האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

Neuroendocrine Basis of Social Stress and Social Behavior - 51633

Last update 30-09-2024

HU Credits: 2

Degree/Cycle: 2nd degree (Master)

Responsible Department: Psychology

Academic year: 0

Semester: 1st Semester

Teaching Languages: English

Campus: Mt. Scopus

Course/Module Coordinator: Prof. Salomon Israel

Coordinator Email: salomon.israel@mail.huji.ac.il

Coordinator Office Hours: by appointment

Teaching Staff:
Prof. Salomon Israel

Course/Module description:
This is an interdisciplinary course that examines the relationship between hormones and human social behavior. It reflects a growing interest among social psychologists in the role of the neuroendocrinological systems in basic social processes such as stress, cooperation, aggression, and dominance. How do hormones with effects in the brain regulate physiology, emotions, cognition, and behavior, without the necessity for conscious input or control? Here we focus on four key molecules with profound effects in humans: cortisol, testosterone, oxytocin, and vasopressin. The course will be taught in English.

Course/Module aims:

Learning outcomes - On successful completion of this module, students should be able to:
1) Gain a basic understanding of the main hormone systems related to social stress and behavior, as well as the methods for measuring and manipulating these systems
2) Apply this understanding to examine research questions related to the role of hormones in social psychology.
3) Critically evaluate research in social neuroendocrinology in the form of discussion questions and oral presentations

Attendance requirements(%):
15% The success of this class relies heavily on your active participation including answering and asking questions and taking part in discussions.

Teaching arrangement and method of instruction:

Course/Module Content:
1) introduction to the neuroendocrine system
2) Stress and Cortisol, Testosterone and the challenge hypothesis
3) Laboratory measures of social stress
4) Oxytocin: stress and social development
5) Oxytocin and trust

6) Oxytocin and face perception
7) Oxytocin and antisocial behavior
8) Individual Differences in intranasal oxytocin response
9)Vasopressin and social behavior
10) Testosterone and social cognition
11) Testosterone and competition
12) Bringing it all together. Theoretical models integrating across hormone systems

<u>Required Reading:</u>
Reading
[to be updated at the beginning of the semester]

Dickerson, S. S., & Kemeny, M. E. (2004). Acute stressors and cortisol responses: a theoretical integration and synthesis of laboratory research.Psychological bulletin, 130(3), 355.
Heim, C., Young, L. J., Newport, D. J., Mletzko, T., Miller, A. H., & Nemeroff, C. B. (2009). Lower CSF oxytocin concentrations in women with a history of childhood abuse. Molecular psychiatry, 14(10), 954-958.

Seltzer, L. J., Ziegler, T., Connolly, M. J., Prososki, A. R., & Pollak, S. D. (2014). Stress-Induced Elevation of Oxytocin in Maltreated Children: Evolution, Neurodevelopment, and Social Behavior. Child development, 85(2), 501-512.

Heinrichs, M., Baumgartner, T., Kirschbaum, C., & Ehlert, U. (2003). Social support and oxytocin interact to suppress cortisol and subjective responses to psychosocial stress. Biological psychiatry, 54(12), 1389-1398.
Kosfeld, M., Heinrichs, M., Zak, P. J., Fischbacher, U., & Fehr, E. (2005). Oxytocin increases trust in humans. Nature, 435(7042), 673-676.

Baumgartner, T., Heinrichs, M., Vonlanthen, A., Fischbacher, U., & Fehr, E. (2008). Oxytocin shapes the neural circuitry of trust and trust adaptation in humans. Neuron, 58(4), 639-650.

Mikolajczak, M., Gross, J. J., Lane, A., Corneille, O., de Timary, P., & Luminet, O. (2010). Oxytocin makes people trusting, not gullible. Psychological Science,21(8), 1072-1074.

Mikolajczak, M., Pinon, N., Lane, A., de Timary, P., & Luminet, O. (2010). Oxytocin not only increases trust when money is at stake, but also when confidential information is in the balance. Biological psychology, 85(1), 182-184.
Domes, G., Heinrichs, M., Michel, A., Berger, C., & Herpertz, S. C. (2007). Oxytocin improves “mind-reading” in humans. Biological psychiatry, 61(6), 731-733.

Guastella, A. J., Mitchell, P. B., & Dadds, M. R. (2008). Oxytocin increases gaze to the eye region of human faces. Biological psychiatry, 63(1), 3-5.

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.
Shamay-Tsoory, S. G., Fischer, M., Dvash, J., Harari, H., Perach-Bloom, N., & Levkovitz, Y. (2009). Intranasal administration of oxytocin increases envy and schadenfreude (gloating). Biological psychiatry, 66(9), 864-870.

De Dreu, C. K., Greer, L. L., Handgraaf, M. J., Shalvi, S., Van Kleef, G. A., Baas, M., ... & Feith, S. W. (2010). The neuropeptide oxytocin regulates parochial altruism in intergroup conflict among humans. Science, 328(5984), 1408-1411.

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(7), 301-309.
Guastella, A. J., Kenyon, A. R., Alvares, G. A., Carson, D. S., & Hickie, I. B. (2010). Intranasal arginine vasopressin enhances the encoding of happy and angry faces in humans. Biological psychiatry, 67(12), 1220-1222.

Thompson, R. R., George, K., Walton, J. C., Orr, S. P., & Benson, J. (2006). Sex-specific influences of vasopressin on human social communication.Proceedings of the National Academy of Sciences, 103(20), 7889-7894.

Uzefovsky, F., Shalev, I., Israel, S., Knafo, A., & Ebstein, R. P. (2012). Vasopressin selectively impairs emotion recognition in men.Psychoneuroendocrinology, 37(4), 576-580.
Hermans, E. J., Putman, P., & Van Honk, J. (2006). Testosterone administration reduces empathetic behavior: a facial mimicry study.Psychoneuroendocrinology, 31(7), 859-866.

Goetz, S. M., Tang, L., Thomason, M. E., Diamond, M. P., Hariri, A. R., & Carré, J. M. (2014). Testosterone rapidly increases neural reactivity to threat in healthy men: a novel two-step pharmacological challenge paradigm. Biological psychiatry, 76(4), 324-331.

Radke, S., Volman, I., Mehta, P., van Son, V., Enter, D., Sanfey, A., ... & Roelofs, K. (2015). Testosterone biases the amygdala toward social threat approach. Science Advances, 1(5), e1400074.
Eisenegger, C., Naef, M., Snozzi, R., Heinrichs, M., & Fehr, E. (2010). Prejudice and truth about the effect of testosterone on human bargaining behaviour. Nature, 463(7279), 356-359.

Bos, P. A., Terburg, D., & van Honk, J. (2010). Testosterone decreases trust in socially naive humans. Proceedings of the National Academy of Sciences,107(22), 9991-9995.
Van Anders, S. M., Goldey, K. L., & Kuo, P. X. (2011). The steroid/peptide theory of social bonds: integrating testosterone and peptide responses for classifying social

behavioral contexts. Psychoneuroendocrinology, 36(9), 1265-1275.

Crespi, B. J. (2015). Oxytocin, testosterone, and human social cognition.Biological Reviews.

Bethlehem, R. A., Baron-Cohen, S., van Honk, J., Auyeung, B., & Bos, P. A. (2014). The oxytocin paradox. Frontiers in behavioral neuroscience, 8.

Additional Reading Material:

Grading Scheme:

Essay / Project / Final Assignment / Home Exam / Referat 50 %

Presentation / Poster Presentation / Lecture/ Seminar / Pro-seminar / Research proposal 35 %

Attendance / Participation in Field Excursion 15 %

Additional information: