



# NSC 401 ADVANCED SEMINAR

Tuesday | Thursday

12:30-1:45

Moyer 201

FALL 2017

*A Multi-Modal Parcellation of Human Cerebral Cortex by Glasser et al. (Nature, 2016)*

## Course Description

This seminar serves as a culmination of your learning as a Neuroscience major, and provides you with the opportunity to take what you have learned and apply it to the investigation of a problem in the field of Clinical Neuroscience.

Over the course of the semester, you will have the opportunity to work collaboratively on a group project and independently on a grant proposal. Because two of the fundamental goals of this course are refining your writing and public speaking abilities, activities involving speaking and writing will be incorporated throughout the course.

The **group project** will involve a multiple levels of analysis approach to researching a clinical disorder. Groups will lead a class discussion on their topic focused on primary literature.

The **grant proposal** will give you the opportunity to conduct an in-depth analysis of an unanswered question in the field of clinical neuroscience, and propose an experiment (or two) designed to address it. Several smaller writing assignments will be completed throughout the semester to solidify ideas, collect literature, and provide feedback via peer review as a build-up to constructing the final grant. At the end of the semester, students will give a short presentation on their grant, open to the campus community.

**PROFESSOR:**  
**DR. GRETCHEN GOTTHARD**

**Office:** New Science 325

**Phone:** 484-664-3422

**Email:** gretchengotthard@muhlenberg.edu  
[Email is the best way to reach me.]

**Schedule a meeting [HERE](#)**

[If no times work, please email me and we'll find a time to meet.]

## Course Goals

This seminar will give students opportunities to refine skills in:

- **Critical analysis/synthesis of empirical literature**
- **Formal and informal presentations**
- **Experimental design**
- **Collaboration with peers**
- **Formal and informal writing**

## Requirements of the Course

### GROUP PROJECT

**Clinical Neuroscience Discussion:** Students will work in groups of three to research and lead discussion on two clinical disorders. Discussion leaders should use primary and secondary sources to:

- Provide a *general overview* of the disorder that includes causes, symptoms, and treatment.
- Go beyond the basics by incorporating *new empirical research* into your discussion.

### GRANT PROPOSAL

**Critical Analysis Papers:** We will read several articles on drug addiction to refine critical analysis and synthesis skills (a big part of your grant). All students will complete 10 critical analysis papers. Guidelines are posted on Canvas. These short papers are worth 30 points total (3 points each).

**Topic Paragraph:** Students will submit a 1 to 2 paragraph description of their proposed topic. This description should include *preliminary* thoughts on your research question, significance of the problem, and any preliminary support you've found in the literature. Guidelines are posted on Canvas. The Topic Paragraph is worth 10 points.

**Literature Review Outline:** To provide a framework for the literature review, students will create an outline of the literature they intend to use for their grant, including citations. Guidelines are

posted on Canvas. The outline will be worth 25 points.

**Grant Drafts:** Students will submit drafts of the grant for Peer Review before submitting the Final Grant. Guidelines for each section are posted on Canvas. No formal grade will be assigned for these drafts; however, valuable feedback will come from Peer Reviews of each draft.

- **Literature Review:** Includes a clear review of the literature that leads the reader to your experimental hypotheses.
- **Needs Statement:** Includes three key items: (1) clear statement of the problem, (2) significance of the problem, and (3) purpose of the proposed experiment.
- **Project Description:** Includes a comprehensive description of the methods being employed in your study and how evaluation of the project will be carried out.

**Grant Presentation:** All students will give a short presentation of their grant proposal at the end of the semester, open to the campus community. Guidelines will be discussed in class. The grant presentation is worth 30 points.

**Final Grant:** All students will submit a final draft of their grant during finals week. It is VERY important that peer review feedback from earlier drafts be incorporated into the final submission. The Final Grant is worth 100 points.

### PEER REVIEW

All students will be assigned to a Peer Review Team. All reviews will be carried out according to a formal journal review format that includes (1) an executive summary, (2) major concerns, and (3) minor concerns. Peer Reviews will be worth 40 points total, and will be conducted for three major sections of the grant:

- **Literature Review**
- **Needs Statement and Project Description (combined)**

## Graded and Non-Graded Assignments

Group Project	Points	Grant	Points
<input type="checkbox"/> Clinical Discussion #1	50	<input type="checkbox"/> Critical Analysis Papers	30
<input type="checkbox"/> Clinical Discussion #2	50	<input type="checkbox"/> Topic Paragraph	10
		<input type="checkbox"/> Literature Review Outline	25
Peer Review	Points	<input type="checkbox"/> Draft: Literature Review	0
<input type="checkbox"/> Peer Review: Literature Review	15	<input type="checkbox"/> Draft: Needs Statement	0
<input type="checkbox"/> Peer Review: Needs Statement	10	<input type="checkbox"/> Draft: Project Description	0
<input type="checkbox"/> Peer Review: Project Description	15	<input type="checkbox"/> Grant Presentation	25
		<input type="checkbox"/> Full Grant	100
		Total Points	330

**IMPORTANT:** Each assignment listed above is an important component in this course, whether it is formally graded or not. Please make sure you check off each assignment on this sheet by its allotted due date. Failing to complete any of the above tasks will lower your final grade in this class.

Grade	%	Grade	%	Grade	%	Grade	%
A	94-100	B+	87-89	C+	77-79	D+	67-69
A-	90-93	B	84-86	C	74-76	D	63-66
		B-	80-83	C-	70-73	F	0-62

# The Fine Print

## Be an active participant

Being an active participant in this seminar means that you will:

- **Come to every scheduled class and group meeting.**
- **Consistently contribute to class activities and discussions.**
- **Turn in graded and non-graded work on time.**

Active engagement in class is a key factor in learning, and therefore, your participation in this course will play an important role in grades. Failure to participate (as defined above) will result in a lower grade in this class (by as much as one letter grade).

**Bottom line: Come to class prepared and be an active participant!**

## Turn in assignments on time

Be sure to plan accordingly so that you can turn in all assignments on time. **No extensions will be given.** Late assignments will lose one letter grade per day.

If you know that you will need to miss class for a legitimate reason (leaving early for break or for a vacation is NOT a legitimate excuse), please let me know early, so that we can arrange for you to turn things in before you leave.

## Use your laptop for class activities only

My policy regarding electronic devices in the classroom typically involves banning them. There is ample evidence showing that **performance drops significantly when students attempt to multitask with electronic devices during class** [click [HERE](#) for more info].

It will be important that you have articles and critical analysis papers with you for every class. However, given the College's new policy on printing (i.e., students have a limit to their free printing), I will make an exception regarding article and critical analyses. Instead of printing every article and critical analysis paper, you **may use your laptop or tablet for classroom discussion of articles and may upload your critical analysis papers to Canvas.**

Students who use a phone or laptop during class for non-class activities will be asked to put it away; if this happens repeatedly, they will be asked to leave.

## Show academic integrity in your work

All assignments in this class are pledged work under the Academic Integrity Code ([click here for AIC description](#)). I will try to be clear about the work that needs to be done independently. If you are unsure, please don't hesitate to ask. Furthermore, proper citation is critical in this course. If you are using someone else's work, then cite it. Quoting will not be necessary, so be sure to paraphrase properly. Students found to be breaking the AIC will receive a zero on the assignment, and depending on the circumstances, may receive a failing grade for the class. Additionally, in accordance with the AIC, please write and sign your name by the following statement on all written assignments: "I pledge that I have complied with the Academic Integrity Code in this work." If you have any questions or concerns about how the AIC applies to work in this class, I am happy to discuss this with you.

## Accommodations

If you have a documented disability, please let me know what I can do to facilitate your learning in this class. Students requiring special accommodations for this course must first contact the Office for Disability Services (Director: **Pamela Moschini, Ext. 3825**). Provide me with the appropriate documentation and I will make every effort to meet your needs.

# Schedule

Please be prepared to be flexible this semester – this is an approximate guide. Material may be added or deleted throughout the semester, as time permits. If changes are made, they will be announced in class and/or via Canvas as soon as possible.

DATE	DAY	TOPICS/READINGS	ASSIGNMENTS DUE
Aug 29	Tues	Course Overview	
Aug 31	Thurs	<b>Rachel Hamelers</b> tells it like it is – library research	
Sept 5	Tues	<b>Grant Check-In:</b> Components of your grant Overview: Introduction to Addiction Research	
Sept 7	Thurs	<b>Siegel, S. (1975).</b> Evidence from rats that morphine tolerance is a learned response. <i>Journal of Comparative and Physiological Psychology</i> , 89, 498-506. [GHG] <b>Siegel, S., Hinson, R.E., Krank, M.D., and McCully, J. (1982).</b> Heroin “overdose” death: Contribution of drug-associated environmental cues. <i>Science</i> , 216, 436-437. [Rachel]	Critical Analysis Papers [Canvas by class time]
Sept 12	Tues	<b>Lee, J.L. et al. (2006).</b> Cue-induced cocaine seeking and relapse are reduced by disruption of drug memory reconsolidation. <i>Journal of Neuroscience</i> , 26, 5881-5887. [Sarah E.] <b>Vousden, G. and Milton, A.L. (2017).</b> The chains of habits: Too strong to be broken by reconsolidation blockade? <i>Current Opinion in Behavioral Sciences</i> , 13, 158-163. [Sarah G.]	Critical Analysis Papers [Canvas by class time]
Sept 14	Thurs	<b>Hausknecht, K. et al. (2017).</b> Prenatal ethanol exposure persistently alters endocannabinoid signaling and endocannabinoid-mediated excitatory synaptic plasticity in ventral tegmental area dopamine neurons. <i>Journal of Neuroscience</i> , 37, 5798-5808. [Alyssa] <b>Miquel, M. et al. (2016).</b> Have we been ignoring the elephant in the room? Seven arguments for considering the cerebellum as part of addiction circuitry. <i>Neuroscience and Biobehavioral Reviews</i> , 60, 1-11. [Nate]	Topic Paragraph [Dr. Gotthard by 5pm]  Critical Analysis Papers [Canvas by class time]

Sept 19	Tues	<p><b>Stramaccia, D.F., Penolazzi, B., Monego, A.L., Manzan, A., Castelli, L., and Galfano, G. (2017).</b> Suppression of competing memories in substance-related and addictive disorders: A retrieval-induced forgetting study. <i>Clinical Psychological Science</i>, 5, 410-417. [Jamie]</p> <p><b>Myers, C.E., Rego, J., Haber, P., Morley, K., Beck, K.D., Hogarth, L, and Moustafa, A. A. (2017).</b> Learning and generalization from reward and punishment in opioid addiction. <i>Behavioural Brain Research</i>, 317, 122-131. [Ellen]</p>	Critical Analysis Papers [Canvas by class time]
Sept 21	Thurs	<p><b>Cox, B.M. et al. (2017).</b> Oxytocin acts in nucleus accumbens to attenuate methamphetamine seeking and demand. <i>Biological Psychiatry</i>, 81, 949-958. [Elizabeth]</p> <p><b>Gutman, A.L. et al. (2017).</b> Extinction of cocaine seeking requires a window of infralimbic pyramidal neuron activity after unreinforced lever presses. <i>Journal of Neuroscience</i>, 37, 6075-6086. [Tabitha]</p>	Critical Analysis Papers [Canvas by class time]
Sept 26	Tues	<b>Synthesis Work:</b> Drug Addiction Literature	
Sept 28	Thurs	<b>Clinical Neuroscience Discussion #1:</b> <i>Obsessive Compulsive Disorder</i> [Jamie Pacilio, Sarah Genthner, Tabitha Weckesser]	
Oct 3	Tues	<b>Clinical Neuroscience Discussion #2:</b> <i>Bipolar Disorder</i> [Ellen Shephard, Sarah Evenosky, Rachel Addison]	
Oct 5	Thurs	<b>Clinical Neuroscience Discussion #3:</b> <i>Antisocial Personality Disorder</i> [Alyssa Hanel, Nate Herman, Elizabeth Vlattas]	
Oct 10	Tues	Finishing touches on Lit Review Outline: Meet with Dr. Gotthard as needed	Literature Review Outline [Dr. Gotthard by 5pm]
Oct 12	Thurs	<b>Grant Check-In:</b> Preliminary Experimental Design	
Oct 17	Tues	<b>Grant Article Discussions</b> – article of your choosing Jamie Pacilio, Sarah Genthner, Tabitha Weckesser	
Oct 19	Thurs	<b>Grant Article Discussions</b> – article of your choosing Ellen Shephard, Sarah Evenosky, Rachel Addison	
Oct 24	Tues	<b>Grant Article Discussions</b> – article of your choosing Alyssa Hanel, Nate Herman, Elizabeth Vlattas	
Oct 26	Thurs	<b>Grant Check-In:</b> Literature Review Draft Needs Statement and Project Description Drafts Grant Presentations	

Oct 31	Tues	Finishing touches on Lit Review Draft: Meet with Dr. Gotthard as needed	Literature Review Draft [Peer Reviewer and Dr. Gotthard by 5pm]
Nov 2	Thurs	<b>Clinical Neuroscience Discussion #4:</b> <i>Chronic Traumatic Encephalopathy</i> [Jamie Pacilio, Sarah Genthner, Tabitha Weckesser]	
Nov 7	Tues	<b>Clinical Neuroscience Discussion #5:</b> <i>Alzheimer's Disease</i> [Ellen Shephard, Sarah Evenosky, Rachel Addison]	Peer Review of Literature Review [Author and Dr. Gotthard by 5pm]
Nov 9	Thurs	<b>Clinical Neuroscience Discussion #6:</b> <i>Migraine Headaches</i> [Alyssa Hanel, Nate Herman, Elizabeth Vlattas]	
Nov 14	Tues	<b>SOCIETY FOR NEUROSCIENCE MEETING: NO CLASS</b>	Needs Statement and Project Description Draft [Peer Reviewer and Dr. Gotthard by 5pm]
Nov 16	Thurs	<b>SOCIETY FOR NEUROSCIENCE MEETING: NO CLASS</b>	
Nov 21	Tues	Meet with Dr. Gotthard as needed	Peer Review of Needs Statement and Project Description [Author and Dr. Gotthard by 5pm]
Nov 23	Thurs	<b>THANKSGIVING BREAK: NO CLASS</b>	
Nov 28	Tues	Meet with Dr. Gotthard as needed	
Nov 30	Thurs	<b>Grant Presentation Practice</b>	
Dec 5	Tues	<b>Grant Presentation Practice</b>	
Dec 7	Thurs	Time for a drink...course wrap-up and celebration!	Grant Presentations [Date/Time TBD]
Finals Week			Final Grant [Date/Time TBD]