

## PSYC 319-01/ PSYC 619-01 Neuroethics

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Spring 2015, TTh 2:30 – 3:52  
Location: BIOL 221

Office hours: Monday 12:00 – 1:00, Wednesday 2:00 – 3:00, or by appointment

### DESCRIPTION

Neuroethics is an interdisciplinary field concerned with the ethical and societal consequences of neuroscience research and neuroscience-based technologies, as well as with their implications for the more philosophical questions of human nature, personal identity, and moral responsibility.

Neuroscience is already impacting, and has the potential to transform, many aspects of our lives, from health care and education, through our legal and political systems, to entertainment, shopping, and dating. And this trend is only likely to accelerate in the future.

In this seminar, we will critically examine some of the major questions and issues in Neuroethics today—from cognitive enhancement and memory manipulations, through genetic testing and “brain reading,” to the use of neuroscience in the court of law. We will also discuss issues related to the ethical conduct of human-subject and animal research. We will draw on a variety of sources, including scientific literature (both original research and reviews), but also fiction, film, and news stories. The seminar will center around critical, in-depth readings of the sources, and it will consist of open-ended class discussion, writing assignments, and presentations.

### GOALS OF THE COURSE

By the end of the course, you will be able to:

1. Explain, and critically reflect on, the major questions, issues, and debates in Neuroethics.
2. Identify and explain the basic neuroscience and/or psychological knowledge of relevance to a given question, issue, or debate in Neuroethics, as currently understood.
3. Construct and evaluate arguments *for* and *against* a specific view on a major question or issue in Neuroethics, based on logic, scientific evidence, and/or precedents in bioethics or philosophy.
4. Distinguish between the primarily *practical/pragmatic* and primarily *philosophical* aspects of a major question or issue in Neuroethics.
5. Utilize writing as a process and as an aid in your critical thinking about Neuroethics, and develop your skills in college-level science writing.
6. Improve your skills in critical reading, presentation, and discussion of scientific literature on the topic of Neuroethics.
7. Develop an appreciation of the growing role of Neuroethics in the modern society.

## CLASS MATERIALS

Our primary text for the course will be *Neuroethics: An Introduction With Readings* by Martha J. Farah, published by the MIT Press, 2010. All other course materials, including the syllabus and assigned readings, will be available on Moodle. Lecture slides may be posted on Moodle *after the session*. I encourage you to take your own notes, both of what we do in class and of the assigned readings, since thoughtful note-taking will help you get the most out of the course.

## EXPECTATIONS FOR ACADEMIC ENGAGEMENT

Courses at Bucknell University have a minimum expectation of 12 hours per week of student academic engagement (including work inside and outside of class). Thus, for this 3-hour class, the expectation is that you will work a minimum of 9 hours per week outside of class.

## GRADING

Your performance in the course will be evaluated using letter grades defined as follows:

A: Superior achievement; B: High pass; C: Pass; D: Low Pass; F: Failing work

Your final grade will be based on the percentage of points you earn from the total of 300 points.

Assignment	Count	Points each	Total points (%)
Reports On Individual Reading ( <i>Before Session</i> )	10 (12 but drop/miss 2)	3	30 (10%)
Reflections After Class Discussion ( <i>After Session</i> )	10 (12 but drop/miss 2)	3	30 (10%)
Final Essay or Portfolio	1	40	40 (13.3%)
Group Presentations	2	50	100 (33.3%)
Individual Presentation	1	40	40 (13.3%)
Class Participation	n/a	n/a	40 (13.3%)
Professionalism	n/a	n/a	20 (3.3%)

Final grades will be based on an absolute grading scale:

A = 94 - 100%	B+ = 87 - 89.9%	C+ = 77 - 79.9%	D+ = 67 - 69.9%
A- = 90 - 93.9%	B = 84 - 86.9%	C = 74 - 76.9%	D = 64 - 66.9%
	B- = 80 - 83.9%	C- = 70 - 73.9%	D- = 60 - 63.9%
			F = 59.9% or less

### Reports On Individual Reading (*Before Session*) (3 points each; 30 points total)

Your success in the course depends in large part on keeping up with the assigned readings, reading them carefully and thoughtfully, and coming to class prepared to participate in discussion. To help you with these tasks, you will write and submit short written reports (which I will call “Before-Session Reports”) on the assigned readings *prior to that session*. The content and format of these reports will vary, but I will always give you a short list of questions or prompts to help you focus your critical thinking on the key issues at hand. Examples include: answering a specific question about the reading; identifying key neuroethical issues; describing your personal reaction to, or reflection on, the reading. I will look for evidence of your careful and thoughtful reading of the assigned text, and of your critical thinking on the issues.

*\*These “Before-Session Reports” will typically relate to the readings assigned for the Tuesday session, and they will be due by that Monday, 8pm. This is so I have time to read your answers and give you feedback on them. Late submissions will only be considered with a serious and documented excuse. (But keep in mind that you can miss or drop 2 out of 12 of these reports, no excuse necessary.)*

*\*\*You will post each report using the Journal feature on Moodle, under the topic specified by the instructor. These Journal entries will be visible only to you and the instructor (unlike the Discussion Forum posts). I ask that you email me when you add your Journal entry, to alert me that your entry is ready for my review and comments. It is in your interest to look at my comments before class, to help you better prepare for the upcoming discussion.*

### Reflections After Class Discussion (*After Session*) (3 points each; 30 points total)

To reflect on what you learned during class discussion, and how your understanding and appreciation of the given topic or issue changed as a result of participating in class discussion, you will also write and submit another type of short written reports: the “After-Session Reflections.” Here as well, the content and format of these reports will vary, but I will always give you one or more questions or prompts to help you focus your reflection.

- (1) In the first step, each student will post their own reaction to (or reflection on) the given discussion. These reaction/reflection posts should be thoughtful, original (i.e., reflecting your own thoughts and ideas), on topic, and accurate. Once you finalize your post, you will be able to see other students’ posts.
- (2) In the second step, each student will comment on another person’s post.

Naturally, you are welcome and encouraged to continue the conversation with your peers past these initial two posts. But I ask that the conversations on the forum stay focused on what we

discuss in the course and how it applies to your life. Use the forum to share your insights, find answers to your questions, and help you deepen your understanding of the material.

*\*You will post your “After-Session Reflections” using the Discussion Forum feature on Moodle, under the topic specified by the instructor.*

*\*\*These “After-Session Reflections” will typically be based on Tuesday class discussion. Your initial post will be due by that Wednesday, 8pm; and you will have until that Friday, 8pm to comment on another student’s post. Late submissions will only be considered with a serious and documented excuse. (But keep in mind that you can miss or drop 2 out of 12 of these reports.)*

*\*\*\*You may ONLY post about the discussion if you attended that session (e.g., you may NOT post about it if you missed that session).*

Please keep in mind that all the posts will be identified with the student’s name, and I may revisit them at the end of the semester, to help me determine the final grade that best reflects each student’s understanding of the material, engagement in the course, and progress towards the learning goals. *So please treat each post as seriously as you would a short writing assignment—and keep in mind that not only I (the instructor), but also all your peers, will read it.*

#### Final Essay or Portfolio (40 points)

In lieu of a cumulative final exam, each student will have a choice of submitting either *a final essay* (on a topic agreed on between the student and the instructor beforehand), or *a portfolio of shorter writing* (based primarily on the writing done in class, but elaborated and polished to reflect the overall understanding of the material at the end of the semester). We will discuss the format of this final, cumulative writing assignment later in the semester.

#### Group Presentation (50 pts each; 100 points total)

To help you improve your oral communication skills and your ability to work as part of a team, you will participate in two group presentations, on two different topics in Neuroethics. Each group will typically include 3 students. The group presentations will fall on Thursdays and the dates can be found in the schedule.

Each presentation will focus on *one peer-reviewed scientific paper* on current psychological or neuroscience research which raises, or informs, one or more major neuroethical questions, issues, or debates. Each group will be responsible for finding 2-3 candidate papers and sharing them with me at least 1 week (and preferably sooner) prior to their scheduled presentation. I have to approve a paper before your group can present it in class. Overall, your task will be to teach the class about this research and its neuroethical implications, as well as to lead a class discussion on this topic, rather than simply to give a presentation.

Once I approve the paper, you and your group members will be expected to meet several times in preparation for your group presentation. In order to be prepared, you should: (1) thoroughly read the paper on your own and write down things that you don't understand; (2) meet with your group and thoroughly discuss the paper down to the last detail, plan your presentation and the subsequent class discussion that you will lead, and divide up your responsibilities; (3) make an appointment to meet with me to discuss the paper and your teaching plan for that session; (4) meet at least once more with your group to polish the presentation and finalize your discussion questions and prompts for the class. You should plan to teach for approximately one hour.

On the presentation day, you and your group will: (1) explain the research reported in the article you chose (including the rationale/question/hypothesis, main methods, main results, and main limitations); (2) introduce the major neuroethical issues, questions, or debates that the research raises or informs; and (3) lead an in-depth class discussion of the research and its neuroethical implications. *Again, the goal is for your group to teach the class about this research and its neuroethical implications, rather than simply to give a presentation.*

#### Individual Presentation (40 points)

You will also give an individual presentation on a topic of your choosing within Neuroethics. These presentations will be approximately 10 minutes in length, and they will serve to broaden our discussion of Neuroethics to other topics in the field (other than the five major topics in the schedule). The individual presentations will happen during the last few weeks of the semester.

Each student will be responsible for: (1) finding *a primary text* to share with the class, and clearly formulating the neuroethical question or issue involved (this will take some reflection); (2) meeting with me to discuss it at least once; (3) presenting to the class; and (4) generating 3-4 questions or prompts to lead the subsequent class discussion. In this case, the primary text can, but does not have to be, an original research paper from neuroscience, psychology, genetics, pharmacology, or any other field of relevance to Neuroethics; it can be a news article or a press release about a new neuroscience-based technology; it can be a legal case or a court ruling; or it can be a short work of fiction. If you find another type of primary text that you are really passionate about it, I am open to that as well. (Hint: Ever read the terms of agreement of the apps, websites, and services you use? Some are s great material for neuroethical discussion!) So I encourage you to be thoughtful—but also creative. I will give you flexibility to decide. But I still have to approve it before you present it to the class. The only criteria are: (1) that it raises a neuroethical question or issue other than the issues and questions that we already discussed in the course; and (2) that it has enough depth or “meat” to stimulate discussion and to add to our understanding and appreciation of the field.

*\*I encourage you to keep your eyes open for potential Other Topics as we investigate and discuss the major five topics listed in the syllabus. And if you find a topic like that, and a potential text to share and present, let's meet to discuss it—and if I approve it, I will “reserve” this topic for you, and ask other students to look for different topics, to avoid repetition.*

### Class Participation (40 points)

This course will be run as an advanced seminar, and your participation in class discussion during each session is essential to your learning and to your success in the course. In other words, *it is really in your interest to stay as engaged in the course as you can*, including actively participating in all class discussions that we will have. Your participation and engagement in the course will directly affect how much you learn, how deep and long-lasting your learning will be, and how well you will be able to apply the new knowledge and skills to enrich your academic, professional, and personal life beyond this course. Think of it as taking charge of your own learning. I can create opportunities for you to learn; I can guide you in your inquiry; and I can explain things that you find challenging along the way. But *you* are the learner. And it is really up to you how much you learn in the course (although I will do my best to give you plenty of opportunities to learn a great deal).

*\*I will keep track of each student's participation in the course on a session-by-session basis, and I will give you feedback on your performance.*

### Professionalism (20 points)

The best learning occurs in *an environment of shared interests, broad participation, and mutual respect*. I assume you are taking the course because you are enthused about the material and interested in learning as much as possible. Therefore, you begin the semester with 20 points in this category. You are expected to come to every class, to thoughtfully read the assigned texts, and to actively participate in class activities and discussions. You will lose points for behavior that is either distracting (e.g., conversations not related to class, checking your phone), disrespectful (e.g., criticizing a person instead of the argument they are making), or otherwise non-engaged (e.g., sleeping, texting, surfing, checking facebook, etc.).

### TENTATIVE SCHEDULE

*\*You will be alerted to any changes in the schedule, and the up-to-date version of the syllabus (with the date it was updated) will be available on Moodle.*

	Date	Topic	Reading Due	Writing Due
Week 1	1/15 Th	Introduction	Syllabus Farah 2004 Moreno 2003	Student Info Sheet
Week 2	1/20 T	Ethics of Neuroscience Research	On Moodle	
	1/22 Th	Review of Basic Neuroscience and Genetics	On Moodle	
Week 3	1/27 T	Topic 1: Enhancement	Farah 1: Overview Farah 2: Better Brains	Before & after reports 1
	1/29 Th	Enhancement – cont'd	On Moodle	Grp 1 Presentation
Week 4	2/3 T	Enhancement – cont'd	On Moodle	Before & after reports 2
	2/5 Th	Enhancement – cont'd	On Moodle	Grp 2 Presentation
Week 5	2/10 T	Topic 2: Memory Manipulations	Farah 3: Brain, Self, and Authenticity	Before & after reports 3
	2/12 Th	Memory Manipulations – cont'd	On Moodle	Grp 3 Presentation
Week 6	2/17 T	Memory Manipulations – cont'd	On Moodle	Before & after reports 4
	2/19 Th	Memory Manipulations – cont'd	On Moodle	Grp 4 Presentation
Week 7	2/24 T	Topic 3: Genetic Testing	On Moodle (TBD)	Before & after reports 5
	2/26 Th	Genetic Testing – cont'd	On Moodle	Grp 5 Presentation
Week 8	3/3 T	Genetic Testing – cont'd	On Moodle	Before & after reports 6

	3/5 Th	Genetic Testing – cont'd	On Moodle	Grp 1 Presentation
Week 9	3/10 T	Spring Recess		3/11 Midterm grades due
	3/12 Th	Spring Recess		
Week 10	3/17 T	Topic 4: Brain Reading	Farah 4: Brain Reading	Before & after reports 7
	3/19 Th	Brain Reading – cont'd	On Moodle	Grp 2 Presentation
Week 11	3/24 T	Brain Reading – cont'd	On Moodle	Before & after reports 8
	3/26 Th	Brain Reading – cont'd	On Moodle	Grp 3 Presentation
Week 12	3/31 T	Topic 5: Neuroscience in the Court	Farah 5: Neuroscience and Justice	Before & after reports 9
	4/2 Th	Neuroscience in the Court – cont'd	On Moodle	Grp 4 Presentation
Week 13	4/7 T	Neuroscience in the Court – cont'd	On Moodle	Before & after reports 10
	4/9 Th	Neuroscience in the Court – cont'd	On Moodle	Grp 5 Presentation
Week 14	4/14 T	Other Topics - TBD		Ind Presentations  Before & after reports 11
	4/16 Th	Other Topics - TBD		Ind Presentations
Week 15	4/21 T	Other Topics - TBD		Ind Presentations  Before & after reports 12



	4/23 Th	Other Topics - TBD		Ind Presentations
Weeks 16 - 17	4/28 T	Last Class: Review and Wrap-Up		
	4/30 Th – 5/7 Th	Reading and Final Exams		

### ACCOMMODATIONS

Any student who may need an accommodation based on the impact of a disability should contact me privately to discuss the specific needs. You should also contact Heather Fowler, Director of the Office of Accessibility Resources at [570-577-1188](tel:570-577-1188) or [hf007@bucknell.edu](mailto:hf007@bucknell.edu).

### LEARNING BEYOND THE CLASSROOM

One of the goals of liberal arts education is to help you develop an open, inquiring mind. Bucknell University offers a wealth of events that entertain, educate, and inspire. Some are listed below—but there are many more to be found and explored. So have fun—and keep learning!

- Departmental Seminar Series, e.g., Psychology Seminar Series, Neuroscience Seminars, Biology Seminar Series, Computer Science Seminars, Astronomy & Physics Seminars, etc. etc. (Search Bucknell website for current listings.)
- Bucknell Forum: <http://www.bucknell.edu/theforum>
- Film Screenings at The Campus Theater: <http://bufilm.blogs.bucknell.edu/>
- Weiss Center for the Performing Arts: [www.bucknell.edu/WeisCenter](http://www.bucknell.edu/WeisCenter)

And last but not least—don't forget the Fitness/Wellness Programs at Bucknell ([www.bucknell.edu/athletics/recreation-services/fitness-and-wellness-programs.html](http://www.bucknell.edu/athletics/recreation-services/fitness-and-wellness-programs.html)), as well as other opportunities for recreation and physical activity in the area.