Introduction to Neuroethics

for the

Neuroethics Learning Collaborative
Goals for this class

1. Help you integrate course material into a coherent view of neuroethics
2. Suggest ways to learn more about neuroethics and get involved in the field
The lay of the land
The lay of the land

Classical bioethics:
• Safety of high-field MRI, TMS...
• Incidental findings in research MRI
• Neural stem cell research involving hESC
The lay of the land

Ethical, legal and social issues arising because the brain is the organ of the human mind

Classical bioethics:
• Safety of high-field MRI, TMS...
• Incidental findings in research MRI
• Neural stem cell research involving hESC
Neuroethics tree

- Neuroscience
  - Understanding
  - Technology
Neuroethics tree

- neuroscience
  - understanding
  - technology
    - monitor
    - manipulate
Neuroethics tree

- Understanding
- Technology
  - Monitor
  - Manipulate
    - Devices (TMS, DBS, tDCS, chips)
    - Drugs (e.g., cognitive, personality enhancement, regulation, CoI)
Neuroethics tree

- Understanding
- Technology
  - Monitor
    - Mental states
  - Manipulate
    - Devices
    - Drugs
      - TMS, DBS, tDCS, chips
      - E.g., cognitive, personality enhancement, regulation, CoI
Neuroethics tree

- Understanding
  - Neuroscience
  - Technology
    - Monitor
      - Mental states
        - e.g., neuro-marketing, lie detection
    - Manipulate
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      - Drugs
        - TMS, DBS, tDCS, chips
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Neuroethics tree

- **Understanding**
  - Neuroscience
    - Mental states (e.g., neuro-marketing, lie detection)

- **Technology**
  - Monitor
    - Brainotyping
  - Manipulate
    - Devices
      - TMS, DBS, chips (e.g., cognitive, personality enhancement, regulation, Col)
    - Drugs
Neuroethics tree

- **Understanding**
  - Neuroscience
    - Mental states
      - e.g., neuro-marketing, lie detection
    - Brainotyping
      - e.g., criminality, personality
  - Technology
    - Monitor
    - Manipulate
      - Drugs
      - Devices
        - TMS, DBS, chips
        - e.g., cognitive, personality enhancement, regulation, Col
Neuroethics tree

- **neuroscience**
  - understanding
  - borderline cases of personhood
  - mental states
    - e.g., neuro-marketing, lie detection
  - brainotyping
    - e.g., criminality, personality
- **technology**
  - monitor
  - manipulate
    - drugs
    - e.g., cognitive, personality enhancement, regulation, Col
    - devices
      - TMS, DBS, chips

**Additional notes**
- Drugs
  - e.g., cognitive, personality enhancement, regulation, CoI
  - TMS, DBS, chips
  - e.g., criminality, personality
- Mental states
  - e.g., neuro-marketing, lie detection
  - brainotyping
  - monitor
- Understanding
  - borderline cases of personhood
Neuroethics tree

neuroscience

understanding

borderline cases of personhood

e.g., immature and severely brain-damaged humans, non-human animals

technology

monitor

mental states

e.g., neuro-marketing, lie detection

brainotyping

e.g., criminality, personality

manipulate

drugs

devices

TMS, DBS, tDCS, chips

e.g., cognitive, personality enhancement, regulation, CoI

e.g., personality enhancement, regulation, CoI
Neuroethics tree

- **Understanding**
  - Core features of personhood: e.g., immature and severely brain-damaged humans, non-human animals
  - Borderline cases of personhood

- **Technology**
  - Monitor
    - Mental states: e.g., neuro-marketing, lie detection
  - Brainotyping
    - E.g., criminality, personality
  - Manipulate
    - Drugs
    - Devices: TMS, DBS, tDCS, chips
    - E.g., cognitive, personality enhancement, regulation, CoI
Neuroethics tree

neuroscience

understanding

core features of personhood

e.g., responsibility, morality, love, spirituality, a soul

borderline cases of personhood

e.g., immature and severely brain-damaged humans, non-human animals

technology

monitor

mental states

e.g., neuro-marketing, lie detection

brainotyping

e.g., criminality, personality

deVICES

TMS, tDCS

DBS, chips

drugs

e.g., cognitive, personality enhancement, regulation, CoI

manipulate

e.g., cognitive, personality enhancement, regulation, CoI

e.g., neuro-marketing, lie detection

e.g., immature and severely brain-damaged humans, non-human animals
Cross-cutting issues

[Safety]
Privacy
Freedom, autonomy
Premature adoption
Person-thing clash
Neuroethics tree

- **Understanding**
  - Core features of personhood: e.g., responsibility, morality, love, spirituality, a soul
  - Borderline cases of personhood: e.g., immature and severely brain-damaged humans, non-human animals

- **Technology**
  - Monitor
    - Mental states: e.g., neuro-marketing, lie detection
  - Brainotyping
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- **Neuroscience**
  - Core features of personhood
  - Borderline cases of personhood
  - Monitor
  - Brainotyping
  - Manipulate
What next?

How can you engage with neuroethics in the future?
and coming summer 2010... *Neuroethics: An Introduction with Readings*, MIT Press, M.J. Farah
Penn website
Join with like-minded students and professionals

http://www.neuroethicsociety.org

Next meeting to be held in conjunction with the Society for Neuroscience annual meeting, San Diego, CA. November 12th 2010