned/discussed) and synthesize them into a coherent narrative that would be accessible to the general public.

The written component is due on the day of the final exam and will take the form of a long-form science journalism piece (e.g., one that might appear in The New Yorker, The New York Times Magazine, etc.) that seeks to not only summarize relevant research, but also to use that research to make a point about society, broadly construed. Potential topics might include: How can we use findings on impulse control to understand the nature of addiction and, thus, inform effective drug policy? To what extent are psychopaths truly “incurable” and what implications might this belief have for the criminal justice system?) During the middle of the semester, you will submit short topic proposals in order to receive comments and suggestions before you begin to develop your ideas further.

The oral component will take the form of a ~15 minute talk to be presented during the last two weeks of class. Ideally, this will give you an opportunity to get an early start on your final paper and incorporate your classmates’ feedback into your final draft.

Final letter grades will be assigned according to the following scale:

A	93-100	B-	80-82	D+	67-69
A-	90-92	C+	77-79	D	63-66
B+	87-89	C	73-76	D-	60-62
B	83-86	C-	70-72	F	under 60

Turning in Assignments

Unless otherwise specified, assignments should be turned in electronically to Blackboard. As a reminder, discussion questions are due by 11:59 PM on the night before each discussion day, final presentation slides

are due on your scheduled presentation date, and your final paper is due by the scheduled end time of the final exam.

Late Work Policy

Late assignments will only be accepted without penalty in the event of confirmable illness or emergency. Without such extenuating circumstances, late assignments will incur a penalty of 20% off of the maximum score for every day late (including non-class days and weekends). Unexcused absences will result in zero points for the daily quiz or discussion participation, as applicable. For excused absences, you will have the opportunity to make up any missed quizzes when you return and your maximum discussion participation point total will be adjusted to account for your absence, as applicable.

Laptop Policy: The Golden Rule

If you have a laptop (or tablet), you are more than welcome to bring it to class to take notes. Participation points will be docked if you appear excessively and inappropriately distracted by your computer or use it for non-academic purposes during class time. I also reserve the right to revoke your individual laptop privilege at any time. If you were speaking to a group of people about something you genuinely care about, you'd probably want them to pay full attention to you. Please just be respectful.

Sensitivity & Safe Space Guidelines

It is my goal to foster an environment of mutual respect in which everyone can feel comfortable voicing their opinions or sharing their stories. On the first day of class, we will work together as a group to create ground rules for our discussions. If, at any point, you feel like information covered in this class triggers thoughts, feelings, or concerns that you would like to discuss further, please do not hesitate to reach out to me or to USC's Student Counseling Services (located in the Engemann Student Health Center, Suite 304) at (213) 740-7711.

Field Trips

In the spirit of true experiential learning, we will be taking several on- and off-campus field trips in order to bring the course material to life. When we leave the classroom, please keep in mind that you are not only representing yourself, but also the University of Southern California. You will be expected to conduct yourself with the utmost professionalism and respect. Participation points will be docked for inappropriate behavior and additional disciplinary measures will be taken for more severe infractions.

Academic Resources

If you start to struggle with the course at any time, please reach out as soon as possible. There is absolutely no shame in needing or seeking help. Please don't hesitate to speak with me before or after class or set up a specific time to visit during office hours. Although in-person communication guarantees an immediate response, you can also email me and I will try my best to respond within 48 hours.

For general help with college coursework, including study skill tips and test-taking strategies, visit USC's Center for Academic Support in person in STU 301, call them at (213) 740-0776, or visit their website at <http://sait.usc.edu/academicsupport/index.html>

For specific help with writing (including free one-on-one tutoring), visit the USC Writing Center in person at THH 321, their website at <http://dornsife.usc.edu/writingcenter>, call them at (213) 740-3691, or email them at writing@usc.edu

Statement on Academic Integrity

USC seeks to maintain an optimal learning environment that fosters general principles of academic honesty. These include respecting the intellectual property of others, submitting your own individual work unless otherwise allowed by an instructor, and protecting your own academic work from misuse by others. All students are expected to understand and abide by these principles, summarized online at <http://www.usc.edu/student-affairs/SJACS/forms/AcademicIntegrityOverview.pdf>.

Initial instances of cheating or plagiarism will result in an individual meeting and an automatic grade of zero for the assignment. Any subsequent offenses will result in a failing grade for the course, with the matter being referred to the Office of Student Judicial Affairs and Community Standards for further review. For details of the review process, see <http://www.usc.edu/student-affairs/SJACS>. If you have any questions about these policies or academic dishonesty in general, please ask me and I would be more than happy to answer them.

Statement for Students with Disabilities

As an instructor, I strive to create an environment in which every student is given an equal opportunity to excel. If you are in need of special accommodations (e.g., large fonts or extra time on quizzes, class note-taker, etc.), please let me know as soon as possible and I will work with you to get you the help you need. Remember that any information you share regarding disability accommodations is confidential and will not be shared with other students.

Any student requesting disability-based academic accommodations is required to register with Disability Services and Programs (DSP) in order to obtain a letter of verification for approved accommodations. Again, please provide me with this letter as early in the course as possible. DSP is located in STU 301 and is open from 8:30 AM to 5:00 PM, Monday through Friday. You can also reach them by phone at (213) 740-0776 and online at www.usc.edu/disability.

For additional resources, you can also visit USC's Kortschak Center for Learning and Creativity in STU 311, reach them via email at kortschakcenter@usc.edu, over the phone at (213) 740-7884, or on their website at <http://kortschakcenter.usc.edu>.

Emergency Preparedness/Course Continuity in a Crisis

If travel to campus is not feasible in the event of a declared emergency, USC executive leadership will announce an electronic way for instructors to teach students in their residence halls or homes using a combination of Blackboard, teleconferencing, and other technologies.

Course Schedule & Readings

The schedule and list of readings that follow are both tentative and subject to change. Any major revisions will be announced during class, posted on Blackboard, and confirmed via email.

Course Readings

1. Amodio, D. M., Bartholow, B. D., & Ito, T. A. (2014). Tracking the dynamics of the social brain: ERP approaches for social cognitive and affective neuroscience. *Social Cognitive and Affective Neuroscience*, 9(3), 385-393.
2. Amodio, D. M., & Ratner, K. G. (2013). The neuroscience of social cognition. In D. Carlston (Ed.) *Handbook of social cognition* (pp. 702-728). New York: Oxford University Press.
3. Anderson, S. W., Bechara, A., Damasio, H., Tranel, D., & Damasio, A. R. (1999). Impairment of social and moral behavior related to early damage in human prefrontal cortex. *Nature Neuroscience*, 2(11), 1032-1037.
4. Bechara, A., & Van Der Linden, M. (2005). Decision-making and impulse control after frontal lobe injuries. *Current Opinion in Neurology*, 18(6), 734-739.
5. Chiao, J.Y. (2011). Cultural neuroscience: Visualizing culture-gene influences on brain function. In Decety, J. & Cacioppo, J. (Eds.) *Handbook of Social Neuroscience*, Oxford University Press, UK.
6. Cikara, M., Eberhardt, J. L., & Fiske, S. T. (2011). From agents to objects: Sexist attitudes and neural responses to sexualized targets. *Journal of Cognitive Neuroscience*, 23(3), 540-551.
7. Cikara, M., & Van Bavel, J. J. (2014). The neuroscience of intergroup relations: An integrative review. *Perspectives on Psychological Science*, 9(3), 245-274.
8. Farah, M. J., & Heberlein, A. S. (2007). Personhood and neuroscience: Naturalizing or nihilating? *The American Journal of Bioethics*, 7(1), 37-48.
9. Greene, J. D., Sommerville, R. B., Nystrom, L. E., Darley, J. M., & Cohen, J. D. (2001). An fMRI investigation of emotional engagement in moral judgment. *Science*, 293(5537), 2105-2108.
10. Gutsell, J. N., & Inzlicht, M. (2012). Intergroup differences in the sharing of emotive states: Neural evidence of an empathy gap. *Social Cognitive and Affective Neuroscience*, 7(5), 596-603.
11. Harris, L. T., & Fiske, S. T. (2006). Dehumanizing the lowest of the low: Neuroimaging responses to extreme out-groups. *Psychological Science*, 17(10), 847-853.
12. Johnson, S. B., Sudhinaraset, M., & Blum, R. W. (2009). Neuromaturation and adolescent risk taking: Why development is not determinism. *Journal of Adolescent Research*, 25(1), 4-23.
13. Koenigs, M., Young, L., Adolphs, R., Tranel, D., Cushman, F., Hauser, M., & Damasio, A. (2007). Damage to the prefrontal cortex increases utilitarian moral judgments. *Nature*, 446(7138), 908-911.
14. Males, M. (2009). Does the adolescent brain make risk taking inevitable? A skeptical appraisal. *Journal of Adolescent Research*, 24(1), 3-20.
15. Sterzer, P. (2010). Born to be criminal? What to make of early biological risk factors for criminal behavior. *American Journal of Psychiatry*, 167(1), 1-3.
16. Vul, E., Harris, C., Winkielman, P., & Pashler, H. (2009). Puzzlingly high correlations in fMRI studies of emotion, personality, and social cognition. *Perspectives on Psychological Science*, 4(3), 274-290.

17. Yang, Y., & Raine, A. (2009). Prefrontal structural and functional brain imaging findings in antisocial, violent, and psychopathic individuals: A meta-analysis. *Psychiatry Research: Neuroimaging*, 174(2), 81-88.
18. Zaki, J., & Ochsner, K. N. (2012). The neuroscience of empathy: Progress, pitfalls and promise. *Nature Neuroscience*, 15(5), 675-680.

DAY	DATE	FORMAT	TOPIC AREA	READING NUMBERS
M	January 11 th		Welcome & Introduction	
W	January 13 th	Lecture	Basic Principles of Neuroscience	
M	January 18 th		NO CLASS: Dr. Martin Luther King Jr.'s Birthday	
W	January 20 th	Lecture	Basic Principles of Neuroscience	1, 16
M	January 25 th	Discussion		
W	January 27 th		NO CLASS: Leslie in San Diego for SPSP	
M	February 1 st	Lecture	Social Perception & Cognition I	2, 7
W	February 3 rd	Discussion		
M	February 8 th	Lecture	Social Perception & Cognition II	6, 11
W	February 10 th	Discussion		
M	February 15 th		NO CLASS: President's Day	
W	February 17 th	Field Trip	Museum of Tolerance	
M	February 22 nd	Lecture	Executive Functions & Impulse Control	4
W	February 24 th	Discussion		
M	February 29 th	Lecture	Empathy	10, 18
W	March 2 nd	Discussion		
M	March 7 th	Lecture	Moral Decision-Making	9, 13
W	March 9 th	Discussion		
M	March 14 th		NO CLASS: Spring Break	
W	March 16 th			
M	March 21 st	Lecture	Cultural Neuroscience	5
W	March 23 rd	Discussion		
M	March 28 th	Lecture	Adolescence	12, 14
W	March 30 th	Discussion		
M	April 4 th	Lecture	Psychopathy & Other Frontal Lobe Syndromes	3, 17
W	April 6 th	Discussion		
M	April 11 th	Lecture	Neurophilosophy, Neuroethics, & The Legal System	8, 15
W	April 13 th	Discussion		
M	April 18 th		Final Presentations	
W	April 20 th			
M	April 25 th			
W	April 27 th			
TBA	TBA		Final Exam: Final Papers Due	

Reminder: Discussion questions on the readings listed are due to Blackboard by 11:59 PM the night before the applicable discussion day. Quizzes will take place at the beginning of each lecture day for the most recent topic covered.