

Course: Neuroethics
Instructor: Brandon Ashby

1. Textbooks

Required:

Robert Sapolsky (2017) *Behave: The Biology of Humans at Our Best and Worst*, New York: Penguin Press.

You can find used copies online for a couple of bucks. It's been translated into a couple of other languages if English isn't your first language. Audible has an audiobook version for auditory learners. All other required reading will be made available as PDFs on the course website.

2. About the class

Neuroethics deals with the ethical issues that have emerged from our increased understanding of how the brain works, how to measure what's going on in subjects' brains at any given time, and how to modify neurological activity through chemical, surgical, and other means. This growing understanding is both exciting and terrifying in no small part because our brains are central to who we are, what we believe, and what we value.

For instance, subjects with frontotemporal dementia often become keenly interested in religion even if they were atheist or agnostic in their prior lives, yet they tend to find mainstream religion unsatisfying; instead, they revise existing religious beliefs or else invent brand new religions. These subjects can also acquire an obsession with music and learn to become expert (sometimes professional) musicians in only a few months; yet they may have had little to no interest in music and no musical training earlier in life (See Ch. 1 of Oliver Sack's *Musicophilia* for an accessible overview).

While the above is an example of changes to a person's beliefs, values, and talents as a result of illness, it, and other examples like it,¹ raises the possibility that we could *engineer* our beliefs, values, and talents. Are you unable to forgive yourself for things that were beyond your control? Are you haunted by memories of an abusive childhood? Do you no longer love your spouse, but wish that you still did? Maybe we can make you more assertive, forget your painful past, and rekindle your lost love. But there are terrifying counterparts of these possibilities as well. Do you want to feel less compassion for your victims as a contract killer? Would you like to force others to feel your pain by implanting your memories of an abusive childhood? Does your spouse no longer love you, but you want to force them to? Technology is a form of power that can be used for better or worse. But how do we navigate that balance when who we are hangs in the balance? This is one of the questions we will discuss in this class.

Other questions will concern "neurolaw". Can brain scans be used against you in a court of law? Or should they be protected by our fifth amendment rights not to self-incriminate? If we develop cognitive enhancing drugs. Would they only widen the gap between rich and poor? Or

¹ After having surgery to remove a brain tumor in 1962, Ulrika Meinhoff, who had been a journalist with no prior criminal record, went on to be a founding member of the Red Army Faction, which was responsible for several bank robberies and bombings, many of which she participated in. It was discovered after her death that scar tissue from the operation pressed on her amygdala, a key brain region involved in fear and aggression. Some people, including her two daughters, attributed her increasingly violent inclinations to the effects of that scar tissue (Alois Prinz, *Lieber wütend als Traurig*, 2003).

could they serve to level the playing field between the intellectual haves and have-nots? What about moral enhancement? If we can make everyone more ethical, should we? What about forcing someone to be more moral if they are convicted of a crime? If these sound like interesting questions, then you should take this class. No prior understanding of neuroscience or philosophy is required.

3. Assignments

- Micro-exams, worth 40% of your final grade.
- Essays, worth 50% of your final grade.
- Syllabus quiz, worth 2.5% of your final grade.
- Discussion forum questions, worth 7.5% of your final grade.

3.1 Micro-exams:

You will have a micro-exam every week. Micro-exams can cover any course material (lectures, readings, in-class discussions) presented in the last four weeks of the course. You will have two attempts to take each micro-exam. You will receive the highest score of your two attempts. I drop your two lowest micro-exam scores. Micro-exams will be worth 40% of your final grade. Micro-exams will be administered online via the course website. You will be able to see what questions you got wrong on a micro-exam, but you will not be told the answers to the questions.

3.2 Essays:

You will have three essays over the course of the term. Each will be 2500 words in length. You will have the option of submitting a draft of each paper before you submit it for a final grade. The essays are worth 50% of your final grade and are evenly weighted.

I do not drop any essay scores. However, if you are satisfied with the grade that you receive on your first two essays, then you have the option of applying your combined score on your first two essays to your third essay. In other words, do well-enough on your first two essays and you don't have to do the third. I do this to encourage you to work hard on your first two essays and polish them.

3.3 Syllabus quiz:

You will have a quiz on the syllabus and the structure of the course at the end of your first week of term. It is worth 2.5% of your final grade.

3.4 Discussion forum questions:

The class will be divided into two groups. You'll get your group number on the first day of class. For every reading, one of the two groups will be required to post or upvote three questions about that reading on the course website. Discussion forum questions will be worth 7.5% of your final grade. Your questions must be uploaded before 11:59PM the day before we discuss that reading in class. Your questions will be listed anonymously. Only I will be able to see your names attached to the questions. So, do not worry about asking "dumb" questions in front of the other students.

4. Course Schedule

Note: required assignments are red and underlined. Optional assignments are blue and italicized.

Week 1: Obligatory first week what-is-x stuff (where x = neuroethics)

- Roskies, A. (2002) 'Neuroethics for the new millennium', *Neuron*, 35(1): 21-23.

- Farah, M. & Wolpe, P. R. (2004) ‘Monitoring and Manipulating Brain Function: New Neuroscience Technologies and Their Ethical Implications’ *Hastings Center Report*, 34(3): 35-45.
- Buchanan, A. (2004) ‘Responsible biology’, *BioScience*, 54(4): 331-336.
- Chian, T. (2002) ‘Liking what you see: A documentary’ in T. Chiang (Au.) *Stories of Your Life and Others*. Orb Books. Pp. 237-274.
- [Micro-exam 1](#)
- [Syllabus quiz](#)

Weeks 2-3: The neuroscience, genetics, and socialization of human moral behavior. Or why do we often help strangers but sometimes commit genocide?

- Week 2: Chs. 2, 4, and 8 of Sapolsky, R. (2018) *Behave: The Biology of Humans at our Best and Worst*, Penguin. Pp. 21-80, 99-136, 223-265
- Recommended but optional: Appendices 1-3 of Sapolsky, R. (2018) *Behave: The Biology of Humans at our Best and Worst*, Penguin.
- [Micro-exam 2](#)
- Week 3: Chs. 9 and 11 of Sapolsky, R. (2018) *Behave: The Biology of Humans at our Best and Worst*, Penguin. Pp. 266-326, 387-424
- Recommended but optional: Ch 10. of Sapolsky, R. (2018) *Behave: The Biology of Humans at our Best and Worst*, Penguin. Pp. 327-386
- [Micro-exam 3](#)

Week 4: Is it better to be better? Enhancement, Part 1

- Sandel, M. (2004) “The case against perfection” *The Atlantic*, 1-10.
- Ch. 5 of Buchanan, A. (2011) *Better than Human: The Promise and Perils of Biomedical Enhancement*, Oxford: OUP. Pp. 102-132
- Greely, H., Sahakian, B., Harris, J. *et al.* ‘Towards responsible use of cognitive-enhancing drugs by the healthy.’ *Nature* **456**, 702–705 (2008).
- Cooper, P. (2009) ‘Education in the age of Ritalin’ in D. Rees & S. Rose (eds.) *The New Brain Sciences: Perils and Prospects*, Cambridge: Cambridge University Press. pp. 249-262.
- [Micro-exam 4](#)

Week 5: Trying on a new pair of genes: Genetic enhancements for a new generation?

- Steinbock, B. (2008) ‘Designer babies: choosing our children’s genes’, *The Lancet* 372(9646): 1294-1295
- Cooper, N. J., & Hampton, S. J. (2007) ‘Reproductive technology in the context of reproductive teleology’ *Bulletin of Science, Technology, and Society* 27(6): 498-505.
- Chs. 2 & 4 of Kittay, E. (2019) *Learning From my Daughter*, Oxford: OUP. Pp. 25-54 & 77-103
- Watch *Gattica* (1997)
- [Micro-exam 5](#)
- [Optional draft of first essay is due](#)

Week 6: When to be the bigger species: Moral enhancement

- Earp, B. D., Douglas, T., and Savulescu, J. (2017) ‘Moral neuroenhancement’ in L. S. M. Johnson and K. S. Rommelfanger (eds.) *The Routledge Handbook of Neuroethics*, London: Routledge.
- Focquaert, F., Schermer, M. (2015) ‘Moral enhancement: Do means matter morally?’, *Neuroethics*, 8(2): 139-151

- Person, I. and Savulescu, J. (2010) 'Moral transhumanism', *Journal of Medicine and Philosophy*, 35(6): 656-669.
- [Micro-exam 6](#)

Week 7: Do you ever feel like you're three pounds of electric meat? The brain and personal identity

- Jecker, N. S., & Ko, A. L. (2017) 'Is that the same person? Case studies in neurosurgery,' *AJOB Neuroscience*, 8(3): 160-170.
- Strohming, N., & Nichols, S. (2015) 'Neurodegeneration and identity', *Psychological Science*, 26(9): 1469-1479.
- Tobia, K. (2016) 'Personal identity, direction of change, and neuroethics', *Neuroethics*, 9(1): 37-43.
- [Micro-exam 7](#)
- [First essay is due](#)

Week 8: Just be yourself: Authenticity and enhancement

- Jebari, K. (2013) 'Brain machine interface and human enhancement – an ethical review' *Neuroethics* 6(3): 617-625.
- Kraemer, F. (2013) 'Me, myself, and my deep brain implant: deep brain implant raises questions of personal authenticity and alienation' *Neuroethics*, 6: 483-497.
- Kraemer, F. (2013) 'Authenticity or Autonomy? When deep brain simulation causes a dilemma,' *Journal of Medical Ethics*, 39(12): 757-760.
- [Micro-exam 8](#)

Week 9: Remember when?

- Erler, A. (2011) 'Does memory modification threaten our authenticity?' *Neuroethics*, 4(3): 235-49.
- Watch *Eternal Sunshine of the Spotless Mind* (2004)
- [Micro-exam 9](#)
- [Optional draft of second essay is due](#)

Week 10: Silent speech: Neuroimaging in coma, minimal consciousness, persistent vegetative state, and locked-in syndrome

- Watch *The Diving Bell and the Butterfly* (2007)
- David, F., & Truog, R. D., (2017) 'The problem with fixating on consciousness in disorders of consciousness'
- Abbott, M., & Peck, S. (2017) 'Emerging ethical issues related to the use of brain-computer interfaces for patients with total locked-in syndrome,' *Neuroethics*, 10(2): 235-242.
- [Micro-exam 9](#)

Week 11: Implicit Bias

- Kelly, D. and Roedert, E. (2008) 'Racial cognition and the ethics of implicit bias' *Philosophy Compass*, 3(3): 522-540.
- Greenwald, A.G., Banaji, M. R. (1995) 'Implicit social cognition: attitudes, self-esteem, and stereotypes' *Psychological Review*, 102(1): 4-27.
- Machery, E. and Faucher, L. (2005) 'Why do we think racially?' in H. Cohen and C. Lefebvre (eds.) *Handbook of Categorization in Cognitive Science*, Orlando, FL: Elsevier. Pp. 1010-1035.
- [Micro-exam 11](#)
- [Second essay is due](#)

Week 12: Addiction

- Chandra, S. (2018) 'Addiction and Fallibility', *Journal of Philosophy*, 115(11): 569-587.
- Farisco, M. Evers, K., & Changeux, J. P. (2018) 'Drug Addiction: From Neuroscience to Ethics' *Frontiers in Psychiatry*, 9: 595
- Sinnott-Armstrong, W. (2013) 'Are addicts responsible' in N. Levy (ed.), *Addiction and Self-Control: Perspectives from Philosophy, Psychology, and Neuroscience*, Oxford: OUP. Pp. 122-143.
- [Micro-exam 12](#)

Week 13: Transhumanism

- Bostron, N. (2005) 'Transhumanist values', *Journal of Philosophical Research*, 30(Supplement): 3-14.
- Bostrom, N. (2008) 'Why I want to be a posthuman when I grow up', B. Gordijn & R. Chadwich (eds.), *Medical Enhancement and Posthumanity*, Springer. Pp. 107-137
- Bradshaw, H. G. and Muelen, R. T. (2010) 'A Transhumanist Fault Line Around Disability: Morphological Freedom and the Obligation to Enhance', *Journal of Medicine and Philosophy*, 35(6): 670-684.
- Koch, T. (2010) 'Enhancing who? Enhancing what? Ethics, bioethics, and transhumanism', *Journal of Medicine and Philosophy*, 35(6): 685-699.
- [Micro-exam 13](#)
- [Optional draft of third essay is due](#)

Week 14: Can you imagine pleading the fifth? Neuroimaging and the law

- Green, J. D., Paxton, J. M. (2009) 'Patterns of neural activity associated with honest and dishonest moral decisions,' *PNAS*, 106(30): 12506-11.
- Committee on Science and the Law (2005) 'Are your thoughts your own: 'Neuroprivacy' and the legal implications of brain imaging': <https://www.nycbar.org/pdf/report/Neuroprivacy-revisions.pdf>
- Stoller, E., Wolpe, P. R. (2007) 'Emerging neurotechnologies for lie detection and the fifth amendment' *American Journal of Law and Medicine*, 33(2/3): 359-375.
- Sinnott-Armstrong, W., et al. (2008) 'Brain Imaging as legal evidence' *Episteme*, 5(3): 359-373.
- [Micro-exam 14](#)

Week 15: Curious George goes to the lab: Are primate studies ethical and can we understand human cognition without them?

- L. Syd M. Johnson, (2020) 'The trouble with animal models in brain research' in L Syd M. Johnson, A. Fenton, & A. Shriver (eds.), *Neuroethics and Nonhuman Animals (Advances in Neuroethics)*, Springer: 287-302.
- Robert C. Jones, (2020) 'Speciesism and human supremacy in animal neuroscience', in L Syd M. Johnson, A. Fenton, & A. Shriver (eds.), *Neuroethics and Nonhuman Animals (Advances in Neuroethics)*, Springer: 287-302.
- [Micro-exam 15](#)
- [Final essay is due](#)