



Neuroscience 491: Senior Seminar

Department of Neuroscience

Spring 2018

Loras College

Lecture

Hennessey 362

F 11:00-11:50

Instructor: Jake Kurczek, PhD
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Office Hours: By appointment

Textbook: *None*
Additional journal articles and materials will be assigned as needed and posted to [eLearn](#).

Class Website: You will be able to find PDFs of the lectures and discussions posted on [eLearn](#)

Course Goals and Overview

This course will serve as the second semester of a capstone series for all students completing a major in Neuroscience. The course will involve regular discussions of current and influential publications in neuroscience, as well as the creation of a class paper that is intended to serve as a reference for all members of the course. The course meetings will occur once per week, and majors will enroll in the course during the spring semester of their Senior year at Loras College

Primary Course Objectives

The objectives of this course include:

- 1) To allow students to become more familiar with current research in the field of neuroscience.
- 2) To foster educated and insightful discussion of current topics in neuroscience.
- 3) To develop written communication skills through the group projects.

Learning Outcomes

- 1) Awareness and understanding of current research in the field of neuroscience
- 2) The ability to participate in and lead discussions of current topics in neuroscience
- 3) The ability to create a meaningful contribution to a neuroscience reference

Course Requirements, Policies and Assignments

Assignments

This course is based on an interactive lecture format where students will be expected to contribute to class discussions, brainstorming sessions, and small group work. Assessment of student learning will be determined as follows (see descriptions below):

Research Paper	100
Research Presentation	50
Discussion Leading	100
Engagement and Community	100
Learning Assessments	50
TOTAL	400

Independent Research Paper

Students will submit a copy of their research findings in the form of a research paper. Students should strive to produce a manuscript that is of a standard and quality typical of those published in peer-reviewed academic journals.

Independent Research Presentation

Students will present their research findings to the entire class and/or program in a format typical of that found at an academic professional society meeting. These presentations may also be open and posted for anyone at Loras College to attend.

Discussion Leading

Students will be expected to be the "discussion leader" for two days of articles/topics distributed over the semester. The job of the discussion leader is to provide some structure to the discussion of the issues that week. This could be a PowerPoint or handouts, sets of questions for discussion, etc. The point is not for the leader to do all of the talking that day, rather to facilitate discussion. Feel free to consult with me about this. Your grades for this component of the course will be based on: a) demonstrated understanding of the assigned materials, b) your ability to synthesize material from the articles with additional references and/or material presented in lectures, and c) your ability to stimulate engaging discussion.

Engagement and Community

Students will be expected to actively participate in class and when they are watching and listening to visiting speakers' presentations. Engagement will be assessed via the number and quality of questions students ask during presentations, and via short reflective papers. Students are also expected and encouraged to attend speakers outside of class time, participate in research, and support the neuroscience and research community at Loras.

Neuroscience Program Learning Outcomes

What does it mean to graduate with a neuroscience degree. You will work together to develop questions and assessments within the learning objectives of the neuroscience program.

Neuroscience
Neuroscience Senior Seminar – Instructor: Jake Kurczek Spring 2018

Schedule*

Day	Topic	Reading	Assignment
Week 1	Course Intro: Projects and discussion leaders	Many Fields	
Week 2	Seductive Allure	(Weisberg, Keil, Goodstein, Rawson, & Gray, 2008)	
Week 3	Ethics in Neuroscience	(Fuchs, 2006)	
Week 4	Stats in Neuroscience	(Nieuwenhuis, Forstmann, & Wagenmakers, 2011)	
Week 5	Publishing in Neuroscience	(Steuer, 2016)	
Week 6	Neuropedagogy	(Hardiman, 2012)	
Week 7	Neurolaw	(Meynen, 2013)	
Week 8	Neuropolitics	(Jost et al., 2014)	
Week 9	Spring Break		
Week 10	Neuromarketing	(Lee, Broderick, & Chamberlain, 2007)	
Week 11	Challenges to Neuroscience	(Markham, 2013)	
Week 12	Unsolved problems of Neuroscience	(Adolphs, 2015)	
Week 13	Work Day – Jake @ MUPC		
Week 14	Legacy		
Week 15	Presentations		
Week 16	Finals Week		

References

- Adolphs, R. (2015). The unsolved problems of neuroscience. *Trends in Cognitive Sciences*, 19(4), 173–175. <https://doi.org/10.1016/j.tics.2015.01.007>
- Fuchs, T. (2006). Ethical issues in neuroscience. *Current Opinion in Psychiatry*, 19(6), 600–607.
- Hardiman, M. (2012). Informing Pedagogy Through the Brain-Targeted Teaching Model. *Journal of Microbiology & Biology Education*, 13(1), 11–16.
<https://doi.org/10.1128/jmbe.v13i1.354>
- Jost, J.T., Nam, H.H., Amodio, D.M., Van Bavel, J.J. (2014). Political neuroscience: The beginning of a beautiful friendship. *Advances in Political Psychology*, 35(1), 3-42.
- Lee, N., Broderick, A. J., & Chamberlain, L. (2007). What is “neuromarketing”? A discussion and agenda for future research. *International Journal of Psychophysiology*, 63(2), 199–204. <https://doi.org/10.1016/j.ijpsycho.2006.03.007>
- Markham, Henry. (2013). Seven challenges for neuroscience. *Functional Neurology*, 28(3), 145–151.
- Meynen, G. (2013). A neurolaw perspective on psychiatric assessments of criminal responsibility: Decision-making, mental disorder, and the brain. *International Journal of Law and Psychiatry*, 36(2), 93–99. <https://doi.org/10.1016/j.ijlp.2013.01.001>
- Nieuwenhuis, S., Forstmann, B. U., & Wagenmakers, E.-J. (2011). Erroneous analyses of interactions in neuroscience: a problem of significance. *Nature Neuroscience*, 14(9), 1105–1107. <https://doi.org/10.1038/nn.2886>
- Steuer, Beth. (2016, June 5). *Publishing in the field of neuroscience: Scientists at the University of Minnesota Institute for Translational Neuroscience describe problems and potential solutions*. University of Minnesota.

Neuroscience

Neuroscience Senior Seminar – Instructor: Jake Kurczek Spring 2018

Weisberg, D. S., Keil, F. C., Goodstein, J., Rawson, E., & Gray, J. R. (2008). The seductive allure of neuroscience explanations. *Journal of Cognitive Neuroscience*, 20(3), 470–477.

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