

**Topics in Neuroethics (BC 3387)
Course Syllabus, Fall 2008**

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Course Meeting Fridays 11:00-12:50
Office Hours: By Appointment
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Course Description:

The current capability of neuroscience to monitor and alter brain function raises profound ethical considerations. The discipline of Neuroethics was founded in an attempt to explore these ethical issues. The field integrates theories, principles, and practices from neuroscience, philosophy, and ethics. Questions addressed include: What ethical considerations should be raised in the design and execution of neuroscientific investigations? What are the moral and/or ethical arguments *for* and *against* neurotechnological advances? What are the social consequences of neuroscientific investigations, manipulations, and interventions? How is our sense of ourselves as human beings affected by discoveries and manipulations of the brain?

This course will review the ethical dilemmas arising from the most currently debated topics relevant to the brain, cognition, and behavior. Topics to be discussed include: Decision Making Capacity and Informed Consent, Brain Death and Consciousness, Pharmacological Enhancement, Neuroimaging and the Right to Privacy, Psychosurgery, Brain Function and Individual Responsibility, Neurotransplantation, and Defining Ourselves. Relevant bioethical and philosophical principles will be applied to each issue allowing students to acquire and develop skill in ethical analysis. In addition, relevant neuroanatomy, neurophysiology, and neurotechnologies will be reviewed.

Readings:

Links to articles will be posted on courseworks. Additional readings will be distributed in class.

Course Requirements:

Presentation and Reading Assignments

Students will be expected to read all articles and book chapters listed on the syllabus prior to our weekly meetings, and to write a brief "reaction paper" when requested. Each student should come to class prepared to discuss the readings. Two or three students will serve as discussion leaders each week. The presenters will read all assigned readings, as well as additional articles which will add more depth to the discussion. Presenters will meet with the instructor one week prior to the presentation to review the supplemental readings. Presenters are not required to submit a reaction paper the week of their presentation.

Presentations should be more than a summary of the reading assignment. You should raise interesting discussion questions, integrate ideas from your classmate's papers and outline an ethical debate presenting all sides of the argument. We will practice this skill in class.

STUDENT PRESENTATIONS WILL BEGIN ON SEPTEMBER 26

Reaction Papers

Reaction papers should be very brief, no more than three pages. There are two objectives. The primary objective is to develop skills in formulating an ethical defense. Ask yourself, what *should* be done, and *why*? Be careful to avoid stating “feelings.” Instead support your defense based in principles of ethical theory and practice. Second, you may have questions regarding methodology/scientific approach or clarification on theoretical perspectives. Briefly list these questions following your ethical analysis. The presenters should read all papers prior to the presentation.

Class Participation

This class will be taught in seminar format. Student participation is a key factor in nurturing an enriching learning environment. It is expected that all students will contribute to each week’s discussion. You will be evaluated on the quality of your contributions. Evaluations of class participation will be based on the following:

- Has the student demonstrated knowledge of the reading assignments?
- Has the student provided new insight which builds on information in the readings?
- Is the student a good listener, addressing and integrating comments from classmates?
- Are the student’s comments relevant, on track and non-tangential?
- Does the student limit stating personal feelings, and instead offer theory and principle as components of her defense.

Final Paper

The field of bioethics is enhanced by empirically based evidence. For example, how might we test whether or not cognitive enhancement medications have the potential to widen gaps between socioeconomic classes? And, could the outcome lend greater support for or against the ethical use or misuse of medications like Ritalin? Over the course of the semester we will review several topics which may suggest an empirical investigation for the purposes of contributing and advancing the ethical argument. Each student is required to write a paper relevant to an issue discussed in class. This paper should be written in a format consistent with the guidelines set out in the Publication Manual of the American Psychological Association. Detailed information on this assignment will be provided later in the course.

You must submit a written summary of a paper proposal no later than **Friday, October 31**. No final paper will be accepted unless it has been proposed and approved.

All final papers are due on the final examination date which should be posted shortly. No late papers will be accepted.

Attendance

One unexcused absence is allowed during the semester. Please email me before the missed class. Each additional absence will be penalized by a reduction of 1 letter in your final grade if you cannot provide a Dean’s or medical excuse. Lateness, more than 15 minutes, or failure to turn in a reaction paper by the designated time will be counted as an absence. No excuses will be accepted.

If you anticipate missing several classes due to Religious Observance, you must carefully consider the consequences of missing more than one class. Unfortunately due to the nature of the course, it is impossible to offer make-up sessions and you will miss a considerable amount of information each week.

Final Grades

Your final average will be calculated as follows:

Reaction Papers	20%
Participation	20%
Final Paper	60%

DISCUSSION TOPICS AND READINGS

SEPTEMBER 5

WELCOME TO THE COURSE!

SEPTEMBER 12

INTRODUCTION TO NEUROETHICS

Buller, T. (2006). What can neuroscience contribute to ethics? *Journal of Medical Ethics* 32:63-64.

Cheshire, W.P. (2006). Neuroscience, nuance, and neuroethics. *Ethics & Medicine* 22 (2):71-73.

Farah, M. (2002). Emerging ethical issues in neuroscience. *Nature Neuroscience* 5(11):1123-1129.

Farah, M. (2005). Neuroethics: the practical and the philosophical. *TRENDS in Cognitive Sciences* 9(1):34-40.

The Future of Mind Control and Open Your Mind. *The Economist* May 23, 2002.

Glannon, W. (2006). Neuroethics. *Bioethics* 20(1):37-52.

Illes, J. & Bird, S.J. (2006). Neuroethics: a modern context for ethics in neuroscience. Article in press. *TRENDS in Neurosciences*.

Illes, J. & Raffin, T. (2002). Neuroethics: An emerging new discipline in the study of brain and cognition. *Brain and Cognition* 50:341-344.

Roskies, A. (2002). Neuroethics for the new millennium. *Neuron* 35:21-23.

SEPTEMBER 19

FOUNDATIONS OF ETHICAL ANALYSIS

Beauchamp, T & Childress, J. (2001). Chapters 1 and 9 in Principles of Biomedical Ethics. New York: Oxford University Press.

Diller, L.H. (1996). The run on ritalin: attention deficit disorder and stimulant treatment in the 1990s. *The Hastings Center Report* 26(2):12-18.

Manninen, B.A. (2006). Medicating the mind: a Kantian analysis of overprescribing psychoactive drugs. *Journal of Medical Ethics* 32:100-105.

SEPTEMBER 26

DECISION MAKING CAPACITY AND INFORMED CONSENT

Beauchamp, T.L. & Childress, J.F. (2001). Respect for Autonomy. In Principles of Biomedical Ethics (pp.57-111). New York: Oxford University Press, Inc.

Cappon, A.M. (1999). Ethical and human rights issues in research on mental disorders that may affect decision-making capacity. *The New England Journal of Medicine* 340:1430-1434.

Jonas, Hans (1969). Philosophical reflections on experimenting with human subjects. *Daedalus* 98(2):219-247.

Michaels, R. (1999). Are research ethics bad for our mental health? *The New England Journal of Medicine* 340:1427-1430.

Miller, F.G. & Fins, J.J. (2006). Protecting human subjects in brain research: A pragmatic perspective. In Illes, J. (Ed.), Neuroethics: Defining the Issues in Theory, Practice and Policy (pp. 123-140). New York, New York: Oxford University Press.

Northoff, G. (2006). Neuroscience of decision making and informed consent: an investigation in neuroethics. *Journal of Medical Ethics* 32:70-73.

Schneider, P.L. & Bramstedt, K.A. (2006). When psychiatry and bioethics disagree about patient decision making capacity (DMC). *Journal of Medical Ethics* 32:90-93.

OCTOBER 3

BRAIN DEATH AND CONSCIOUSNESS

Bernat, J.L. (1998). A Defense of the Whole-Brain Concept of Death. *The Hastings Center Report* 28(2):14-23.

Bernat, J.L. (1992). How much of the brain must die in brain death? *Journal of Clinical Ethics* 3(1):21-26.

Bernat, J.L. (2002)). The biophilosophical basis of whole-brain death. *Social Philosophy and Policy* 19(2):324-342.

Fins, J.J. (2005). Rethinking disorders of consciousness: New research and its implications. *The Hastings Center Report* Mar-Apr; 35(2):22-4.

Fins, J.J. (2006). Shades of Gray: New Insights into the Vegetative State. *Hastings Center Report*.

Laureys, S. (2005). Death, unconsciousness, and the brain. *Nature Reviews/ Neuroscience* 6:899-909.

Laureys, S., Owen, A., & Schiff, N. (2004). Brain function in coma, vegetative state, and related disorders. *The Lancet Neurology* 3:537-546

Owen, A.M., Coleman, M.R., Boly, M., Davis, M.H., Laureys, S. & Pickard (2006). Detecting Awareness in the Vegetative State. *Science* 313:1402.

Troug, R.D. (1997). Is it time to abandon brain death? *Hastings Center Report* 27(1): 29-37.

OCTOBER 10-NO CLASS MEETING

OCTOBER 17

PHARMACOLOGICAL ENHANCEMENT

Memory and Attention Enhancement

Farah, M., Illes, J., Cook-Deegan, R., Gardner, H., Kandel, E., King, P., Parens, E., Sahakian, B., & Wolpe, P. (2004). Neurocognitive enhancement: what can we do and what should we do? *Nature Reviews/Neuroscience* Vol 5: 421-425.

Glannon, W. (2006). Psychopharmacology and Memory. *Journal of Medical Ethics* 32:74-78.

Hall, S.S. (2003). The quest for a smart pill. *Scientific American* 54-65.

Parens, E. (1998). Is better always good? The enhancement project. *Hastings Center Report* 28(1):S1-S15.

Rose, S. (2002). Smart Drugs, do the work? Are they ethical? Will they be legal? *Nature Reviews/Neuroscience* (3): 975-979.

Whitehouse, P.J. (1997). Enhancing cognition in the intellectually intact. *The Hastings Center Report*, May-June; 27(3):14-22.

Wolpe, P.R. (2002). Treatment, enhancement, and the ethics of neurotherapeutics. *Brain and Cognition* 50:387-395.

Wolpe, P.R. (2002). Treatment, Enhancement, and the ethics of neurotherapeutics. *Brain and Cognition* 50:387-395.

Mood Enhancement/Cosmetic Psychopharmacology

Bjorkland, P. (2005). Can there be a 'cosmetic' psychopharmacology? Prozac unplugged: the search for an ontologically distinct cosmetic psychopharmacology. *Nursing Philosophy* 6:131-143.

Chatterjee, A. (2006). The promise and predicament of cosmetic neurology. *Journal of Medical Ethics* 32:110-113.

DeGrazia, D. (2000). Prozac, enhancement, and self-creation. *The Hastings Center Report* Mar/Apr; 30(2):7-12.

Elliott, C. (2000). Pursued by happiness and beaten senseless: prozac and the American dream. *The Hastings Center Report* Mar/Apr; 30(2):34-40.

Kramer, P.D. (2000). The valorization of sadness: alienation and the melancholic temperament. *The Hastings Center Report* Mar/Apr; 30(2):13-18.

OCTOBER 24

NEUROIMAGING AND THE RIGHT TO PRIVACY

Canli, T. & Amin, Z. (2002). Neuroimaging of emotion and personality: Scientific evidence and ethical considerations. *Brain and Cognition* 50:414-431.

Gazzaniga, M. (2006). Antisocial thoughts and the right to privacy. The Ethical Brain (pp.103-119). New York: Harper Perennial.

Gazzaniga, M. (2006). My brain made me do it. The Ethical Brain (pp.87-102). New York: Harper Perennial.

Hart, A., Whalen, P., McInerney, S., Fischer, H., & Rauch, S. (2000). Differential response in the human amygdale to racial outgroup versus ingroup face stimuli. *Neuroreport* 11: 2351-2355.

Hinton, V. (2002). Ethics of neuroimaging in pediatric development. *Brain and Cognition* 50(3):455-468.

Illes, J., Kirschen, M.P., & Gabrieli, J.D.E. (2003). From neuroimaging to neuroethics. *Nature/Neuroscience* 6(3):205.

Illes, J., Racine, E., & Kirschen, M. (2006). A picture is worth 1000 words, but which 1000: In Illes, J. (Ed.), Neuroethics: Defining the Issues in Theory, Practice and Policy (pp. 149-168). New York, New York: Oxford University Press.

Kulynych, J. (2002). Legal and ethical issues in neuroimaging research: human subjects protection, medical privacy, and the public communication of research results. *Brain and Cognition* 50: 347-357.

Phelps, E., O'Connor, K.J., Cunningham, W.A., Funayama, E.S., Gatenby, J.C., Gore, J.C., & Banaji, M.R. (2000). Performance on indirect measures of race evaluation predicts amygdale activation. *Journal of Cognitive Neuroscience* 12(5):729-738.

Raine, A., Meloy, J.R., Bihrl, S., Stoddard, J., LaCasse, L., & Buchsbaum, M.S. (1998). Reduced prefrontal and increased subcortical brain functioning assessed using positron emission tomography in predatory and affective murderers. *Behavioral Science and Law* 16: 319-332.

OCTOBER 31

PSYCHOSURGERY

Dougherty, D., Baer, L., Cosgrove, G., Cassem, E., Price, B., Nierenberg, A., Jenike, M., & Rauch, S. (2002). Prospective long-term follow-up of 44 patients who received cingulotomy for treatment-refractory obsessive-compulsive disorder. *The American Journal of Psychiatry* 159(2):269-275.

Feldman, R.P., Alterman, R.L., & Goodrich, J.T.(2001). Contemporary psychosurgery and a look to the future. *Journal of Neurosurgery* 95:944-956.

Feldman, R.P. & Goodrich, J.T. (2001). Psychosurgery: a historical overview. *Neurosurgery* 48(3):647-659.

Fins, J.J. (2003). From psychosurgery to neuromodulation and palliation: history lessons for the ethical conduct and regulation of neuropsychiatric research. *Neurosurgery Clinics of North America* 14(2):303-319.

George, M.S. (2003). Stimulating the brain. *Scientific American* 289(3):66-73.

Greenberg, B. & Rezi, A. (2003). Mechanisms and the current state of deep brain stimulation in neuropsychiatry. *CNS Spectrums* 8(7):522-526.

Hundert, EM. (1994) Autonomy, informed consent and psychosurgery. *Journal of clinical ethics* 5(3):264-6.

Jansson, B. (2004). Controversial psychosurgery resulted in a nobel prize. Website: <http://nobelprize.org/medicine/articles/moniz/index.html>.

Mahli, G. & Bartlett, J. (2000). Depression: a role for neurosurgery? *British Journal of Neurosurgery* 14(5): 415-423.

Mahli, G.S. & Sachdev, P. (2002). Novel physical treatments for the management of neuropsychiatric disorders. *Journal of Psychosomatic Research* 53:709-719.

Moniz, E. (1937). Prefrontal leucotomy in the treatment of mental disorders. *American Journal of Psychiatry* 15:6, June 1994 Sesquicentennial Supplement.

Moran, M. (2004). Psychosurgery evolves into new neurosurgery approaches. *Psychiatric News* 39(1):28-32.

Paus, T & Barrett, J. (2004). Transcranial magnetic stimulation (TMS) of the human frontal cortex: implications for repetitive TMS treatment of depression. *Journal of Psychiatry and Neuroscience* 29(4):268-279.

Persaud, R., Crossley, D., & Freeman, C. (2003). Should neurosurgery for mental disorder be allowed to die out? *British Journal of Psychiatry* 183:195-196.

Swayze, V. (1995). Frontal leucotomy and related psychosurgical procedures in the era before anti-psychotics (1935-1954): a historical overview. *The American Journal of Psychiatry* 152 (4):505-515.

NOVEMBER 7

BRAIN FUNCTION AND INDIVIDUAL RESPONSIBILITY

Blair, R.J.R. (2004). The roles of orbital frontal cortex in the modulation of antisocial behavior. *Brain and Cognition* 55:198-208.

Brower, M.C. & Price, B.H. (2001). Neuropsychiatry of frontal lobe dysfunction in violent and criminal behavior: a critical review. *Journal of Neurology, Neurosurgery, and Psychiatry* 71:720-726.

Manes, F.M., Clark, L., Rogers, R., Antoun, N., Aitken, M., & Robbins, T. Decision-making processes following damage to the prefrontal cortex. *Brain* 125:624-639.

Rogers, R.D. & Robbins, T.W. (2001). Investigating the neurocognitive deficits associated with chronic drug misuse. *Current Opinion in Neurobiology* 11:250-257.

Teicher, M.H., Anderson, S.L., Polcari, A., Anderson, C.M., Navalta, C.P. & Kim, D.M. (2003). The neurobiological consequences of early stress and childhood maltreatment. *Neuroscience and Biobehavioral Reviews* 27:33-44.

NOVEMBER 14

NEUROTRANSPLANTATION

Boer, G. (1999). Ethical issues in neurografting of human embryonic cells. *Theoretical Medicine and Bioethics* 20(5):461-75.

Freed, C.R., Greene, P.E., Breeze, R.E., Wei-Yann, T., DuMouchel, W., Kao, R., Dillon, S., Windfield, H., Culver, S., Trojanowski, J.Q., Eidelberg, D., & Fahn, S. (2001). Transplantation of embryonic dopamine neurons for severe parkinson's disease. *New England Journal of Medicine* 344 (10):710-719.

Gazzaniga, M. (2006). Conferring moral status on an embryo. *The Ethical Brain* (pp.3-18). New York: Harper Perennial.

Gillian, L. (1998). The 'more abortions' objection to fetal tissue transplantation. *Journal of Medicine and Philosophy* 23(4):411-427, 1998

Hauser, R.A., Freeman, T.B., Snow, B.J., Nauert, M., Gauger, L., Kordower, J.H. & Olanow, W. (1999). Long-term evaluation of bilateral fetal nigral transplantation in parkinson disease. *Archives of Neurology* 56:179-187.

Langston, J.W. (2005). The promise of stem cells in parkinson's disease. *The Journal of Clinical Investigation* 115(1):23-25.

Lanza, R.P., Caplan, A.L., Silver, L.M., Cibelli, J.B., West, M.D., & Green, R.M. (2000). The ethical validity of using nuclear transfer in human transplantation. *JAMA* 284(24):3175-3179.

Robertson, J.A. (1999). Ethics and policy in embryonic stem cell research. *Kennedy Institute of Ethics Journal* 9(2):109-36.

Weissman, I.L. (2002). Sounding board: Stem cells-scientific, medical, and political issues. *New England Journal of Medicine* 346(20):1576-1579.

NOVEMBER 21

WHAT IT MEANS TO BE HUMAN: DEFINING OURSELVES

Kass, L. (2003). Ageless bodies, happy souls: biotechnology and the pursuit of perfection. *The New Atlantis*, No. 1 Spring 2003; 9-28.

Sandel, M. (2004). The case against perfection: what's wrong with designer children, bionic athletes, and genetic engineering. *The Atlantic Monthly* 293(3):51-62.

NOVEMBER 28

THANKSGIVING HOLIDAY

DECEMBER 4

PAPER PRESENTATIONS

“A community of *critical friends* who can support, critique, challenge and hold each others’ thinking to the highest standards of rigor and creativity”

WELCOME TO THE COURSE!!!!!!

*This course is dedicated to the memory of Ms. Jayma Abdo.
Her committed, passionate ethical posture should serve as a model for us all.*