Psychology 610: Social Neuroscience Seminar Fall 2012, Straub 143, M 9:00 – 11:50

Instructor Information

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Course overview

Social neuroscience is the scientific discipline at the intersection of social-personality psychology and cognitive neuroscience. The overarching goals of the field are numerous, but all revolve around understanding the neural bases of social behavior, affect, and social cognition and using that knowledge to inform psychological theory. The primary aim of this course is to survey key research and methods in social neuroscience in sufficient detail for you to have a sense of the scope of the field and where your own work might fit into it in the future.

The secondary aim of this course is to sharpen your critical skills as a consumer of social neuroscience and psychological science more broadly. To achieve this aim, the format of this course will be entirely *structured discussion* with no formal lectures. The amount that you learn from this course will be entirely dependent on your own and your classmates' ability to thoughtfully discourse on the assigned readings.

Course Organization and Requirements

Meetings and Trial Structure

Each week we will discuss 4-6 articles organized around a sub-topic within social neuroscience. Two or three articles will be *background* pieces, and two or three are *target* articles for discussion. Following an initial discussion of the background articles, the target articles will be put on trial. One student will act as the prosecutor and one as the defense of each article. Each will have up to 5 minutes to present his or her case, followed by a 1-minute rebuttal to the opponent. After the initial arguments, the floor opens for jury deliberations. The jury is to decide whether the article makes a meaningful contribution to science beyond a shadow of a doubt.

Readings

I have chosen approximately 50 readings that are representative of the field's history and current directions, mostly empirical reports from top-tier journals. The *background* readings are reviews, meta-analyses, or foundational empirical findings on the topic of the week. I chose them because they are classics in the field. The *target* readings are generally more recent empirical findings that make bold claims and are worthy of careful evaluation. The target articles are posted on Blackboard (http://blackboard.uoregon.edu), and may change in light of new research results.

All students are responsible for all readings. Of course, you are encouraged to scour every detail of the paper when you act as a prosecutor or defense. But jury members need to read the papers to adequately judge them; don't count on the attorneys to give you the complete picture.

Final Paper

Being able to develop an innovative study design and communicate that design in a clear and concise way is a critical skill in your development as an academic. To help you develop that skill, your requirement for the final paper is to compose an NIH-style grant proposal on a topic within social neuroscience. Think about your own research and how it might be adapted to fit into the field, and generate a novel research idea. The paper should be *10 pages* (doublespaced, Times New Roman 12-pt), and must contain the following sections:

Specific Aims (2 pages max). This section should provide the motivation for your research question. What is known, what are the gaps in knowledge, why are these gaps important to close, and how will your project close them? This section should end with 2-3 Specific Aims that are the concrete objectives of your proposed project.

Significance. This section is about why your proposed research is important or valuable. Suppose you perfectly achieve all of your Specific Aims; what is the return on investment from NIH for that accomplishment? What knowledge will be obtained, and how might that knowledge be valuable immediately or in the future?

Innovation. What is new about your research in terms of theory or methods? Is there something special about your design or about the theories you're testing? What does this add above and beyond what is already out there?

Approach. This is where you detail what you're going to do. This should include everything that a "Methods" section from a paper has, and perhaps a timeline of the project.

I will give you more details about the particulars of the paper later in the quarter. For now, suffice to say that the paper is due **Tuesday**, **December 4**th **at 5pm** with no exceptions.

Grading

Participation: Prosecution	20%
Participation: Defense	20%
Participation: Jury duty	20%
Final paper	40%

Your scores will be combined and weighted to yield one score out of 100%. I will average the top 10 scores from class, and use that number to determine the cutoff for letter grades. To get an A- you will need to get 90% of the average top score, to get a B- you will need to get 80% of the top score, and so on. If everyone does poorly on the paper nobody suffers, and it is also possible for every single person to get an A (since you could all do as well as 90% of the average of the top 10 students).

Policies

<u>Late/missed assignments.</u> The final paper is due on December 4th at 5pm. Your prosecution or defense date will be assigned on Week 1. Late assignments will not be accepted.

Plagiarism/Cheating. Always unacceptable and defeats the purpose of graduate school.

<u>Students with special needs</u>. The UO works to create inclusive learning environments. If there are aspects of the instruction or design of this course that result in disability-related barriers to your participation, please notify me as soon as possible. You may also wish to contact Disability Services in 164 Oregon Hall at 346-1155 or disabsrv@uoregon.edu.

Course Schedule and Readings

Week 1 (Sept 24): Background and Methods

- Berkman, E. T., Cunningham, W. A., & Lieberman, M. D. (2012). Research Methods in Social and Affective Neuroscience. In H. T. Reis & C. M. Judd (Eds.), *Handbook of Research Methods in Personality and Social Psychology* (2nd ed.), pp. 1–96. New York, NY: Cambridge Univ Press.
- Cunningham, W. A. (2010). In defense of brain mapping in social and affective neuroscience. *Social Cognition*, 28(6), 717–722.
- Lieberman, M. D. (2010). Social cognitive neuroscience. S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds). *Handbook of Social Psychology* (5th ed.), pp. 143-193. New York, NY: McGraw-Hill.
- Ochsner, K. N., & Lieberman, M. (2001). The emergence of social cognitive neuroscience. *American Psychologist*, *56*(9), 717–734.

Week 2 (Oct 1): Self-processes

Background

- Mitchell, J. P., Banaji, M. R., & Neil Macrae, C. (2005). The link between social cognition and self-referential thought in the medial prefrontal cortex. *Journal of Cognitive Neuroscience*, *17*(8), 1306–1315.
- Spreng, R. N., Mar, R. A., & Kim, A. S. N. (2009). The common neural basis of autobiographical memory, prospection, navigation, theory of mind, and the default mode: a quantitative meta-analysis. *Journal of Cognitive Neuroscience*, 21(3), 489–510.

Target

- Ersner-Hershfield, H., Wimmer, G. E., & Knutson, B. (2008). Saving for the future self: Neural measures of future self-continuity predict temporal discounting. *Social Cognitive and Affective Neuroscience*, *4*(1), 85–92.
- Farb, N. A. S., Segal, Z. V., Mayberg, H., Bean, J., McKeon, D., Fatima, Z., & Anderson, A. K. (2007). Attending to the present: Mindfulness meditation reveals distinct neural modes of self-reference. *Social Cognitive and Affective Neuroscience*, 2(4), 313–322.

Week 3 (Oct 8): Person perception

Background

- Gallagher, H. L., & Frith, C. D. (2003). Functional imaging of "theory of mind." *Trends in Cognitive Sciences*, 7(2), 77–83.
- Iacoboni, M., & Dapretto, M. (2006). The mirror neuron system and the consequences of its dysfunction. *Nature Reviews Neuroscience*, *7*(12), 942–951.

<u>Target</u>

- Spunt, R. P., Falk, E. B., & Lieberman, M. D. (2010). Dissociable neural systems support retrieval of how and why action knowledge. *Psychological Science*, *21*(11), 1593–1598.
- Zaki, J., Weber, J., Bolger, N., & Ochsner, K. (2009). The neural bases of empathic accuracy. *PNAS*, 106(27), 11382–11387.

Zink, C. F., Tong, Y., Chen, Q., Bassett, D. S., Stein, J. L., & Meyer-Lindenberg, A. (2008). Know your place: Neural processing of social hierarchy in humans. *Neuron*, 58(2), 273– 283.

Week 4 (Oct 15): Culture and intergroup relations

Note: Class ends at 11am

Background

- Han, S., & Northoff, G. (2008). Culture-sensitive neural substrates of human cognition: A transcultural neuroimaging approach. *Nature Reviews Neuroscience*, *9*(8), 646–654.
- Kitayama, S., & Park, J. (2010). Cultural neuroscience of the self: Understanding the social grounding of the brain. *Social Cognitive and Affective Neuroscience*, *5*(2-3), 111–129.
- Kubota, J. T., Banaji, M. R., & Phelps, E. A. (2012). The neuroscience of race. *Nature neuroscience*, *15*(7), 940–948. doi:10.1038/nn.3136

Target

- Chiao, J. Y., Harada, T., Komeda, H., Li, Z., Mano, Y., Saito, D., Parrish, T. B., et al. (2010). Dynamic cultural influences on neural representations of the self. *Journal of cognitive neuroscience*, *22*(1), 1–11.
- Van Bavel, J. J., Packer, D. J., & Cunningham, W. A. (2008). The neural substrates of in-group bias: A functional magnetic resonance imaging investigation. *Psychological Science*, *19*(11), 1131–1139.

Week 5 (Oct 22): Neuroeconomics

Background

- Fehr, E., & Camerer, C. F. (2007). Social neuroeconomics: The neural circuitry of social preferences. *Trends in Cognitive Sciences*, *11*(10), 419–427.
- Loewenstein, G., Rick, S., & Cohen, J. D. (2008). Neuroeconomics. *Annual Review of Psychology*, *59*(1), 647–672.

<u>Target</u>

- Chang, L. J., Smith, A., Dufwenberg, M., & Sanfey, A. G. (2011). Triangulating the neural, psychological, and economic bases of guilt aversion. *Neuron*, *70*(3), 560–572.
- Hare, T. A., Camerer, C. F., Knoepfle, D. T., O'Doherty, J. P., & Rangel, A. (2010). Value computations in ventral medial prefrontal cortex during charitable decision making incorporate input from regions involved in social cognition. *The Journal of Neuroscience*, 30(2), 583–590.
- McClure, S. M., Laibson, D. I., Loewenstein, G., & Cohen, J. D. (2004). Separate neural systems value immediate and delayed monetary rewards. *Science*, *306*(5695), 503–7.

Week 6 (Oct 29): Self-regulation

Background

Heatherton, T. F., & Wagner, D. D. (2011). Cognitive neuroscience of self-regulation failure. *Trends in Cognitive Sciences*, *15*(3), 132–139.

Ochsner, K. N., & Gross, J. J. (2005). The cognitive control of emotion. *Trends in Cognitive Sciences*, *9*(5), 242–249.

Target

- Banks, S., Eddy, K., Angstadt, M., Nathan, P., & Phan, K. (2007). Amygdala-frontal connectivity during emotion regulation. *Social Cognitive and Affective Neuroscience*, *2*(4), 303–312.
- Van Gaal, S., Ridderinkhof, K. R., Scholte, H. S., & Lamme, V. A. F. (2010). Unconscious activation of the prefrontal no-go network. *Journal of Neuroscience*, *30*(11), 4143–4150.
- Wager, T. D., Rilling, J. K., Smith, E. E., Sokolik, A., Casey, K. L., Davidson, R. J., Kosslyn, S. M., et al. (2004). Placebo-induced changes in FMRI in the anticipation and experience of pain. *Science (New York, NY)*, *303*(5661), 1162–1167.

Week 7 (Nov 5): Reward, punishment, and fairness

Background

- Knutson, B., & Greer, S. (2008). Anticipatory affect: Neural correlates and consequences for choice. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 363, 3771–3786.
- Singer, T., Seymour, B., O'Doherty, J. P., Stephan, K. E., Dolan, R. J., & Frith, C. D. (2006). Empathic neural responses are modulated by the perceived fairness of others. *Nature*, *439*(7075), 466–469.

<u>Target</u>

- Izuma, K., Saito, D. N., & Sadato, N. (2008). Processing of social and monetary rewards in the human striatum. *Neuron*, *58*(2), 284–294.
- Tabibnia, G., Satpute, A. B., & Lieberman, M. D. (2008). The sunny side of fairness: Preference for fairness activates reward circuitry (and disregarding unfairness activates self-control circuitry). *Psychological Science*, *19*(4), 339–347.
- Tricomi, E., Rangel, A., Camerer, C. F., & O'Doherty, J. P. (2010). Neural evidence for inequality-averse social preferences. *Nature*, *463*(7284), 1089–1091.

Week 8 (Nov 12): Emotion

Background

- Adolphs, R. (2010). What does the amygdala contribute to social cognition? *Annals of the New York Academy of Sciences*, *1191*(1), 42–61.
- Wager, T. D., Phan, K. L., Liberzon, I., & Taylor, S. F. (2003). Valence, gender, and lateralization of functional brain anatomy in emotion: A meta-analysis of findings from neuroimaging. *NeuroImage*, *19*(3), 513–531.

<u>Target</u>

- Delgado, M. R., Nearing, K. I., LeDoux, J. E., & Phelps, E. A. (2008). Neural circuitry underlying the regulation of conditioned fear and its relation to extinction. *Neuron*, *59*(5), 829–838.
- Mobbs, D., Yu, R., Rowe, J. B., Eich, H., Feldmanhall, O., & Dalgleish, T. (2010). Neural activity associated with monitoring the oscillating threat value of a tarantula. *Proceedings of the National Academy of Sciences*, *107*(47), 20582-20586.

Week 9 (Nov 19): Health

Background

- Eisenberger, N. I., & Cole, S. W. (2012). Social neuroscience and health: Neurophysiological mechanisms linking social ties with physical health. *Nature Neuroscience*, *15*(5), 669–674.
- Gianaros, P. J., & Manuck, S. B. (2010). Neurobiological pathways linking socioeconomic position and health. *Psychosomatic Medicine*, *72*(5), 450–461
- McEwen, B. S., & Gianaros, P. J. (2010). Central role of the brain in stress and adaptation: Links to socioeconomic status, health, and disease. *Annals of the New York Academy* of Sciences, 1186(1), 190–222.

Target

- Slavich, G., Way, B., Eisenberger, N. I., & Taylor, S. (2010). Neural sensitivity to social rejection is associated with inflammatory responses to social stress. *Proceedings of the National Academy of Sciences*, 107(33), 14817-22.
- Taylor, S. E., Eisenberger, N. I., Saxbe, D., Lehman, B. J., & Lieberman, M. D. (2006). Neural responses to emotional stimuli are associated with childhood family stress. *Biological Psychiatry*, *60*(3), 296–301.

Week 10 (Nov 26): Future directions

Background

- Berkman, E.T. & Falk, E.B. (in press). Beyond brain mapping: Using the brain to predict realworld outcomes. *Current Directions in Psychological Science*.
- Yarkoni, T., Poldrack, R. A., Van Essen, D. C., & Wager, T. D. (2010). Cognitive neuroscience 2.0: building a cumulative science of human brain function. *Trends in Cognitive Sciences*, 14(11), 489–496.

Target

- Demos, K. E., Heatherton, T. F., & Kelley, W. M. (2012). Individual differences in nucleus accumbens activity to food and sexual images predict weight gain and sexual behavior. *The Journal of Neuroscience*, *32*(16), 5549–5552.
- Raizada, R. D. S., & Connolly, A. C. (2012). What makes different people's representations alike: Neural similarity space solves the problem of across-subject fMRI decoding. *Journal of Cognitive Neuroscience*, *24*(4), 868–877.

Finals Week (Tues, Dec 4): FINAL PAPER DUE VIA EMAIL AT 5PM