

Neuroethics: Ethical and Societal Impacts of Neuroscience

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By appointment

Overview, Scope of Course:

Neuroscience (both alone, and as a so-called integrative convergent approach, with nano- geno- and cybersciences) forges new directions and capabilities in the ability to engineer materials and apply discoveries to the brain and mind at a rate and level of profundity that has been heretofore unprecedented. The use of these technologies as tools has allowed equivalently impressive progress in several other disciplines of research, as well as medicine, bioengineering, and even the daily conduct of society. Yet, while the undergirding maxim of any or all such progress might be construed as beneficial, the discovery and development and use(s) of new techniques, devices, information and knowledge could incur profound ethical, legal and social issues – both arising in the research itself, and stemming from misuse and/or purloined application of these technologies in ways that negatively impact science, medicine and society at-large.

This course begins with a view of how and why neuroscience has ‘evolved’ to become a dynamic force in both as a science and in society. As well, the course will depict how bioethics has become a critical dimension of any/all consideration of scientific advancement, particularly in light of modern scientific, research and medical ethics, and as a consequence of socio-political trends and influences. From this, the field – and practice – of neuroethics will be addressed and discussed, with relevance to the ways that progress in neuroscience compels and sustains both the issues and dilemmas that arise in and from neuroscientific and neurotechnological research and its applications, and the importance of acknowledging and addressing the ethical basis and resolutions of such issues. Next an overview of specific frontier areas of neuroscience and neurotechnology will be presented, with emphasis upon (a) the extent and scope of new knowledge and capability that such developments afford to impact the human condition, and (b) key ethical concerns that are incurred by such neuroscientific and neurotechnological progress. Finally, paradigms for neuroethical, legal, and social probity, safety and surety, and a putative “precautionary process” will be discussed.

Required Text:

Giordano J, Gordijn B. (eds.) *Scientific and Philosophical Perspectives in Neuroethics*. Cambridge: Cambridge University Press, 2010. (listed in readings' assignments as *SPPN*)

Recommended (Optional) Text:

Giordano J. (ed.) *Neurotechnology: Premises, Potential, and Problems*. Boca Raton: CRC Press, 2012. (listed in readings' assignments as *NT:PPP*, * = a supplemental reading)

Additional Readings:

Each week, readings in the core text(s) will be bolstered by additional material from the most contemporary literature, and/or "classic", seminal papers relevant to the topic at hand. These papers will be provided.

Additionally, students will be required to go to the peer-reviewed literature and/or public media and select works that present an issue in neuroscience that is germane to the neuroethical focus and discussion(s) of the particular class session.

Suggested Supplement(s):

Many of our hopes and fears are expressed in fiction, and current film has certainly been a venue to communicate our expectations and anticipations about the utopian and/or dystopian potentials of neuroscience and neurotechnology, and the ethical, legal and social manifestations of such future trajectories. In light of this, certain films will be suggested as "supplements" to the academic readings to foster insight – and discussion – about colloquial conceptualizations and apprehensions fostered by the advancing tide of neuroscientific advancement.

Course Requirements

1. Class contribution including regular participation in classroom discussion, inclusive of participation in open discourse addressing selected journal papers, and public media items/articles. (40%)

2. Final paper; (3000-3500 words fully referenced) upon a topic of students' choice that addresses and elucidates a particular aspect of neuroethics relative to the scope of the course, and/or students research/scholarly interests. The paper topic should be vetted and approved by the professor no later than the fourth week of class. The paper should be written in an accepted scholarly style (eg.- MLS, Vancouver or Chicago style), and should seek to synthesize and assimilate information gained throughout the course (lectures and readings) together with the students' unique individual interests and readings into a working knowledge, analysis, critique and/or review. (60%)

Publishing in the neuroethics' literature.

Those students who express interest in developing published work in neuroethics should regard the paper as a draft manuscript that can then be embellished through mentored collaboration (subsequent to the course) toward submission to the peer-reviewed international neuroethics literature, for consideration/review toward eventual publication. Students should discuss this option with the instructor early in the course.

Student evaluation and grading.

In the development of the graduate scholar there is no substitute for serious study through careful reading and reflection followed by confident attempts to put such understandings into action. This process is furthered by openness to self-examination, peer supervision, and supervision and mentoring by experienced faculty. Professors aid in this process by helping to direct reading, sharing their own insights, and providing supervision and mentorship

As a graduate student, you are junior colleague and professional, thus it is expected that you will make a substantive contribution to the learning dynamic of the class through inquiry and participation in discussion and engagement in Socratic discourse.

Class participation will be evaluated by your regular, substantive effort to conjoin well-developed thought(s), ideas and questions to the class discussion. Grading of the final paper will be based upon content and depth of material, thoroughness of reference citation, and completeness of thought and idea(s).

Overall grading scale for the course is:

: A+: 96-100 A: 90-95
 B+: 87-89 B: 83-86 B-: 80-82
 A grade less than B- constitutes a failing grade.

Office hours.

I will generally be available for office hours during the hour prior, and after class. However, I will make every effort to accommodate other meeting times as possible in light of my other academic commitments. To afford maximum time and attention, it is best that office appointments should be scheduled in advance since I may not always be in the office if I have no scheduled appointments. I am always willing to speak with students on an impromptu basis about course information, or any/all issues related to scholarly activities. I am also happy to schedule an appointment if my scheduled hours, or other times available would be difficult for you to attend, or if you have an issue or concern that is in need of more immediate attention. Generally it is best to try and reach me via email at jg353@georgetown.edu to schedule an appointment.

Tentative Class Schedule

WEEK

TOPIC

- 1 Introduction. Overview of ethics: Historicity of “neuro-bioethics”
“Why neuroethics – why now?”
- 2 The historicity of neuroscience and technology
Rdg: Ch. 2 (SPPN)
- 3 The discipline and practice(s) of neuroethics: Two “traditions” in reciprocity. What makes “neuro” important?
“Doing neuroethics”: From a neuroscience of ethics, to addressing the ethics of neuroscience – the *HISTORY* method.
Rdg: Preface; Introduction: “*Neuroethics- Coming of age...*” (SPPN)
Giordano. *AJOB-Neurosci* 2011
Giordano. *Hum Prospect* 2011, 2014
- 4 The neural basis of morality: Can we handle what we may learn?
Rdgs: Ch 6, 7. (SPPN)
Giordano, *Oxford Medical School Gazette*, 2014.
- 5 The uses and utility of neurotechnology: Potential and problematic
Rdg: Ch. 1 (SPPN)
Ch. 1, 2 (NT:PPP)*
- 6 Neuroimaging: Capabilities, limits and issues
Rdg: Ch. 11, 12 (SPPN)
Ch.4 (NT:PPP)*
Giordano, *AJOB-Neurosci* (2012)
- 7 Interventional techniques and technologies: Possibilities, expectations and anxieties
Rdg: Ch. 9, 10.(SPPN)

Ch. 11 (*NT:PPP*)*

Film: *Gattica* and/or *Terminal Man*
Selected journal article to discuss.

- 8 Neuroscience and technology in national security, defense and international relations; Whence neuroweapons?
Rdg: Wurzman, Giordano. *Synesis*, 2011 2: S44-65.
Giordano, Kulkarni, Farwell. *Theoret Med Bioethics*, 2013.
Film: *Manchurian Candidate* and/or *Minority Report*
- 9 Future(s) of neurotechnology: Technological imperative(s), cyborgization and the prudential question of what we can vs should be done.
Rdg: Ch. 13, 14. (*SPPN*)
Ch. 10, 11, 12 (*NT:PPP*)*
Benedikter, Giordano, FitzGerald. *J. Futures*, 2010
Film: *Eternal Sunshine of the Spotless Mind*
Selected journal article to discuss
- 10 Questions and dilemmas: The mind/body “problem” and constructs of the self, and neurocentric criteria for moral regard of (non-human) others.
Rdg: Ch. 4, 5 (*SPPN*)
Loveless and Giordano. *Cambridge Q Healthcare Ethics*, 2014
Ch. 8, 13 (*NT:PPP*)*
Film: *Blade Runner* and/or *I Robot* and/or *Planet of the Apes* (2011 version)
- 11 Strivings to flourish: Treatment, enablement, enhancement and neurocentric constructs of ‘normality’ – Confronting neuro-ontologies and the lessons of history.
Rdg: Ch. 17. (*SPPN*)
Ch. 3, 5, 16 (*NT:PPP*)*
Films: *Limitless* or *Charly*

- 12 The neuroscience of pain and a neuroethics of pain care:
Medical and social dimensions
Rdg. Ch. 8 (*SPPN*)
 Giordano, Benedikter, Boswell. *Ethics, Biol Engineer
 Med* 2010.

Selected journal article to discuss.

- 13 Neuroscience as a public good: Pluralist concerns and a
need for “NELSI”
Rdgs: Ch. 15, 16, 18. (*SPPN*)
 Ch. 16, 18 (*NT:PPP*)*
 Giordano, Olds *AJOB-Neuroscience*, 2010.
 Giordano Benedikter. *J. Evol Technol.* 2012.
 Shook, Giordano. *Phil Ethics Hum Med* 2014
 Lanzilao et al. *Ethics Biol Engineer Med* 2014

Selected media item/article to address/discuss

- 14 Neuroethics as practice: Toward a stance of preparedness
and ethic of responsible action, and the process and role of
“Neuro-Policy”: Are rules sufficient?

Rdgs: Ch. 14, 15 (*NT:PPP*)
 Ch. 17 (*NT:PPP*)*

Selected media item/article to address/discuss

- 15 Open discussion and Q/A

FINAL PAPER DUE