

BSCS

Data of courses form

Lecturer's name: John Bickle

Position: Professor of Philosophy, Adjunct Professor of Psychology, Affiliated Faculty of Neurobiology and Anatomical Sciences

Organisation: Mississippi State University/University of Mississippi Medical Center

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Title of the course: Philosophy of Neuroscience

Detailed syllabus of the course, with topics addressed in each 90 minutes lecture (less than 2 pages):

Philosophy of Neuroscience

Budapest Semester in Cognitive Science (BSCS)

Fall 2019

90-minute lecture topics and readings

Lecture 1: Patricia Churchland's Neurophilosophy (1986)

An introduction to some of the themes that defined the philosophy of neuroscience from the field's origins

Readings: From Churchland, P.S., *Neurophilosophy* (Cambridge, MA: MIT Press, 1986), Preface and General Introduction; Chapter 5: Higher Functions: Neuropsychology and Neurology

Lecture 2: Patricia Churchland's Neurophilosophy (1986), continued

Continuation of the introduction to some of the theme that defined the philosophy of neuroscience since the field's origins

Readings: From Churchland, P.S., *Neurophilosophy*, chapter 6, Introduction and Historical Sketch, Philosophy of Science"; chapter 7, "Reduction and the Mind-Body Problem"; chapter 9, "Functional Psychology"

Lecture 3: Overview of the field since Neurophilosophy

The main themes that have dominated philosophical reflections in neuroscience since Churchland's Neurophilosophy

Reading: Bickel, J., Mandik, P. and Landreth, A., (2019 revision) "Philosophy of neuroscience." Stanford Encyclopedia of Philosophy, <https://plato.stanford.edu/entries/neuroscience/>

Lecture 4: Neuroscience and Reductionism

Is neuroscience reductionist?

"A Brief History of Neurosciences's Actual Influences on Mind-Brain Reductionism." In S. Gozzano and C. Hill (eds.), *New Perspectives on Type Identity Theory*. Cambridge: Cambridge University Press, 2012, 88-109.

Craver, C.F., *Explaining the Brain*, chapter 7 (New York: Oxford University Press)

Lecture 5: New Mechanism and Neuroscience, Part I

Initial characterization of the “new mechanist” philosophy of science and its application to neuroscience

Machamer, P.K., Darden, L., and Craver, C.F. [MDC] (2000). “Thinking about Mechanisms,” *Philosophy of Science*, 67: 1– 25.

Craver, C.F., *Explaining the Brain*, chapter 1. “Starting with neuroscience”; chapter 4, “The norms of mechanistic explanation”

Lecture 6: New Mechanism and Neuroscience, Part II

New mechanism becomes the dominant perspective in philosophy of neuroscience circa the second decade of the 21st century

Kaplan, D.M., and Craver, C.F. (2011). “The explanatory force of dynamical models,” *Philosophy of Science*, 78(4): 601– 627.

Piccinini, G., and Craver, C.F. (2011). “Integrating psychology and neuroscience: Functional analyses as mechanism sketches,” *Synthese*, 183(3): 283-311.

Silberstein, M. and Chemero, A. (2012). “Constraints on localization and decomposition as explanatory strategies in the biological sciences.” *Philosophy of Science* 80 (5): 958-970

Lecture 7: The rediscovery of experiment

Sullivan, J.

Sullivan, J. (2009). “The multiplicity of experimental protocols: A challenge to reductionist and non-reductionist models of the unity of neuroscience,” *Synthese* 167: 511-539.

Robins, S. (2016). “Optogenetics and the mechanisms of false memory,” *Synthese* 193: 1561-1583.

Bickle, J. (2016). “Revolutions in neuroscience: Tool development,” *Frontiers in Systems Neuroscience*, <https://doi.org/10.3389/fnsys.2016.00024>.

Lecture 8: Neuroethics, Neurolaw, and Neuroeconomics

Roskies, A. (2016). “Neuroethics[<https://plato.stanford.edu/archives/spr2016/entries/neuroethics/>]” *The Stanford Encyclopedia of Philosophy* (Spring 2016 edition), Edward N. Zalta (ed.),

“Brain Scans Go Legal” by Scott T. Grafton, Walter P. Sinnott-Armstrong, Suzanne I. Gazzaniga, and Michael S. Gazzaniga, *Scientific American Mind*, December 2006/January 2007, pp. 30-37.

“Neuromarketing: Ethical Implications of its Use and Potential Misuse”, by Steven Stanton, Walter Sinnott-Armstrong, and Scott Huettel, *Journal of Business Ethics* (2016), 1-13.

Individual Oral Examinations

Background information on the web (optional):

Short CV (less than half page):

John Bickle, Ph.D.

Current academic appointments:

Professor of Philosophy, Adjunct Professor of Psychology, Mississippi State University

Affiliate Faculty, Department of Neurobiology and Anatomical Sciences, University of Mississippi Medical Center

Previous academic appointment:

Head, Department of Philosophy and Religion, Mississippi State University (August 2009-June 2019)

Associate Professor, Professor (promoted Fall 2002), and Head, Department of Philosophy, University of Cincinnati (September 2000-August 2009)

Professor, Neuroscience Graduate Program, College of Medicine, University of Cincinnati (September 2000-August 2009)

Director, Undergraduate Program in Neuroscience, McMicken College of Arts and Sciences, University of Cincinnati (September 2008-August 2009).

Assistant Professor (Tenure-track), Associate Professor (tenured and promoted Fall 1998), Department of Philosophy, East Carolina University (August 1992-August 2000)

Assistant Professor, Associate Professor, Graduate Program in Neuroscience, Brody College of Medicine, East Carolina University (August 1997-August 2000)

Education

B.A. Philosophy and Psychobiology, University of California, Los Angeles (UCLA), awarded June 1983

M.A., Ph.D. Philosophy (concentration: philosophy of science, neuroscience), University of California, Irvine, M.A. awarded June 1985, Ph.D. June 1989

Important publications (5-10):

BOOKS (4)

2014

Engineering the Next Revolution in Neuroscience. (Co-authors: Alcino J. Silva and Anthony Landreth). Oxford University Press, 2014.

2006

Understanding Scientific Reasoning, 5th Ed. (co-authors Ronald Giere and Robert Mauldin). Thomson Publishing, 2006.

2003

Philosophy and Neuroscience: A Ruthlessly Reductive Approach. Dordrecht: Kluwer (now Springer) Academic Publishers, 2003.

1998

Psychoneural Reduction: The New Wave. Cambridge, MA: MIT Press/Bradford Books, 1998.

EDITED VOLUMES (1)

2009 (Paperback Ed. 2012)

Oxford Handbook of Philosophy and Neuroscience. New York: Oxford University Press, 2009. Paperback edition 2012.

Recent Papers (6)

“The Oxford bibliography of philosophy and neuroscience” (co-authored with Gualtiero Piccinini). New York: Oxford University Press, forthcoming 2019.

“Memory linking and creativity: The search for underlying molecular, cellular, and circuit mechanisms” (co-author Alcino J.Silva). Forthcoming in S. Nalbantian and P. Matthews (Eds.), *Secrets of Creativity: What Neuroscience, the Arts, and Our Minds Reveal*. New York: Oxford University Press, in press, forthcoming August 2019.

"Philosophy of Neuroscience" (update submitted January 2019; previous last updated March 2011) (co-author Peter Mandik and Anthony Landreth). In E. Zalta (ed.), *Stanford Encyclopedia of Philosophy*, <http://plato.stanford.edu/entries/neuroscience/>. Forthcoming 2019

2019

“Lessons for experimental philosophy from the rise and “fall” of neurophilosophy.” *Philosophical Psychology* 32 (1) (January 2019), 1-22, <https://doi.org/10.1080/09515089.2018.1512705>

2018

“Connection experiments in neurobiology” (co-author Aaron Kostko). *Synthese* 195 (12), (2018), 5271-5295, <https://doi.org/10.1007/s11229-018-1838-0>

“From microscopes to optogenetics: Ian Hacking vindicated.” *Philosophy of Science* 85/5: 1065-1077, 2018

Anything else (course requirements, readings list, etc):