NSCI/PSYCH 442/642
SOCIAL NEUROSCIENCE
FALL 2016

Instructor:	**Dr. Chad Forbes, Ph.D.**
Office:	**111 Wolf Hall**
Office hours:	**TR: 12:30 – 1:30 p.m.**
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CLASS MEETINGS: TUESDAYS AND THURSDAYS 2:00-3:15PM, MKL 002

WHERE TO FIND ALL CLASS RESOURCES: HTTPS://SAKAI.UDEL.EDU

Prerequisite

It will be important for you to have a firm grasp on human neuroanatomy. While a comprehensive examination of human neuroanatomy is outside the scope of this course, we will go over the basics of a given region at the beginning of Tuesday's classes. If you find yourself wanting more after this first class, and I imagine you will, you can also take a free on-line course via MIT: **: http://ocw.mit.edu/courses/brain-and-cognitive-sciences/9-97-introduction-to-neuroanatomy-january-iap-2003/index.htm.** After taking this course you should be ready to perform your own brain surgeries, either on yourself or others. You will also be aptly prepared for the content discussed in this course and for consuming neuroscience literature in the future.

COURSE GOALS

The purpose of this course is to get intimate with the field of social neuroscience. Social neuroscience is the scientific discipline at the intersection of social-personality psychology and cognitive neuroscience. It ultimately provides a means to use neuroscience methodologies to inform social psychological theory and social processes to inform our understanding of the brain. The structure of this course is designed to avoid the pitfalls of social neuroscience and the criticism that the field is nothing more than a modern phrenology movement. That is, the point of the course is not to identify brain regions that are involved in tasks that evoke, for example, prejudiced responses and assume these regions are important for prejudice. Rather, we're going to examine regions integral for social cognition and cognition in general, seek to understand the basic functions said regions are involved in, and use that information to inform our understanding of prejudice. This is an underappreciated approach to the field but a wholly necessary one. There will be overlap in this course but also an illusion of randomness. But if a

given region is integral for something like self-oriented processing why would it not be involved in many different, seemingly orthogonal tasks?

If you read the assigned papers, participate in discussions and devote yourself to your presentation and writings, by the time you leave this course you will be able to critically think about both social and cognitive neuroscience literatures. You will understand both what the fields can and cannot offer.

Class Format

The purpose of this course is to delve deeply in to the field of social neuroscience and neural function. Each week will revolve around two primary questions: "What the hell is this brain region doing?" and "How can we use this information to inform our understanding of a given social process?" By that I mean, what psychological processes are most likely instantiated by a given brain region and how in turn does this inform our understanding of a given social psychological process? All meetings will revolve around discussion. The success of the course is contingent on your participation in these discussions. To this end you will be responsible for generating 5 hypotheses stemming from the assigned readings that revolve around the 2 questions cited above; you need to be prepared to share these hypotheses at every meeting. Finally, you will also be expected to write a grant proposal style paper and present a short overview of said proposal at the end of the semester.

The class will follow a specific format each week that revolves around the readings assigned each week. Specifically:

Tuesdays:

1. Every Tuesday will begin with an overview of the anatomy of a neural region of interest. Particular interest will be devoted to what that part of the brain is "hooked up" with. There will also be a brief survey of the social topics covered in that week's readings. Grad students will lead these initial presentations.
2. After the anatomy presentation students will break out in to groups. The goal will be to discuss the readings assigned for that week. Each student will present the hypotheses they generated prior to class. Students are expected to grade each other based on their hypotheses. Finally, the group is expected to identify 3 hypotheses that sound most plausible and formulate refined hypotheses collectively.

Thursdays:

1. Groups review hypotheses identified as most plausible.
2. Groups then present overview of hypotheses to the class.
3. The class discusses what exactly the region is doing in relation to social cognition and how this informs our understanding of social cognition in general.

4. Submit hypotheses on line with score.

Everyone writes a grant proposal. Undergrads are shorter page requirement than grad students.

Course Obligations

Weekly hypotheses:

Each student will be asked to compose *five hypotheses* specific to the two questions "What the hell is this brain region doing?" and "How can we use this information to inform our understanding of a given social process?" for the assigned readings in a given week. You will be asked to share these questions/comments in class each week so it behooves you to think of something thought provoking and intellectually stimulating. Otherwise who knows what your peers might think of you. Question and comment contributions will be worth 2 points per week for a total of 26 points or 26% of your grade in the course. **Hypotheses will be due each Tuesday by 10am and must be submitted via Sakai.**

Directing a given week's discussion:

Each student will be expected to lead a given week's discussion for their group at some point during the semester. A successful leader will guide group's discussions and document and synthesize the group's hypotheses and thoughts.

Class Participation

As mentioned above, class participation is integral to the success of the course and thus is mandatory. Class participation will be worth 10 points or 10% of your grade in the course.

Grant Proposal Style Paper

It is my hope that all the literature we discuss in the course will inspire you and instill you with great research ideas. 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 NSF-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 *5 pages* for undergraduate students and *10-15 pages* for graduate students (doublespaced, Times New Roman 12-pt), and must contain the following sections:

Project Summary (1 page max). Provides 1) an overview of the proposal, including an outline of the problem/question of interest and how the issue is going to be addressed in your proposal. This should be about 2 paragraphs. Also detail 2) the intellectual merit of the project, or what knowledge would be gained if your project were to be funded. Finally, outline 3) the broader impact of your proposal. In short, how would society benefit from your project being funded? Being able to communicate your ideas and the importance of your work in the most digestible, impactful and pithy way is absolutely essential for your success as an academic and as a researcher with a hankering for funding. The demonstration of your ability to do this happens here.

Project Narrative. This is the meat of your proposal and consists of 3 primary sections. 1) The narrative begins with a brief overview of the issue/problem and your answer for it. 2) Then you provide a select background literature review that provides an overview of past work and evidence for your crazy ideas. 3) Finally you discuss the proposed research. Here you outline what exactly you plan to do, what exactly you hypothesize and discuss any pilot studies you've conducted that provide support for your hypotheses (note in a typical grant proposal you HAVE to have pilot studies, but for the purposes of this paper you do not have to have this information). This section should be very detailed, including expected results.

References. In a normal NSF grant you'd proceed to outline your postdoc mentoring plan, data management plan and whether you plan to have children, how many and what are your current names for them. I'm not going to ask you for any of that (unless you want to provide this info) so just provide a complete list of references in APA format. This project is worth 54 points, i.e., 54% of your grade and is **due via Sakai no later than 11:59PM on Thursday, December 1!**

Grant Proposal Presentation
Orally communicating your thoughts and ideas in a clear, pithy manner is another absolute necessity for academics. As such, on the final day of class you will be asked to give a 5-7 minute overview of your grant proposal to the class. This will require PowerPoint slides, a lot of heart and a splash of humor. This will be worth 10 points or 10% of your grade in the course.

GRADING POLICY:

Hypotheses from each week: 26 points

Class participation: 10 points

Final paper: 54 points

Final Presentations: 10 points

TOTAL POINTS IN CLASS: 100 PTS.

There will be no grading curve in this course and no +/- grades. Grades will be determined in the following manner:

A = 100 – 90 pts.

B = 89 – 80 pts.

C = 79 – 70 pts.

D = 69 – 60 pts.

F = < 59 pts.

Policy on Late Assignments*:*

Hypotheses and grant proposals are due on time with no exceptions. If you're shot on your way to class or something horrific like that, and I do mean horrific, then you must (a) inform me that you will be unable to turn in the assignment on the scheduled date and (b) obtain an ***official excused absence*** from the Dean of your college. See the following link for more information on official excused absences: http://www.cas.udel.edu/uas/faculty-resources/Documents/Fall%202012%20Newsletter%20I.pdf

Assignments must be completed within one week of the scheduled date.

Academic Honesty

This is always unacceptable and defeats the purpose of college and grad school.

Course Schedule and Readings

8/30: Getting to know me getting to know you

9/1: Research Methods/Issues

Readings:

Cacioppo, J, T.; Berntson, G. G.; Lorig, T. S.; Norris, C. J.; Rickett, E.; & Nusbaum, H. (2003). Just because you're imaging the brain doesn't mean you can stop using your head: A primer and set of first principles. *Journal of Personality and Social Psychology, 85*, 650-661.

Poldrack RA. (2011). Inferring mental states from neuroimaging data: from reverse inference to large---scale decoding. Neuron 72: 692-7.

Lieberman MD, Berkman ET, Wager TD. (2009). Correlations in Social Neuroscience Aren't Voodoo: Commentary on Vul et al. (2009). *Perspectives on Psychological Science* 4: 299-307.

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.

Klein SB, Kihlstrom JF. (1998). On bridging the gap between social--personality psychology and neuropsychology. *Personality & Social Psychological Review* 2: 228--42.

Butler, S. Functional Neuroanatomy (Illustrated Guide to Human Neuroanatomy supplement).

For an online neuroanatomy course check out: http://ocw.mit.edu/courses/brain-and-cognitive-sciences/9-97-introduction-to-neuroanatomy-january-iap-2003/index.htm

9/6: Amygdala

Readings:

Target Articles:

Adolphs, R. (2010). What does the amygdala contribute to social cognition? *Annals of the New York Academy of Sciences*, *1191*(1), 42-61.

Adolphs, R., Baron-Cohen, S., & Tranel, D. (2002). Impaired recognition of social emotions following amygdala damage. *Journal of Cognitive Neuroscience*, *14*(8), 1264-1274.

Said, C. P., Baron, S. G., & Todorov, A. (2009). Nonlinear amygdala response to face trustworthiness: contributions of high and low spatial frequency information. *Journal of Cognitive Neuroscience*, *21*(3), 519-528.

Cunningham, W. A., Van Bavel, J. J., & Johnsen, I. R. (2008). Affective Flexibility Evaluative Processing Goals Shape Amygdala Activity. *Psychological Science*, *19*(2), 152-160.

Suggested Readings:

Kirsch, P., Esslinger, C., Chen, Q., Mier, D., Lis, S., Siddhanti, S., ... & Meyer-Lindenberg, A. (2005). Oxytocin modulates neural circuitry for social cognition and fear in humans. *The Journal of Neuroscience*, *25*(49), 11489-11493.

Davis, M., & Whalen, P. J. (2001). The amygdala: vigilance and emotion. *Molecular psychiatry*, *6*(1), 13-34.

Olsson, A., Ebert, J. P., Banaji, M. R., & Phelps, E. A. (2005). The role of social groups in the persistence of learned fear. *Science*, *309*(5735), 785-787.

9/13: Hippocampus

Readings:

Target Articles:

Burgess, N., Maguire, E. A., & O'Keefe, J. (2002). The human hippocampus and spatial and episodic memory. *Neuron*, *35*(4), 625-641.

Klein, S. B., Cosmides, L., Tooby, J., & Chance, S. (2002). Decisions and the evolution of memory: multiple systems, multiple functions. *Psychological review*, *109*(2), 306.

Levine, B. (2004). Autobiographical memory and the self in time: Brain lesion effects, functional neuroanatomy, and lifespan development. *Brain and cognition*, *55*(1), 54-68.

Phelps, E. A. (2004). Human emotion and memory: interactions of the amygdala and hippocampal complex. *Current opinion in neurobiology*, *14*(2), 198-202.

Suggested Readings:

Wittmann, B. C., Schott, B. H., Guderian, S., Frey, J. U., Heinze, H. J., & Düzel, E. (2005). Reward-related FMRI activation of dopaminergic midbrain is associated with enhanced hippocampus-dependent long-term memory formation. *Neuron*, *45*(3), 459-467.

Cabeza, R., & St Jacques, P. (2007). Functional neuroimaging of autobiographical memory. *Trends in cognitive sciences*, *11*(5), 219-227.

9/20: Basal Ganglia (social reward, relationships)

Readings:

Target Articles:

Poore, J. C., Pfeifer, J. H., Berkman, E. T., Inagaki, T. K., Welborn, B. L., & Lieberman, M. D. (2012). Prediction-error in the context of real social relationships modulates reward system activity. *Frontiers in human neuroscience*, *6*.

Fliessbach, K., Weber, B., Trautner, P., Dohmen, T., Sunde, U., Elger, C. E., & Falk, A. (2007). Social comparison affects reward-related brain activity in the human ventral striatum. *Science*, *318*(5854), 1305-1308.

Packard, M. G., & Knowlton, B. J. (2002). Learning and memory functions of the basal ganglia. *Annual review of neuroscience*, *25*(1), 563-593.

Delgado, M. R., Frank, R. H., & Phelps, E. A. (2005). Perceptions of moral character modulate the neural systems of reward during the trust game. *Nature neuroscience*, *8*(11), 1611-1618.

9/27: Anterior Temporal Lobes

Readings:

Target Articles:

Zahn, R., Moll, J., Krueger, F., Huey, E. D., Garrido, G., & Grafman, J. (2007). Social concepts are represented in the superior anterior temporal cortex. *Proceedings of the National Academy of Sciences*, *104*(15), 6430-6435.

Moll, J., de Oliveira-Souza, R., Bramati, I. E., & Grafman, J. (2002). Functional networks in emotional moral and nonmoral social judgments. *Neuroimage*, *16*(3), 696-703.

Gozzi, M., Raymont, V., Solomon, J., Koenigs, M., & Grafman, J. (2009). Dissociable effects of prefrontal and anterior temporal cortical lesions on stereotypical gender attitudes. *Neuropsychologia*, *47*(10), 2125-2132.

Olson, I. R., Plotzker, A., & Ezzyat, Y. (2007). The enigmatic temporal pole: a review of findings on social and emotional processing. *Brain*, *130*(7), 1718-1731.

Suggested Readings:

Ross, L. A., & Olson, I. R. (2010). Social cognition and the anterior temporal lobes. *Neuroimage*, *49*(4), 3452-3462.

10/4: Posterior Cingulate Cortex/Precuneus

Readings:

Target Articles:

Johnson, M. K., Raye, C. L., Mitchell, K. J., Touryan, S. R., Greene, E. J., & Nolen-Hoeksema, S. (2006). Dissociating medial frontal and posterior cingulate activity during self-reflection. *Social Cognitive and Affective Neuroscience*, *1*(1), 56-64.

Leech, R., Kamourieh, S., Beckmann, C. F., & Sharp, D. J. (2011). Fractionating the default mode network: distinct contributions of the ventral and dorsal posterior cingulate cortex to cognitive control. *The Journal of Neuroscience*, *31*(9), 3217-3224.

Ochsner, K. N., Knierim, K., Ludlow, D. H., Hanelin, J., Ramachandran, T., Glover, G., & Mackey, S. C. (2004). Reflecting upon feelings: an fMRI study of neural systems supporting the attribution of emotion to self and other. *Journal of cognitive neuroscience*, *16*(10), 1746-1772.

Cavanna, A. E., & Trimble, M. R. (2006). The precuneus: a review of its functional anatomy and behavioural correlates. *Brain*, *129*(3), 564-583.

Suggested Readings:

Weymar, M., Löw, A., & Hamm, A. O. (2011). Emotional memories are resilient to time: evidence from the parietal ERP old/new effect. *Human brain mapping*, *32*(4), 632-640.

Greene, J. D., Nystrom, L. E., Engell, A. D., Darley, J. M., & Cohen, J. D. (2004). The neural bases of cognitive conflict and control in moral judgment. *Neuron*, *44*(2), 389-400.

10/11: Posterior Parietal Cortex/Temporoparietal junction/Superior Temporal Sulcus

Readings:

Target Articles:

Corbetta, M., Patel, G., & Shulman, G. L. (2008). The reorienting system of the human brain: from environment to theory of mind. *Neuron*, *58*(3), 306-324.

Cabeza, R., Ciaramelli, E., Olson, I. R., & Moscovitch, M. (2008). The parietal cortex and episodic memory: an attentional account. *Nature Reviews Neuroscience*, *9*(8), 613-625.

Allison, T., Puce, A., & McCarthy, G. (2000). Social perception from visual cues: role of the STS region. *Trends in cognitive sciences*, *4*(7), 267-278.

Van Overwalle, F. (2009). Social cognition and the brain: A meta-analysis. *Human brain mapping*, *30*(3), 829-858.

Suggested Readings:

Gobbini, M. I., Koralek, A. C., Bryan, R. E., Montgomery, K. J., & Haxby, J. V. (2007). Two takes on the social brain: A comparison of theory of mind tasks. *Journal of Cognitive Neuroscience*, *19*(11), 1803-1814.

Corbetta, M., Kincade, J. M., Ollinger, J. M., McAvoy, M. P., & Shulman, G. L. (2000). Voluntary orienting is dissociated from target detection in human posterior parietal cortex. *Nature neuroscience*, *3*(3), 292-297.

Falk, E. B., Spunt, R. P., & Lieberman, M. D. (2012). Ascribing beliefs to ingroup and outgroup political candidates: neural correlates of perspective-taking, issue importance and days until the election. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *367*(1589), 731-743.

10/18: Motor Cortex/Mirror Neuron System

Readings:

Target Articles:

Rizzolatti, G., & Craighero, L. (2004). The mirror-neuron system. *Annu. Rev. Neurosci.*, *27*, 169-192.

Zaki, J., Weber, J., Bolger, N., & Ochsner, K. (2009). The neural bases of empathic accuracy. *PNAS*, *106*(27), 11382–11387.

Obhi, S. S., Hogeveen, J., & Pascual-Leone, A. (2011). Resonating with others: the effects of self-construal type on motor cortical output. *The Journal of Neuroscience*, *31*(41), 14531-14535.

Gutsell, J. N., & Inzlicht, M. (2010). Empathy constrained: Prejudice predicts reduced mental simulation of actions during observation of outgroups. *Journal of Experimental Social Psychology*, *46*(5), 841-845.

Suggested Readings:

Liew, S. L., Han, S., & Aziz-Zadeh, L. (2011). Familiarity modulates mirror neuron and mentalizing regions during intention understanding. *Human brain mapping*, *32*(11), 1986-1997.

Hickok, G. (2009). Eight problems for the mirror neuron theory of action understanding in monkeys and humans. *Journal of cognitive neuroscience*, *21*(7), 1229-1243.

10/25: Insula

Readings:

Target Articles:

Singer, T., Critchley, H. D., & Preuschoff, K. (2009). A common role of insula in feelings, empathy and uncertainty. *Trends in cognitive sciences*, *13*(8), 334-340.

Sanfey, A. G., Rilling, J. K., Aronson, J. A., Nystrom, L. E., & Cohen, J. D. (2003). The neural basis of economic decision-making in the ultimatum game. *Science*, *300*(5626), 1755-1758.

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.

Van Veen, V., Krug, M. K., Schooler, J. W., & Carter, C. S. (2009). Neural activity predicts attitude change in cognitive dissonance. *Nature neuroscience*, *12*(11), 1469-1474.

Suggested Readings:

Cikara, M., & Fiske, S. T. (2011). Bounded empathy: Neural responses to outgroup targets'(mis) fortunes. *Journal of Cognitive Neuroscience*, *23*(12), 3791-3803.

Preuschoff, K., Quartz, S. R., & Bossaerts, P. (2008). Human insula activation reflects risk prediction errors as well as risk. *The Journal of neuroscience*, *28*(11), 2745-2752.

11/1: OFC

Readings:

Target Articles:

Forbes, C. E., Poore, J. C., Barbey, A. K., Krueger, F., Solomon, J., Lipsky, R. H., ... & Grafman, J. (2012). BDNF Polymorphism–Dependent OFC and DLPFC Plasticity Differentially Moderates Implicit and Explicit Bias. *Cerebral Cortex*,*22*(11), 2602-2609.

Beer, J. S., John, O. P., Scabini, D., & Knight, R. T. (2006). Orbitofrontal cortex and social behavior: integrating self-monitoring and emotion-cognition interactions. Journal of cognitive neuroscience, 18(6), 871-879.

Gottfried, J. A., O'Doherty, J., & Dolan, R. J. (2003). Encoding predictive reward value in human amygdala and orbitofrontal cortex. Science, 301(5636), 1104-1107.

LoPresti, M. L., Schon, K., Tricarico, M. D., Swisher, J. D., Celone, K. A., & Stern, C. E. (2008). Working memory for social cues recruits orbitofrontal cortex and amygdala: a functional magnetic resonance imaging study of delayed matching to sample for emotional expressions. The Journal of Neuroscience, 28(14), 3718-3728.

Suggested Readings:

Forbes, C. E., Cox, C. L., Schmader, T., & Ryan, L. (2012). Negative stereotype activation alters interaction between neural correlates of arousal, inhibition and cognitive control. *Social Cognitive and Affective Neuroscience,7*(7), 771-781.

Beer, J. S., & Hughes, B. L. (2010). Neural systems of social comparison and the "above-average" effect. NeuroImage, 49(3), 2671-2679.

Berlin, H. A., Rolls, E. T., & Kischka, U. (2004). Impulsivity, time perception, emotion and reinforcement sensitivity in patients with orbitofrontal cortex lesions. Brain, 127(5), 1108-1126.

11/8: ACC

Readings:

Target Articles:

Bush, G., Luu, P., & Posner, M. I. (2000). Cognitive and emotional influences in anterior cingulate cortex. *Trends in cognitive sciences*, *4*(6), 215-222.

Eisenberger, N. I., Lieberman, M. D., & Williams, K. D. (2003). Does rejection hurt? An fMRI study of social exclusion. *Science*, *302*(5643), 290-292.

Hughes, B. L., & Beer, J. S. (2012). Orbitofrontal cortex and anterior cingulate cortex are modulated by motivated social cognition. Cerebral Cortex, 22(6), 1372-1381.

Amodio, D. M., Harmon-Jones, E., Devine, P. G., Curtin, J. J., Hartley, S. L., & Covert, A. E. (2004). Neural signals for the detection of unintentional race bias. *Psychological Science*, *15*(2), 88-93.

Somerville, L. H., Heatherton, T. F., & Kelley, W. M. (2006). Anterior cingulate cortex responds differentially to expectancy violation and social rejection. *Nature neuroscience*, *9*(8), 1007-1008.

Suggested Readings:

Rushworth, M. F., & Behrens, T. E. (2008). Choice, uncertainty and value in prefrontal and cingulate cortex. *Nature neuroscience*, *11*(4), 389-397.

Botvinick, M. M. (2007). Conflict monitoring and decision making: reconciling two perspectives on anterior cingulate function. *Cognitive, Affective, & Behavioral Neuroscience, 7*(4), 356-366.

11/15: MPFC (DMPFC/VMPFC)

Readings:

Target Articles:

Milne, E., & Grafman, J. (2001). Ventromedial prefrontal cortex lesions in humans eliminate implicit gender stereotyping. *Journal of Neuroscience,21*(12), 1-6.

Mitchell, J. P., Macrae, C. N., & Banaji, M. R. (2006). Dissociable medial prefrontal contributions to judgments of similar and dissimilar others. Neuron,50(4), 655-663.

Amodio, D. M., & Frith, C. D. (2006). Meeting of minds: the medial frontal cortex and social cognition. Nature Reviews Neuroscience, 7(4), 268-277.

Badre, D., & D'Esposito, M. (2009). Is the rostro-caudal axis of the frontal lobe hierarchical? Nature Reviews Neuroscience, 10(9), 659-669.

Falk, E. B., Berkman, E. T., & Lieberman, M. D. (2012). From Neural Responses to Population Behavior Neural Focus Group Predicts Population-Level Media Effects. Psychological science, 23(5), 439-445.

Suggested Readings:

Falk, E. B., Berkman, E. T., Mann, T., Harrison, B., & Lieberman, M. D. (2010). Predicting persuasion-induced behavior change from the brain. The Journal of Neuroscience, 30(25), 8421-8424.

Sallet, J., Mars, R. B., Noonan, M. P., Andersson, J. L., O'Reilly, J. X., Jbabdi, S., ... & Rushworth, M. F. S. (2011). Social network size affects neural circuits in macaques. Science, 334(6056), 697-700.

Macrae, C. N., Moran, J. M., Heatherton, T. F., Banfield, J. F., & Kelley, W. M. (2004). Medial prefrontal activity predicts memory for self. Cerebral Cortex,14(6), 647-654.

Buckner, R. L., & Carroll, D. C. (2007). Self-projection and the brain. Trends in cognitive sciences, 11(2), 49-57.

11/22: LPFC (DLPFC/VLPFC)

Readings:

Target Articles:

Richeson, J. A., Baird, A. A., Gordon, H. L., Heatherton, T. F., Wyland, C. L., Trawalter, S., & Shelton, J. N. (2003). An fMRI investigation of the impact of interracial contact on executive function. *Nature neuroscience*, *6*(12), 1323-1328.

Barbey, A. K., Krueger, F., & Grafman, J. (2009). An evolutionarily adaptive neural architecture for social reasoning. *Trends in neurosciences*, *32*(12), 603-610.

Wager, T. D., Davidson, M. L., Hughes, B. L., Lindquist, M. A., & Ochsner, K. N. (2008). Prefrontal-subcortical pathways mediating successful emotion regulation. *Neuron*, *59*(6), 1037-1050.

Robinson, M. D., Schmeichel, B. J., & Inzlicht, M. (2010). A Cognitive Control Perspective of Self-Control Strength and Its Depletion. *Social and Personality Psychology Compass*, *4*(3), 189-200.

Crockett, M. J., Clark, L., Tabibnia, G., Lieberman, M. D., & Robbins, T. W. (2008). Serotonin modulates behavioral reactions to unfairness. *Science*,*320*(5884), 1739-1739.

Suggested Readings:

Benchenane, K., Tiesinga, P. H., & Battaglia, F. P. (2011). Oscillations in the prefrontal cortex: a gateway to memory and attention. *Current opinion in neurobiology*, *21*(3), 475-485.

Satpute, A. B., Badre, D., & Ochsner, K. N. (2013). Distinct Regions of Prefrontal Cortex Are Associated with the Controlled Retrieval and Selection of Social Information. *Cerebral Cortex*

Krendl, A. C., Kensinger, E. A., & Ambady, N. (2012). How does the brain regulate negative bias to stigma? *Social cognitive and affective neuroscience*, *7*(6), 715-726.

11/29: Networks- Self/DMN, TOM & Implicit vs. Explicit processing

Readings:

Target Articles:

Spreng, R. N., Mar, R. A., & Kim, A. S. (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.

Lieberman, M. D. (2007). Social cognitive neuroscience: a review of core processes. *Annu. Rev. Psychol.*, *58*, 259-289.

Moll, J., Zahn, R., de Oliveira-Souza, R., Krueger, F., & Grafman, J. (2005). The neural basis of human moral cognition. *Nature Reviews Neuroscience*, *6*(10), 799-809.

Cunningham, W. A., & Zelazo, P. D. (2007). Attitudes and evaluations: A social cognitive neuroscience perspective. *Trends in cognitive sciences*, *11*(3), 97-104.

Bar, M. (2009). The proactive brain: memory for predictions. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *364*(1521), 1235-1243.

Suggested Readings:

Forbes, C. E., & Grafman, J. (2010). The Role of the Human Prefrontal Cortex in Social Cognition and Moral Judgment. *Annual review of neuroscience*, *33*, 299-324.

Forbes, C. E., & Grafman, J. (2013). Social neuroscience: the second phase. *Frontiers in human neuroscience*, *7*.

Northoff, G., Heinzel, A., de Greck, M., Bermpohl, F., Dobrowolny, H., & Panksepp, J. (2006). Self-referential processing in our brain—a meta-analysis of imaging studies on the self. *Neuroimage*, *31*(1), 440-457.

Siegel, M., Donner, T. H., & Engel, A. K. (2012). Spectral fingerprints of large-scale neuronal interactions. *Nature Reviews Neuroscience*, *13*(2), 121-134.

Van Overwalle, F., & Baetens, K. (2009). Understanding others' actions and goals by mirror and mentalizing systems: a meta-analysis. *Neuroimage*, *48*(3), 564-584.

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