



University calendar

Master' program "Mind and Brain"

Berlin School of Mind and Brain

Humboldt-Universität zu Berlin

Winter semester 2013/2014

Monday	Tuesday	Wednesday	Thursday	Friday
9:30 – 11:00 Neurophysiology and Neuroanatomy				
11:30 – 13:00 Cognitive Neuroscience	10:00 – 11:30 Decision- Making (B)			10:00 – 11:30 Tutorial: Neuroanatomy and Neurophysiology
	12:15 – 13:45 Theory and Practice of Radical Interpretation (M)		12:30 – 14:00 Visual Perception: How we perceive the world around us (B)	12:30 – 14:00 Tutorial: Philosophy of Mind
14:15 – 15:45 Philosophy of Mind	14:15 – 15:45 In German: Zur Geschichte des Seelenbegriffs (M)		14:30 – 16:00 Philosophy of Psychology: The Mind and the Brain (M)	14:30 – 16:00 Tutorial: Cognitive Neuroscience
Intention in Action and Communication (M)			16:30 – 18:00 Neurobiology of the Mind (B)	

Comprehensive Course Calendar

Mandatory Lectures:

Monday 9:30 – 11:00

start: 21.10.2013

Neurophysiology and Neuroanatomy

Prof. Dr. Arno Villringer (MPI Human Cognitive and Brain Sciences), Dr. Derek Ott (Institut für Diagnostik der Epilepsien) et. al.

Alte Nervenlinik, Bonhoefferweg 2 (Studenteneingang), Charité Campus Mitte, Seminarraum Ebene 3

The course provides a basic understanding of where (anatomy) in the brain what (physiology) happens. It is of particular value for those students whose background is mainly in a “mind” science such as linguistics or philosophy. Participating students will learn about the fundamental units of brain anatomy, such as lobes, areas, columns, etc. A special emphasis will be put on structure function relationship, i.e., which brain area is responsible for which aspect of brain function. It will be explained how brain areas interact, and what theories exist about bringing together aspects of information from different brain areas into one percept or thought (binding). The physiology part of the course will address fundamentals of neuronal functioning, interaction of neurons, neurotransmission, and will provide an understanding of neurovascular coupling, a basis of the most important functional neuroimaging method, fMRI.

Monday 11:30 -13:00

start: 21.10.2013

Cognitive Neuroscience

Prof. Dr. Niko Busch (Charité – Universitätsmedizin Berlin)

Alte Nervenlinik, Bonhoefferweg 2 (Studenteneingang), Charité Campus Mitte, Seminarraum Ebene 3

The course provides an introduction to the field of Cognitive Neuroscience which is the study of the neural basis of perception, cognition, and behavior in the intact human brain. The course will cover core topics in Cognitive Neuroscience, including typical experimental paradigms and research methods. In addition to presenting "accepted knowledge", I will emphasize current debates in Cognitive Neuroscience to illustrate how controversies are moving the field forward. The course comprises lectures and discussions.

A light introduction to Cognitive Neuroscience for beginners:

Ward. *The student's guide to cognitive neuroscience*. Psychology Press, 2nd edition, 2010.

A more in-depth text book:

Purves. *Principles of cognitive neuroscience*. Sinauer Associates, 2nd edition, 2012.

Monday 14:15 – 15:45

start: 21.10.2013

Basic Philosophical Concepts and Philosophy of Mind

Prof. Dr. Michael Pauen (Institute of Philosophy, HU Berlin)

Bernstein Center for Computational Neuroscience, Philippstr. 13, 10115 Berlin, Lecture Room

The course provides a systematic overview over the most central issues in the philosophy of mind. Participating students will learn to apply relevant philosophical concepts, they will be taught to construct a valid argument; they will learn how to distinguish between the most important options in the mind–body debate and how to assess the consequences of neuroscientific research.

Teaching Week in February:

17 to 21 February 2014

Ethics and Neuroscience

Prof. Dr. Thomas Schmidt (Institute for Philosophy, HU Berlin)

location: Campus Nord, Haus 4 (Ostertag-Haus), Lecture hall 4=Room No 111, 1st floor

Participants will be familiarized with basic ethical concepts and theories and will gain an overview of ethically-relevant aspects of neuroscience. Thereby, participants will learn to know how ethical issues are tackled in philosophical ethics, and they will get an overall view of the theoretical interfaces between ethics and neuroscience.

The course provides an introduction to central notions and theories discussed in philosophical ethics and an overview of ethical issues in neuroscience as well as of consequences neuroscience does or might have for ethics.

Mandatory Tutorials:

Friday 10:00 – 11:30

start: 25.10.2013

Tutorial Neurophysiology and Neuroanatomy:

Dr. Veronika Witte (Charité – Universitätsmedizin Berlin)

Invalidenstraße 110, 10115 Berlin, room 449

Friday 12:30 – 14:00

start: 25.10.2013

Tutorial: Philosophy of Mind

Felix Bräuer M.A. (Institute for Philosophy, HU Berlin)

Invalidenstraße 110, 10115 Berlin, room 449

Friday 14:30 – 16:00

start: 18.10.2013

Tutorial: Cognitive Neuroscience:

Dr. Flavia Filimon (Max Planck Institute for Human Development, Berlin)

Invalidenstraße 110, 10115 Berlin, room 449

Elective Courses:

Focus MIND

Monday 16:15 – 17:45

start: 21.10.2013

Intention in Action and Communication

Dr. Richard Moore (Institute of Philosophy, HU Berlin)

Sophienstraße 22 a, 10178 Berlin, room 4.11

Intention, along with belief and desire, is one of the ingredients of folk psychology to which we appeal in explaining behaviour. Its relationship to purposive action makes it central to human life. But what are intentions? And how do they figure in the life of the mind?

The latter question has become particularly important in recent years, because cognitive scientists have argued that certain varieties of intentional behaviour are both uniquely human, and play a foundational role in human cognitive development. For example, Tomasello and colleagues have argued that humans but not great apes are capable of joint action, in which participants work together to achieve shared goals; and that joint action explains various aspects of children's cognitive development. Tomasello also argues that humans but not apes act with Gricean communicative intentions. These statements turn on the idea that intentions can be cognitively complex – but this makes empirical claims difficult to evaluate independently of an account of how intentions figure in mental life.

In this course, we will study three classic sources of work on intentional action: Elizabeth Anscombe's *Intention*, Paul Grice's paper 'Meaning', and a series of papers by Michael Bratman on the nature of

joint action. We'll also discuss empirical work on intention possession and attribution in human children and non-human great apes and, time permitting, work on the neuroscience of intention.

This course will be evaluated by a combination of (i) a class presentation on one of the papers or book sections to be discussed, and (ii) a submitted course paper. Presentation topics will be decided in the first meeting of the semester. The subject of the paper should be decided with me before writing commences.

For the most up-to-date reading lists for this course, please check my homepage: <https://sites.google.com/site/richardmoorecogsci/home/teaching>. Revised versions of the syllabi for all of my courses will be posted there at the end of the first week of September.

Background reading:

Dennett, D. (1971). Intentional systems. *Journal of Philosophy*, 68: 87-106.

Core readings:

Anscombe, G. E. M. (1957). *Intention*. Harvard UP.

Bratman, M. (1999). *Faces of Intention*. Cambridge UP.

Grice, P. (1957). 'Meaning'. Reprinted in *Studies in the Way of Words*. Harvard UP.

Tomasello, M., Carpenter, M., Call, J., Behne, T., & Moll, H. (2005). Understanding and sharing intentions: The origins of cultural cognition. *Behavioral and Brain Sciences*, 28: 675-735.

Tuesday 12:15 – 13:45

start: 15.10.2013

Theory and Practice of Radical Interpretation

Dr. Richard Moore (Institute of Philosophy, HU Berlin)

Dorotheenstraße 24, 10117 Berlin, room 1.406

On what basis do we attribute mental states to others? An intuitive answer is that we take others' utterances to be revelatory of their thoughts, and so acquire knowledge of their minds through knowledge of their verbal behaviour. However, Donald Davidson argued that when we fail to share a common language with those whose behaviour we would interpret, a potentially vicious circle forms: we can't understand their mental states without knowing the language that they speak; but we can't acquire knowledge of this language without knowledge of the mental states that their utterances express.

To remedy this problem, Davidson argues that we can interpret the utterances of others by using a theory of interpretation, which enables the systematic mapping of utterances to their truth conditions. However, this method requires the use of a 'Principle of Charity' – whereby the Radical Interpreter makes best sense of others' utterances by interpreting them as being maximally consistent with what she would be given to say in identical circumstances. This principle may therefore be unsuitable in cases where similarity between interpreter and the target of interpretation cannot be taken for granted.

By way of exploring possible limitations of Davidson's theory – not least, in the form of Davidson's claim that only those who speak can think – we'll consider it in the context of on-going efforts by comparative psychologists and biologists to interpret the vocal and gestural utterances of wild and semi-wild chimpanzees. This course will therefore serve as an introduction both to some key ideas in

the philosophy of language and communication, and to the use of comparative psychology and ethology as methods for coming to understand the minds of others.

We'll also briefly discuss three philosophical approaches to our knowledge of other minds as they bear on these issues: Expressive Communication, which argues that some mental states in humans and non-human animals can be directly perceived, and 'Theory' and 'Simulation' Theories of our knowledge of other minds.

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For the most up-to-date reading lists for this course, please check my homepage: <https://sites.google.com/site/richardmoorecogsci/home/teaching>. Revised versions of the syllabi for all of my courses will be posted there at the end of the first week of September.

Some light background reading:

Everett, D. (2008). *Don't Sleep, There Are Snakes: Life and Language in the Amazonian Jungle*. London: Profile.

Goodall, J. (1971). *In the Shadow of Man*. London: Collins.

Core philosophical readings:

Davidson, D. (1973). Radical interpretation.

-- (1974). Belief and the basis of meaning.

-- (1974). On the very idea of a conceptual scheme.

-- (1975). Thought and talk.

All reprinted in Davidson (1984) *Inquiries Into Truth and Interpretation*. Oxford: OUP.

Tuesday 14:15 - 15:45

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start: 15.10.2013

Zur Geschichte des Seelenbegriffs (in German)

Prof. Dr. Michael Pauen (Institute for Philosophy, HU Berlin)

Dorotheenstraße 24, 10117 Berlin, room 1.406

Das Interesse an Problemen des Bewusstseins lässt sich bis auf die ältesten Dokumente unserer Kultur zurückverfolgen. Die Begriffe, in denen sich dieses Interesse ausdrückt, haben sich allerdings fundamental gewandelt: Wo heute von Bewusstsein gesprochen wird, war früher vom Geist bzw. der Seele die Rede. Das Seminar wird nicht nur den begrifflichen Wandel verfolgen, sondern auch den Ursachen und den weitreichenden Konsequenzen dieses Wandels nachgehen, der bis heute anhält.

Literatur

Hinterhuber, Hartmann. *Die Seele. Natur- und Kulturgeschichte von Psyche, Geist und Bewusstsein*. Wien: Springer 2001.

Jüttemann, Gerd u.a. *Die Seele. Ihre Geschichte im Abendland*. Weinheim: Psychologie Verlags-Union 2001.

Pauen, Michael. *Was ist der Mensch? Die Entdeckung der Natur des Geistes*. München: DVA 2007.

Thursday 14:30 – 16:00

start: 24.10.2013

Philosophy of Psychology: The Mind and the Brain

Dr. Michal Klincewicz (Berlin School of Mind and Brain)

Invalidenstraße 110, 10115 Berlin, room 449

In this course we will examine the systematic relationship between the concerns of philosophy and psychology. We will discuss commonsense psychology, cognitive science, and neuroscience and explore how they inform each other. We will also compare the relative merits and disadvantages of these approaches and explore how they can bear on various philosophical issues. As far as it is possible, we will not discuss the relationship between the mind and body, the other minds problem, free will, or other metaphysical or epistemological issues that would fit better in a course on the philosophy of mind. Ultimately, our goal is to come away with a philosophically informed understanding of psychological inquiry and a better understanding of contemporary philosophical inquiry into the nature of mind.

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Focus BRAIN

Tuesday 10:00 – 11:30

start: 22.10.2013

Decision-Making

Dr. Vera Ludwig (Berlin School of Mind and Brain)

Invalidenstraße 110, 10115 Berlin, room 449

Every day we make hundreds of decisions, ranging from relatively easy ones, such as what to eat for breakfast, to very difficult ones, such as whether to move to another city for a new job.

In this seminar, students will explore decision-making from a broad range of perspective, with a focus on neuroscientific aspects. What heuristics do people use when they make decisions? What mechanisms in the brain underlie decision-making? What role do emotions and intuitions play? Why is it that people with addictions keep on deciding to consume a drug despite knowing the negative consequences? And do neuroscientific findings really suggest that we cannot decide freely?

Students will learn about key theories and ideas in the field of decision-making, such as expected utility theory, prospect theory, drift-diffusion models, the somatic marker hypothesis, and the distinction between 'liking' and 'wanting'. Recent studies will be introduced, particularly regarding the neural basis of decision-making. This will allow students to learn about important findings, methods, and open questions in decision-making research. Finally, students will critically discuss the usefulness and potential philosophical implications of neuroscientific findings concerning decision-making with regard to the idea of "neuromarketing" and freedom of the will.

Literature

Rangel, A., Camerer, C., & Montague, P. R. (2008). A framework for studying the neurobiology of value-based decision making. *Nature Reviews Neuroscience*, 9(7), 545-556.

Thursday 12:30 – 14:00

start: 24.10.2013

Dr. Sébastien Crouzet (Berlin School of Mind and Brain)

Visual perception: How we perceive the world around us

Invalidenstraße 110, 10115 Berlin, room 449

We see, feel, hear, touch and smell effortlessly, whereas other mental functions like language and memory seem much more elaborated and complex. But the fact that sensory processing seems easy is actually extraordinary. Indeed, computers are much faster and more efficient than us on apparently complex tasks, such as evaluating the square root of 10. But when it comes to the visual recognition of objects in the real-world, a 3-year-old can outperform the most sophisticated algorithms available today.

In this class, we will introduce the current hypotheses about the psychological and neuroscientific underpinnings of visual perception. We will first surf the neural activity wave down the visual system: from the transduction of light into neural signal interpretable by the cortex, to the transformations occurring at each level of the visual cortical hierarchy. An emphasis will be placed on the nature of the visual representation (grand-mother cell vs. population coding theories). From there, we will cover various topics such as the effect of attention (on behavior and on the underlying neural signal), the visual search paradigm and computational models of object recognition in natural scenes.

Thursday 16:30 – 18:00

start: 24.10.2013

Neurobiology of the mind:

Cellular and molecular basis of cognition and mental illness

Dr. Simon Jacob (Charité – Universitätsmedizin Berlin)

Invalidenstraße 110, 10115 Berlin, room 449

What is the stuff memories are made of? What are the neuronal mechanisms that enable us to learn and recall information? Can electrical currents in single neurons give rise to how we perceive and attend to our environment, how we think, feel and act?

In this course, students will explore the biological basis of selected topics in cognitive neuroscience including sensation and perception, attention, learning and memory, emotions and language. The focus of this course is on the neuronal mechanisms that give rise to these functions, covering processes at the level of intracellular molecules and small electrical currents up to individual neurons and ultimately networks of neurons.

Each session of this course will comprise a lecture by the instructor on a particular cognitive function as well as the presentation of a landmark original research paper by students. In this way, the course will convey textbook knowledge supplemented by illustrations of important research techniques and current questions in the neurobiology of cognition.

Equipped with this knowledge, students will also explore how malfunctions in these elaborate neuronal systems give rise to mental illnesses that affected e.g. the politician Ronald Reagan, the novelist Ernest Hemingway and the mathematician John Nash (“A Beautiful Mind”). Upon completing the course, students will have an understanding of the molecular, cellular and systems neurobiology of higher cognitive functions and be able to name important hypotheses concerning the causes of major neuropsychiatric disorders.

Literature:

Principles of Neural Science, eds. E. Kandel, J. Schwartz, T. Jessel, S. Siegelbaum, A. Hudspeth, 5th edition, 2012

The Cognitive Neurosciences, ed. Michael Gazzaniga, 4th edition, 2009

Neurobiology of Mental Illness, eds. D. Charney, J. Buxbaum, P. Sklar, E. Nestler, 4th edition, 2013

If you have questions, please contact

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