Syllabus for Seminar in Social Neuroendocrinology (PSY 607) Spring 2012, University of Oregon Mondays: 1:30 – 3:20 PM, 143 Straub



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Course Goals

This course will expose students to contemporary research in the rapidly growing field of social neuroendocrinology – research at the interface of neuroendocrinology and social-personality psychology. We will read and discuss research on the reciprocal relationship between hormones and social behavior: how hormones modulate social behavior, and how behavior and the social environment cause changes in hormone systems. The specific goals of the course are to:

- 1. Gain a basic understanding of the main hormone systems of relevance to social neuroendocrinology (e.g., testosterone, cortisol, oxytocin) as well as the methods for measuring and manipulating these systems
- 2. Apply this understanding of neuroendocrinology to examine research questions in social and personality psychology
- 3. Critically evaluate social neuroendocrinology research in the form of discussion questions and oral presentations
- 4. Stimulate new thinking on social neuroendocrinology topics, and facilitate students making their own unique contributions to this field (theoretical contribution or a plan toward an empirical contribution)

COURSE STRUCTURE AND REQUIREMENTS

Each week we will read and discuss peer-reviewed articles on a specific topic within social neuroendocrinology. I will lecture every now and then, but not much. Here are course requirements:

1. <u>Required Readings</u>: Every week there will be 2 or 3 required readings. You should have read all of these articles, and you should come to class prepared to discuss them.

- <u>Discussion Questions</u>: Think critically about the readings, and write down at least two discussion questions that you are ready to ask in class. The goal of your questions should be to stimulate lively and thought provoking discussion on the topic for that week. If you don't prepare thoughtful discussion questions, this class won't be fun or useful for anyone.
- 3. <u>Individual Readings and Oral Presentations</u>: In addition to the required readings, you will sign up for individual readings in some weeks. In those weeks you are required to read another paper in addition to the required readings and prepare an oral presentation (5-10 minutes long) that you will give in class. The goal of the presentation is to summarize the research you read about, critically evaluate it, and stimulate discussion. You are the instructor during the time you are presenting. This presentation will give you important practice for teaching and for presenting work at scientific conferences. Although you can use any format that you think is most appropriate, one of the following will be fine: (1) a PowerPoint presentation, or (2) a one-page Word document that you hand out to everyone and talk through. There will be a question and answer period after each presentation, and you should be prepared to address any questions from your peers on the reading you did.
- 4. <u>Final Paper and Oral Presentation</u>: I would like to encourage all of you to make novel scientific contributions to social neuroendocrinology research that can benefit you in your careers. With that goal in mind, you are required to turn in a final paper, **8 pages in length (it can be longer if you choose)**, in the service of one of the following goals:

A. Grant Proposal: You will be writing grants for the rest of your career, so why not use this class to practice and work toward an actual submission? If you choose this option, you should write a **research proposal** that incorporates social neuroendocrinology methods/ideas, ideally targeted toward a specific funding source (e.g., a pre-doctoral or post-doctoral NRSA fellowship). Feel free to come to talk to me about specific funding opportunities in your area of interest. Examples of specific grant proposals can be provided to you (e.g., I have an NRSA postdoc example, unfunded unfortunately ^(B)). You are also welcome to write a research proposal even if you do not plan on submitting it.

B. Theoretical Paper: Another option is to write a theoretical paper (approximately 8 pages long minimum, it can be longer if you choose) that incorporates social neuroendocrinology methods/ideas. Ideally your paper would be targeted toward a specific journal, and you could actually submit it at some point.

I encourage you to come talk to me about your paper ideas as soon as possible. Your paper will be due via email by **Friday**, **June 8th at 5 PM**. You will also be required to prepare an oral PowerPoint presentation of your paper in the last few weeks of class.

Week	Торіс
1 (Apr 2)	Introduction, Assignment of Papers, Methodological Foundations
2 (Apr 9)	Status Hierarchies, Dominance, and Aggression
3 (Apr 16)	Attachment and Prosocial Behavior
4 (Apr 23)	Stress and Social Threat
5 (Apr 30)	Decision-Making
6 (May 7)	Social Cognition
7 (May 14)	Mating Behavior
8 (May 21)	Prejudice/Intergroup Behavior
9 (May 28)	MEMORIAL DAY - NO CLASS
10 (June 4)	Final Presentations
Friday, June 8	FINAL PAPER DUE

Overview of Topics by Week

Week 2 (April 9): Status Hierarchies, Dominance, and Aggression

Required Readings for Everyone

- Mazur, A., & Booth, A. (1998). Testosterone and dominance in men. *Behavioral and Brain Sciences*, *21*, 353-397. (Reading the commentaries is highly encouraged but is optional)
- 2. Carré JM., McCormick CM & Hariri AR (2011). The social neuroendocrinology of human aggression. *Psychoneuroendocrinology*, 36, 935-944.

Additional Individual Readings

3. Eisenegger C, Haushofer J, Fehr, E. (2011). The role of testosterone in social interaction. *Trends in Cognitive Sciences*, *15*, 263-271.

Plus our commentary (1 page) plus author response (1 page):

Josephs RA, Mehta PH, & Carre JM (2011). Gender and social environment modulate the effects of testosterone on social behavior: comment on Eisenegger et al. *Trends in Cognitive Sciences, 15,* 509-510.

Eisenegger C, Haushofer J, Fehr, E. (2011). No sound evidence for a genderspecific effect of testosterone administration on aggressive motivation exists: response to Josephs et al. *Trends in Cognitive Sciences*, *15*, 510-511.

- 4. Jiménez M, Aguilar R, Alvero-Cruz JR. (in press). Effects of victory and defeat on testosterone and cortisol response to competition: Evidence for same response patterns in men and women. *Psychoneuroendocrinology*. [Short Communication]
- 5. Mehta PH & Josephs RA (2010). Testosterone and cortisol jointly regulate dominance: Evidence for a dual-hormone hypothesis. *Hormones and Behavior, 58*, 898–906.
- 6. Stanton, S., Schultheiss, O. (2007). Basal and dynamic relationship between implicit power motivation and estradiol in women. *Hormones and Behavior*, *52*, 571–580.
- 7. Thompson RR, George K, Walton JC, Orr SP, Benson J. (2006). Sex-specific influences of vasopressin on human social communication. *PNAS*, *16*, 7889-2894.

Week 3 (April 16) Attachment and Prosocial Behavior

Required Readings for Everyone

- 1. Bartz, J. A., Zaki, J., Bolger, N. & Ochsner, K. N. (2011). Social effects of oxytocin in humans: Context and person matter. *Trends in Cognitive Sciences*, *15*, 301-309.
- 2. Campbell, A. (2010). Oxytocin and human social behavior. *Personality and Social Psychology Review, 14*, 281-295.

- Brown, S. L., Fredrickson, B. L., Wirth, M., Poulin, M., Meirer, E., Heaphy, E., Cohen, M., & Schultheiss, O., (2009). Closeness increases salivary progesterone in humans. *Hormones and Behavior, 56*, 108-111.
- 4. De Dreu, C. K. W., Greer, L. L., Handgraaf. M. J. J., Shalvi, S., Van Kleef, G. A., Baas, M., Ten Velden, F. S., Van Dijk, E., & Feith, S. W. W. (2010). The neuropeptide oxytocin regulates parochial altruism in intergroup conflict among humans. *Science*, *328*, 1408-1411.
- 5. Gettler LT., McDade TW., Feranil AB & Kuzawa CW (2011). Longitudinal evidence that fatherhood decreases testosterone in human males. *Proceedings of the National Academy of Sciences: USA*, 108, 16194-16199.
- 6. Poulin, MJ, Holman A, Buffone A (in press). The Neurogenetics of Nice: Receptor Genes for Oxytocin and Vasopressin Interact With Threat to Predict Prosocial Behavior. *Psychological Science*.
- 7. Wallum H., Lichtenstein P., Neiderhiser JM., Reiss D., Ganiban JM., Spotts EL., Pedersen NL., Anchkarsater H., Larsson H & Westberg L (2011). Variation in the oxytocin receptor gene is associated with pair-bonding and social behavior. *Biological Psychiatry*.

Week 4 (April 23) – Stress and Social Threat

Required Readings for Everyone

- 1. Dickerson SS & Kemeny ME (2004). Acute stressors and cortisol responses: A theoretical integration and synthesis of laboratory research. *Psychological Bulletin, 130*, 355-391.
- Taylor SE, Klein LC, Lewis BP, Gruenewald TL, Gurung RA, Updegraff JA. (2000). Biobehavioral responses to stress in females: Tend-and-befriend, not fight-or-flight. *Psychological Review*, 107, 411-429.

- 3. Moons, W. G., Eisenberger, N. I., & Taylor, S. E. (2010). Anger and fear responses to stress have different biological profiles. *Brain, Behavior, and Immunity, 24*, 215-219.
- Josephs, R.A., Telch, M.J., Hixon, J.G., Evans, J.J., Lee, H., Knopik, V.S., McGeary, J.E., Hariri, A.R., & Beevers, C.G. (in press). Genetic and hormonal sensitivity to threat: Testing a serotonin transporter genotype x testosterone interaction. *Psychoneuroendocrinology*.
- 5. Ford, M. B. & Collins, N. L. (2010). Self-esteem moderates neuroendocrine & psychological responses to interpersonal rejection. *Journal of Personality and Social Psychology*, *98*, 405-419.
- 6. Maner JK, Miller SL, Schmidt NB, Eckel LA (2010). The endocrinology of exclusion: rejection elicits motivationally tuned changes in progesterone. *Psychological Science*, *21*, 581-588.
- 7. Akinola, M. & Mendes, W. B. (2008). The dark side of creativity: Biological vulnerability and negative emotions lead to greater artistic creativity. *Personality and Social Psychology Bulletin*, *34*,1677-1686.

Week 5 (April 30) - Decision-Making

Required Readings for Everyone

- 1. Coates JM, Herbert J. (2008). Endogenous steroids and financial risk taking on a London trading floor. *PNAS*, 105, 6167-72.
- Stanton, S. J., Mullette-Gillman, O. A., McLaurin, R. E., Kuhn, C. M., LaBar, K. S., Platt, M. L., & Huettel, S. A. (2011). Low and high testosterone individuals exhibit decreased aversion to economic risk. *Psychological Science*, 22, 447-453.
- 3. van den Bos R, Harteveld M, Stoop H. (2009). Stress and decision-making in humans: performance is related to cortisol reactivity, albeit differently in men and women. *Psychoneuroendocrinology*, *34*, 1449-1458.

- 4. Carney DR & Mason MF (2010). Decision-making and testosterone: When the ends justify the means. *Journal of Experimental Social Psychology*, 46, 668-671.
- 5. Wright ND, Bahrami B, Johnson E, Di Malta G, Rees G, Frith CD, Dolan RJ. (in press). Testosterone disrupts human collaboration by increasing egocentric choices. *Proceedings* of the Royal Society of London: Biological Sciences.
- 6. Ronay, R., & Galinsky, A.D. (2011). Lex Talionis: Testosterone and the law of retaliation. *Journal of Experimental Social Psychology*, 47, 702-705.
- 7. Hermans EJ, Bos PA, Ossewaarde L, Ramsey NF, Fernández G, van Honk J. (2010). Effects of exogenous testosterone on the ventral striatal BOLD response during reward anticipation in healthy women. *Neuroimage*, *52*, 277-283.
- Youssef FF, Dookeeram K, Basdeo V, Francis E, Doman M, Mamed D, Maloo S, Degannes J, Dobo L, Ditshotlo P, Legall G. (2012). Stress alters personal moral decision making. *Psychoneuroendocrinology*, 37, 491-298.

Week 6 (May 7) - Social Cognition

Required Readings for Everyone

- 1. Bartz JA, Zaki J, Bolger N, Hollander E, Ludwig NN, Kolevzon A, Ochsner KN. (2010). Oxytocin selectively improves empathic accuracy. *Psychological Science*, *21*, 1426-1428.
- 2. van Honk J, Schutter DJ, Bos PA, Kruijt AW, Lentjes EG, Baron-Cohen S. (2011). Testosterone administration impairs cognitive empathy in women depending on secondto-fourth digit ratio. *PNAS*, 108, 3448-2452
- 3. Meyer-Lindenberg A, Domes G, Kirsch P, Heinrichs M. (2011). Oxytocin and vasopressin in the human brain: social neuropeptides for translational medicine. *Nature Reviews Neuroscience*. *12*, 524-38.

- Baron-Cohen S, Lombardo MV, Auyeung B, Ashwin E, Chakrabarti B, Knickmeyer R. (2011). Why are autism spectrum conditions more prevalent in males? PLoS Biol., 9, e1001081.
- 5. Uzefovsky F, Shalev I, Israel S, Knafo A, Ebstein RP. (2012). Vasopressin selectively impairs emotion recognition in men. *Psychoneuroendocrinology*, *37*, 576-580.
- 6. Putman P, Hermans EJ, Koppeschaar H, van Schijndel A, van Honk J. A single administration of cortisol acutely reduces preconscious attention for fear in anxious young men. *Psychoneuroendocrinology*, *7*, 793-802.
- 7. Krueger F, Parasuraman R, Moody L, Twieg P, de Visser E, McCabe K, O'Hara M, Lee MR. (in press). Oxytocin selectively increases perceptions of harm for victims but not the desire to punish offenders of criminal offenses. *Social, Cognitive, and Affective Neuroscience*.

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Week 7 (May 14) – Mating Behavior

Required Readings for Everyone

- 1. van der Meij L., Almela M., Buunk AP., Fawcett TW & Salvador A. (2012). Men with elevated testosterone levels show more affiliative behaviours during interactions with women. *Proceedings of the Royal Society of London: Biological Sciences*, 279, 202-208.
- 2. Roney, J. R., Simmons, Z. L., & Lukaszewski, A. W. (2010). Androgen receptor gene sequence and basal cortisol concentrations predict men's hormonal responses to potential mates. *Proceedings of the Royal Society of London B: Biological Sciences*, 277, 57-63.
- 3. Roney JR, Simmons ZL, Gray PB. (2011). Changes in estradiol predict within-women shifts in attraction to facial cues of men's testosterone. *Psychoneuroendocrinology*, *36*, 742-749.

- 4. Miller, S. L., & Maner, J. K. (2010). Scent of a woman: Men's testosterone responses to olfactory ovulation cues. *Psychological Science*, *21*, 276-283.
- 5. Goldey KL, van Anders SM. (2011). Sexy thoughts: effects of sexual cognitions on testosterone, cortisol, and arousal in women. *Hormones and Behavior, 59*, 754-64.
- 6. Goldey KL, van Anders SM. Sexual Thoughts: Links to Testosterone and Cortisol in Men. (in press). *Archives of Sexual Behavior*.
- 7. Ronay, R., & von Hippel, W. (2010) The presence of an attractive woman elevates testosterone and physical risk-taking in young men, *Social Psychological and Personality Science*, *1*, 57-64.
- 8. Slatcher RB, Mehta PH, & Josephs RA (2011). Testosterone and self-reported dominance interact to influence human mating behavior. *Social Psychological and Personality Science*, *22*, *39-44*.

Week 8 - Prejudice/Intergroup Behavior

Required Readings for Everyone

- 1. Amodio DM (2009). Intergroup anxiety effects on the control of racial stereotypes: A psychoneuroendocrine analysis. *Journal of Experimental Social Psychology*, 45, 60-67.
- Mendes, W. B., Gray, H., Mendoza-Denton, Major, B. & Epel, E. (2007). Why Egalitarianism Might Be Good for Your Health: Physiological Thriving During Stressful Intergroup Encounters. *Psychological Science*, 18, 991-998.
- 3. De Dreu, C. K. W., Greer, L. L., Van Kleef, G. A., Shalvi, S., & Handgraaf, M. J. J. (2011). Oxytocin promotes human ethnocentrism. *Proceedings of the National Academy of Sciences USA*, 108.

- 4. Page-Gould, E., Mendoza-Denton, R., Alegre, J. M., & Siy, J. O. (2010). Understanding the impact of cross-group friendship on interactions with novel outgroup members. *Journal of Personality and Social Psychology*, *98*, 775 793.
- 5. Townsend SS, Major B, Gangi CE, Mendes WB. From "in the air" to "under the skin": cortisol responses to social identity threat. (2011). *Personality and Social Psychology Bulletin*, *37*, 151-164.
- 6. Josephs, R. A., Newman, M. L, Brown, R. P., & Beer, J. M. (2003). Status, testosterone, and human intellectual performance: Stereotype threat as status concern. *Psychological Science*, *14*, 158-163.
- 7. Akinola, A, Mendes WB (in press). Stress-induced cortisol facilitates threat-related decision making among police officers. *Behavioral Neuroscience*.
- 8. De Dreu Ck, Greer LL, Handgraaf MJ, Shaul Shalvi S, and Van Kleef GA (in press). Oxytocin modulates selection of allies in intergroup conflict. Oxytocin modulates selection of allies in intergroup conflict. *Proceedings of the Royal Society of London B: Biological Sciences*.