

# **Fundamentals of Neuroethics**

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Every Friday from July 17, 11:30am-1:00pm,  
Classroom: online

## **DESCRIPTION**

Recent advances in neuroscience have considerably improved our understanding of brain function. However, the study of the brain often intersects with ethical and public policy concerns. This course aims at presenting and discussing philosophical, societal and scientific perspectives on major bioethical issues pertinent to neuroscience research. Several subjects will be covered, including the effects of pharmacological and surgical interventions on the brain, therapy versus enhancement, brain imaging and mental privacy, neurobiology of decision-making, consciousness, personhood, sexual orientation, end-of-life management and death.

## **OBJECTIVES**

1. Identify key ethical issues in neuroscience research
2. Understand the possible controversies and arguments regarding students' research projects in neuroscience
3. Be conversant in the social implications of neuroscience research

## **GRADING**

Course grades will be based on three factors:

1. Reading, course attendance and participation (40%)
2. Leading a class discussion (20%)
3. Final ethical analysis paper (40%)

Students will be assigned a letter grade based on their performance in the class. Students are expected to complete all readings, engage in discussion at every class meeting and write a well argued and thoroughly researched paper.

## **CREDIT HOURS**

16 lecture hours (1 credit)

## **PREREQUISITES**

None.

## **FORMAT**

The course will consist of lectures and group discussions of topics covered in class and/or readings. Each class meeting will be of 1 hour and 30 min duration, except for the movie, which will be a two-hour session.

## **TOPICS**

## **1. Life-Span Neuroethics**

- Moral status of the embryo and path to conscious life
- Predicting developmental outcome
- The Aging Brain

## **2. Neuroscience & Law**

- Brain, Free will and decision-making
- Rational and moral thinking

## **3. Drugs in the brain: Therapy vs. Enhancement (2 lectures)**

- Shaping the brain with drugs
- Cognition enhancing drugs (learning and memory, attention, anti-psychotics, psychostimulants, steroids)
- Memory blunting and posttraumatic stress disorders
- Antidepressants as a way of life
- Ethics and social implications of brain enhancement

## **4. The concept of “personhood”**

- Personhood, person identity and the social brain
- Animal intelligence
- Brain imaging and mental privacy
- Consciousness, unconsciousness and death

## **5. Neurotechnology: engineering the brain**

- Ethics of neurosurgery
- Deep brain stimulation for movement disorders and depression
- Brain-computer interfaces
- Military applications

## **6. Sexual orientation**

- Dimensions of sexual orientation
- Sexual orientation in animals
- Sex hormones and the brain
- Sexual orientation and society

## **7. Film Class**

- Presentation of a movie about a neuroethical issue covered in class, followed by discussion of its scientific and ethical content.

## **READINGS**

### **Books**

MS Gazzaniga. *The ethical brain: the science of our moral dilemmas* Harper Perennial. 2006

*Neuroethics: anticipating the future* (J. Illes, S. Hossain eds.). New York, Oxford University Press. 2017