



Master program “Mind and Brain”

Berlin School of Mind and Brain

Humboldt-Universität zu Berlin

Summer semester 2017

ALL TIMES ARE MEANT S.T. (SHARP)!

Monday	Tuesday	Wednesday	Thursday s. last page!	Friday
	9:00 – 10:30 Dziobek Empirical Research Training (Brain Track)		9:00 – 10:30 Tutorial: Finke Clinical Neuroscience	9:00 – 10:30 Dziobek Empirical Research Training (Mind Track)
10:00 – 11:30 Haynes Neuroimaging	10:45 – 12:15 Empirical Research Training (Brain Track)	10:00 – 11:30 Carota Neurocognition of Language (B)	11:00 – 12:30	10:45 – 12:15 Empirical Research Training (Mind Track)
12:15 – 13:45 Knoeferle / Pulvermüller Language and the Brain	13:15 – 15:45	12:30 – 14:00 Reuter Neurolaw (M)	12:15 – 13:45 Dziobek Research Colloquium (B)	13:15 – 14:45 Tutorial: Miller Language and the Brain
14:15 – 15:45 Staudacher Philosophy of Mind	14:15 – 15:45 Kästner Early Indian Philosophy (M)	14:30 – 16:00 Coelho Mollo Philosophy of Artificial Intelligence (M)	13:15 – 14:45 Tutorial: Braun Ethics and Neuroscience	15:15 – 16:45 Tutorial: Goldberg Philosophy of Mind
16:15 – 17:45 - Knoeferle Eye tracking in Language Com- prehension (B) - Moore Phil. Issues in the Evolution of Language (M)	16:15 – 17:45 Kästner Prediction Machines (M)	16:30 – 18:00 Akbal/Akbal/ Gaebler Investigating Mind-Brain- Body Interactions in Virtual Reality (M/B)	15:15 – 16:45 Tudge Python (B)	
	18:15 – 19:45 Pauen Philosophical Colloquium (M)		16:15 – 17:45 Staudacher Philosophy of Perception (M)	

BLOCKS : Moore : Mindreading (31 July-2 Aug 17) - Fingerhut: Culture (9-12 Oct 17)

Comprehensive Course Calendar

Mandatory Lectures

3 – 7 April 2017, 9:00 – 17:00

Clinical Neuroscience

Prof. Dr. Felix Bormpohl (Klinik für Psychiatrie und Psychotherapie, Charité) / Prof. Dr. Stephan Brandt (Klinik für Neurologie, Charité) / Prof. Dr. Malek Bajbouj (Klinik für Psychiatrie und Psychotherapie, Charité)

venue: Bernstein Center for Computational Neuroscience, Philippsstraße 12 (House 6), 10115 Berlin, Lecture Hall

Mind and Brain students **only!**

The course provides basic knowledge about the neuroscience of clinical psychiatry and neurology. Students will learn the basic pathophysiology of important disorders of the brain and how the brain reacts to these challenges. Participating students will learn (a) how alterations of different cognitive systems (e.g., emotion regulation, language, reward) result in mental disorders, (b) how these alterations can be studied using neuroscience methods, (c) how this knowledge may translate into therapeutic applications. Particular emphasis will be placed on practical aspects of clinical neuroscience, e.g. by demonstrating the examination of a patient.

This lecture is the first part of a module. The corresponding tutorial for this lecture will be offered during the summer semester 2017. For gaining credits students have to attend both parts of the module.

Ch. Zorumski/E. Rubin, *Psychiatry and Clinical Neuroscience*, Oxford 2011

Monday 10:00 – 11:30

start: 24 April 2017

Neuroimaging

Prof. Dr. John-Dylan Haynes (Bernstein Center for Computational Neuroscience Berlin)

venue: Bernstein Center for Computational Neuroscience, Philippsstraße 12 (House 6), 10115 Berlin, Lecture Hall

Mind and Brain students **only!**

The course provides an introduction to a number of key non-invasive research methods in structural and functional neuroimaging. Participating students will learn about the basics of functional MRI, EEG, and TMS including technological and physiological foundations, experimental design and basic

and advanced statistical methods. The goal is to provide an understanding of functional neuroimaging that will allow students to design, perform and analyse their own studies.

Monday 12:15 – 13:45

start: 24 April 2017

Language and the Brain

Prof. Dr. Pia Knoeferle (Institut für deutsche Sprache und Linguistik, HU Berlin) / Prof. Dr. Friedemann Pulvermüller (Institut für Deutsche und Niederländische Philologie, FU Berlin)

venue: Bernstein Center for Computational Neuroscience, Philipstraße 12, Haus 6, 10115 Berlin, Lecture Hall

Language has been investigated from a range of perspectives. Linguists have described it as a formal system focusing on levels that range from phonology to syntax, semantics and pragmatics. Both linguists and psychologists worked on models focusing on the time course of linguistic processing in production and understanding, so that these psycholinguistic models could be tested in behavioral experiments. Most recently, neuro- and cognitive scientists attempt at spelling out the brain mechanisms of language in terms of neuronal structure and function. These efforts are founded in neuroscience data about the brain loci that activate when specific linguistic operations occur, the time course of their activation and the effects of their specific lesion. The lecture series will provide a broad introduction into these linguistic, psycholinguistic and neurolinguistics research streams and highlight a range of cutting edge behavioral and neuroscience findings addressing a broad range of linguistic issues, including, for example, the recognition of words, the parsing of sentences, and the computation of the meaning and communicative function of utterances. Language development and language disorders caused by disease of the brain will also be in the focus. The experimental approaches under discussion will range from behavioral (reaction time studies, eye tracking) to neuroimaging methods (EEG, MEG, fMRI, NIRS) and neuropsychological ones (patient studies, TMS, tDCS). A discussion of major theoretical approaches to language in the human mind and brain will round up the lectures.

This lecture series is open to students at the Berlin School of Mind and Brain as well as for students of linguistics at both HU and FU Berlin.

Preparatory readings:

Pulvermüller, F. & Fadiga, L. 2016. Brain Language Mechanisms Built on Action and Perception. In G. Hickok & S. Small (Eds.), *Handbook of Neurobiology of Language*, Elsevier, Amsterdam, pp 311-324. doi: 10.1016/B978-0-12-407794-2.00026-2

Knoeferle, P. & Guerra, E. 2016. Visually situated language comprehension. *Language and Linguistics Compass*, 10, 66-82.

Monday 14:15 – 15:45

start: 24 April 2017

Basic Philosophical Concepts and Philosophy of Mind

PD Dr. Alexander Staudacher (Department of Philosophy, HU Berlin)

venue: Bernstein Center for Computational Neuroscience, Philippstraße 12, Haus 6, 10115 Berlin, Lecture Hall

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.

Tuesday 9:00 – 12:15 (Brain Track)

start: 18 April 2017

Friday 9:00 – 12:15 (Mind Track)

start: 21 April 2017

Empirical Research Training

Prof. Dr. Isabel Dziobek (Institut für Psychologie, HU Berlin & Berlin School of Mind and Brain)

venue: Invalidenstraße 110, 10115 Berlin, room 449

*Mind and Brain students **only!***

In the empirical-experimental exercise students extend their basic knowledge of neurocognitive research methods gained in the research methods lecture and tutorial series and deepen their knowledge of theoretical principles and practical applications of neurocognitive methods. The objective of the class is to familiarize students with experimental (as well as descriptive) research methods by providing "hands-on" experiences in designing, conducting, analyzing, interpreting, and writing up one experimental neurocognitive research study. The empirical-experimental exercise is concluded with a documented individual report on the empirical project following APA guidelines.

As a result of careful study and fulfillment of the course assignments, students should be able to:

1. Develop experimental research problems in cognitive neuroscience
2. Conduct reviews of the scientific literature relevant to a chosen research problem
3. Formulate research hypotheses
4. Design experimental neurocognitive studies
6. Execute experimental studies by collecting research data under carefully controlled conditions
7. Summarize and statistically analyze research data
8. Evaluate research results and draw conclusions pertaining to hypotheses
9. Communicate research studies in oral, written, and poster formats

Mandatory Tutorials

Thursday 9:00 – 10:30

start: 20 April 2017

Please note that the tutorial does not take place at 27 April / 22 June / 29 June / 13 July 2017. The canceled sessions will be made up for with double sessions (9:00 – 12:30) at the following dates: 11 May / 1 June / 15 June / 6 July.

Tutorial: Clinical Neuroscience

Prof. Dr. Carsten Finke (Berlin School of Mind and Brain)

venue: Invalidenstraße 110, 10115 Berlin, room 449

*Mind and Brain students **only!***

The tutorial accompanies the lecture “Clinical Neuroscience”. We will read and discuss book chapters and papers that complement and extend the content of the lectures. A specific focus of the class is on recent research questions and applied methods in the field of Cognitive Neuroscience.

Thursday 13:15 – 14:45

start: 20 April 2017

Please note that the tutorial does not take place at 27 June / 29 June / 13 July 2017. The canceled sessions will be made up for with double sessions (11:00 – 13:45) at the following dates: 4 May / 18 May / 8 June.

Tutorial: Ethics and Neuroscience

Berit Braun (Department for Philosophy, HU Berlin)

venue: Invalidenstraße 110, 10115 Berlin, room 449

The course will be concerned with issues at the intersection of neuroscience and philosophical ethics that comprise what has come to be known as *Neuroethics*. The course will be divided into two main sections. In the first half, we will deal with matters concerning what can be called the *ethics of neuroscience*: we will discuss a number of concrete ethical questions that arise as a consequence of advances in neuroscience, such as whether neural enhancements are morally permissible and whether courts should have the power to order CNS-interventions. Going beyond questions of applied ethics, we will, secondly, take a closer look at what is sometimes called the *neuroscience of ethics*, exploring potential implications of neuroscientific findings for a number of longstanding issues within moral philosophy. Amongst other things, we will discuss the relevance of neuroscientific discoveries for debates about free will and moral responsibility, as well as for so-called metaethical questions regarding the nature, scope and presuppositions of moral thought and talk in general.

Finally, throughout the course we will also work on a number of key methodological competences for work in the area of philosophical ethics.

Introductory Literature:

Farah, Martha J. (2002), Emerging Ethical Issues in Neuroscience, *Nature Neuroscience*, 5: 1123-1129.

Roskies, A.L. (2002), Neuroethics for the New Millenium, *Neuron*, 35:21-23.

Levy, N. (2012), Neuroethics. *WIREs Cogn Sci*, 3: 143–151

Thursday 22 June / 29 June / 13 July 2017 9:00 – 17:00

All other M&B courses on Thursday are canceled on these three dates and will be made up for at other dates!

Tutorial: Neuroimaging

Dr. Mareike Bayer (Berlin School of Mind and Brain), Dr. Thomas Christophel (Bernstein Center for Computational Neuroscience), Prof. Dr. Carsten Finke (Berlin School of Mind and Brain)

venue: Computer Pool BCCN, Institut für Biologie, Philippstr. 13, Haus 2, 10115 Berlin

*Mind and Brain students **only!***

The course consists out of three block courses providing hands-on experience with functional (22 June) and structural MRI (29 June) and EEG (13 July).

Friday 13:15 – 14:45

start: 21 April 2017

Tutorial: Language and the Brain

Natalie Miller (Berlin School of Mind and Brain)

venue: Invalidenstraße 110, 10115 Berlin, room 449

The tutorial will complement the lecture “Language and the Brain” by familiarizing students with current research questions regarding language and the brain, as well as the current methods and paradigms used to address these questions. The class will focus on group discussions of articles which investigate the underlying neuronal mechanisms of language, how humans use words to communicate ideas, how language may influence our perception, and current theories of embodied cognition.

Friday 15:15 – 16:45

start: 21 April 2017

Tutorial: Basic Philosophical Concepts and Philosophy of Mind

Michael Goldberg (Berlin School of Mind and Brain)

venue: Invalidenstraße 110, 10115 Berlin, room 449

The tutorial will accompany the lecture “*Basic Philosophical Concepts and Philosophy of Mind*” by discussing the topics and ideas presented in class. The goal of the tutorial is to clarify and deepen our understanding of some of the most fundamental notions and stands in the field of philosophy and philosophy of mind. Additionally, we will take a closer look at the reading materials and see how they relate, explain or complicate the questions at hand.

Elective Courses:

Focus MIND

Monday 16:15 – 17:45

start: 1 May 2017

Philosophical Issues in the Evolution of Language

Dr. Richard Moore (Berlin School of Mind and Brain)

venue: Invalidenstraße 110, 10115 Berlin, room 449

MIND

The evolution of language is a subject that has long been of interest to philosophers, and that raises a number of philosophically important questions. What, for example, is language? What sorts of cognition are required for language development? How is human language similar to or different from the communicative systems of non-human animals, like birds, and chimpanzees? And which features of language – for example, knowledge of syntax – are learned or innate?

In this course, following a historical introduction to philosophical work on the topic of language evolution, will we read and engage in a number of on-going philosophical debates in topics related to language evolution. These will include recent debates on the question of whether syntax is learned; on whether language is an adaptation or an exaptation; on whether animal communication is continuous or discontinuous with human forms of communication; and on the learning mechanisms required for language development. We will read both philosophical writings on language evolution, empirical studies of communication in primates, and computational models of language acquisition.

Readings will include:

Berwick, R. C., & Chomsky, N. (2016). *Why Only Us: Language and Evolution*. MIT Press.

Christiansen, M. & Chater, N. (2016). *Creating Language: Integrating Evolution, Acquisition, and Processing*. MIT Press.

Herder, J.G. (1772). *Treatise on the Origin of Language*.

Progovac, L. (2015). *Evolutionary Syntax*. OUP.

Rousseau, J-J. (1781): *Essay on the Origin of Languages*.

Tomasello, M. (2010). *Origins of Human Communication*. MIT press.

Tuesday 14:15 – 15:45

start: 18 April 2017

Early Indian Philosophy

Dr. Lena Kästner (Berlin School of Mind and Brain)

venue: Invalidenstraße 110, 10115 Berlin, room 449

MIND

In the western world, eastern philosophy is rarely taught. Still, we sometimes find references to it, e.g. in the enactive tradition in the philosophy of mind, more commonly in religious philosophy, and also in typically less academic settings like yoga philosophy. But what exactly is Indian Philosophy to begin with? It is hard to give an unequivocal answer to this question. After all, philosophical thinking in India has a long-standing history spanning over two millennia, incorporating diverse schools of thought, and encompassing several religious traditions. Generally, religion plays an important part in Indian philosophy; one might even say that people in India combine what Westerners call “philosophy” and “religion” when they think about the structure of the world, experience, and personal destiny, and try to understand the meaning of life. The aim of this course is to take look at philosophical thinking in early India from the Vedas to Buddah’s teachings. In our discussions, we will also assess differences and communalities between Indian and traditional Western philosophical thought.

Requirements:

Basic knowledge in analytical philosophy is required as a background.

Reading:

Hamilton, S. (2001). *Indian Philosophy. A very short Introduction*. Oxford University Press.

Tuesday 16:15 – 17:45

start: 18 April 2017

Prediction Machines -- A New Theory of Mind and Brain?

Dr. Lena Kästner (Berlin School of Mind and Brain)

venue: Invalidenstraße 110, 10115 Berlin, room 449

MIND

Predictions are currently all over the place in neuroscience and philosophy. Whether we investigate vision, movement, emotions, memory, or delusions, the currently preferred theories and models tend to invoke some form of prediction, prediction error minimization, and generation of internal generative world models. This approach is commonly referred to as Predictive Processing (PP). The basic idea behind PP is that all functions and mechanisms of the central nervous system serve a single purpose, viz. to minimize free energy by generating nearly perfect predictions. In light of this, some suggest that PP is a universal theory for neuroscience, just like thermodynamics and quantum theory are for physics and Darwin's theory of evolution is for biology. And more than that, advocates

of PP continue, PP also supplies us with a fundamentally new way of understanding the mind. These are highly ambitious claims, however. Can PP really meet the expectations implied?

This course will focus on one particular version of PP defended by Andy Clark. We will be reading Clark's 2015 "Surfing Uncertainty" and discuss about, e.g.,

- * what exactly PP is and how it works,
- * what the central tenets of PP are,
- * the promises PP makes with respect to understanding the mind,
- * how PP relates to other approaches to mind, brain, and cognition,
- * the scope of PP in the context of neuroscience and philosophy,
- * whether PP is a theory, and if so, what exactly it is a theory of, and
- * if PP might be best understood as an empirical hypothesis, an explanatory principle, or a mathematical description of a mechanism.

Additional materials will be included along the way as needed.

Requirements:

Basic knowledge in the philosophy of mind as well as acquaintance with neuroscientific methodology and experimental design is required to participate in this course. Some mathematical knowledge will be helpful.

Reading:

Clark, A. (2015). *Surfing Uncertainty. Prediction, Action, and the Embodied Mind*. Oxford University Press.

Wednesday 12:30 – 14:00

start: 19 April 2017

Neurolaw

Lucia Reuter (Berlin School of Mind and Brain)

venue: Invalidenstraße 110, 10115 Berlin, room 449

MIND

fMRI scans read the mind, DBS electrodes, implanted in the brain and operated by remote-control, manipulate mood and behavior. Neuroscience is constantly creating precedents that need to be integrated into society. The law, as the main tool to structure social life, is responsible for this task.

In this seminar, students will explore how the remote disciplines of law and neuroscience interact and influence one another.

„Neurolaw“, as a field, has emerged in the 1980s and 90s, and has gained considerable attention within the last 10 years, as the growing number of neurolaw publications shows. Both in the EU and US, academic networks and professional societies have been founded that specialize on the topic of neurolaw.

The intersection of law and neurosciences is twofold. Firstly, neuroscientific technologies and methods can be sensitive with regard to personal rights of patients and subjects, such as privacy, autonomy and health. Therefore, they need to be regulated with legal instruments, i.e. acts of parliament or non-statutory delegated legislation (e.g. decrees, directives or guidelines of self-administration bodies like the German Medical Association). This area comprises but is not limited to data protection regulations, medical and pharmaceutical products laws, and procedural codes.

Secondly, neuroscientific discoveries about mechanisms of mind and brain can have an impact on fundamental legal concepts. These questions are of a more philosophical nature – the most prominent example being the discussion of free will and criminal responsibility. If we are all “slaves of our brains”, should the concept of punishment, rooted in most constitutions, be abandoned in favor of mere preventive custody?

In the course, I will introduce students to the basic concepts of law and how they interplay with modern neuroscience.

For a first impression, please study the websites of the MacArthur Foundation Research Network on Law and Neuroscience, and the European Association for Neuroscience and Law:

- <http://www.lawneuro.org/>
- <http://www.neurolaw-eanl.org/>

Wednesday 14:30 – 16:00

start: 19 April 2017

Philosophy of Artificial Intelligence

Dimitri Coelho Mollo (King's College, London & Berlin School of Mind and Brain)

venue: Alte Nervenlinik, Bonhoefferweg 2 (Studenteneingang), Charité Campus Mitte, 10117 Berlin, Seminarraum Level 3

MIND

In a seminal 1950 paper, Alan Turing asked: 'Can machines think?'. This seminar will revolve around ways to tackle and answer this question. We will see how that seemingly straightforward question spawns several others: What are the requirements for an artificial system to count as intelligent? Which principles of organisation and operation should guide its design? Are there different ways in which a system can be said to be intelligent? Can machines be conscious? Is artificial intelligence

possible at all? We will focus on conceptual issues concerning the development of artificial intelligence, actual and potential obstacles to such a project, while also looking at attempts, past and present, at designing and building intelligent systems. We will moreover examine potential ethical and social issues that may arise from the development of advanced artificial intelligences in the future.

Thursday 16:15 – 17:45

start: 20 April 2016

Please note that the class does not take place at 22 June / 29 June / 13 July 2017. The canceled sessions will be made up for. The dates of the replacement sessions will be announced in the beginning of the class.

Philosophy of Perception

PD Dr. Alexander Staudacher (Department of Philosophy, HU Berlin)

venue: Humboldt-Universität main building, Unter den Linden 6, 10099 Berlin, room 2014 A

MIND

The question, whether common physical objects in our surroundings (trees, tables, the bodies of other people etc.) are “immediate” or “direct” objects of perception, is among the most controversial problems in the philosophy of perception.

At first, the question might seem to be rather strange. Isn't the answer very obvious? If we follow the received view of common sense, it seems clear that we can perceive these objects directly. In any case, what would be a plausible alternative? If we don't perceive physical objects directly, what do we perceive instead? Non-physical objects? Can one even make sense of the notion of a non-physical object?

On the other hand, many philosophers have tried to show that this view cannot be right, once we consider certain plausible assumptions about the nature of illusions and hallucinations. And sometimes they have also tried to support their view with the help of results from the natural sciences. According to these philosophers we never have immediate perceptions of physical objects, but only of so-called “sense-data”, generally held to be non-physical mental entities that are only subjectively accessible. Arguably, this was the dominant view among European philosophers from the 17th century to the first half of the 20th century.

More recently, however, the majority of philosophers have defended accounts of perception, illusion and hallucination avoiding any recourse to sense-data. Now common sense is considered to be basically on the right track. Sense-data views seem to lead to strange, perhaps even unacceptable consequences. Not only is the notion of a non-physical object problematic, sense-data views seem to lead to scepticism with regard to the physical world: if we perceive only sense-data directly and the physical world is supposed to be something hidden behind these sense-data, it is difficult to see how the assumption of the physical world can be defended. Perception will tell us only about the existence of sense-data, but never about the existence of physical objects. Given this, one might even ask how we can ever acquire concepts that refer to physical objects.

The most popular of these more recent views is probably “intentionalism”, according to which we normally perceive directly physical objects, whereas respective illusions and hallucinations only share their intentional content with direct perceptions of physical objects. While defenders of the sense-data view hold that we can explain the commonalities between perceptions, illusions and hallucinations only if we assume that we are immediately aware of sense-data in all three cases, intentionalists, on the other hand, claim that the common factor between perceptions, illusions, and hallucinations (the same intentional content) can be explained successfully without any recourse to sense-data.

In the last years a view has emerged competing with intentionalism, sometimes called “naïve realism” or “disjunctivism”. According to it illusions and hallucinations don’t even share an intentional content with direct perceptions of physical objects. One challenge for this view is to deal adequately with the fact that for the subject hallucinations or illusions can be indistinguishable from perceptions of physical objects.

Reading: In the course we will discuss papers representing each of these views. The texts will be made available on moodle.

A helpful introduction to the whole topic is: William Fish: *Philosophy of Perception. A Contemporary Introduction*. New York and London: 2010.

Focus BRAIN

Monday 16:15 – 17:45

start: 24 April 2017

Eye tracking in Language Comprehension

Prof. Dr. Pia Knoeferle (Institut für deutsche Sprache und Linguistik, HU Berlin)

venue: Dorotheenstraße 24, 10117 Berlin, room 1.302

BRAIN

This course deals with eye tracking as a method. Students will be shown how to design an eye tracking experiment; how to prepare or modify experiment materials; how to conduct a mini eye tracking experiment; how to analyze the data descriptively, and how to write a brief report. Instruction will be given both on these steps and on how to write the report.

At the end of the course students should have a grasp of important issues in experimental design, and know the key steps involved in conducting and analyzing eye tracking studies. They will also have learnt how to summarize experimental results.

NB: The number of participants is limited to 20 students.

Wednesday 10:00 – 11:30

start: 19 April 2017

Neurocognition of Language: The meaningful Brain

Dr. Francesca Carota (Brain and Language Lab, FU Berlin)

venue: Invalidenstraße 110, 10115 Berlin, room 449

BRAIN

The course provides a detailed overview of the current neurobiological theories of language comprehension, with a special focus on the cognitive organization of lexical knowledge and its brain substrates. Participants will become familiar with the most recent advances in the study of the brain mechanisms supporting semantic processing and cutting-edge neuroimaging methods to investigate them.

The course is designed for students and young researchers interested in where, when and how “meaning” is produced and computed in the brain for language to be generated and understood. It provides theoretical knowledge about the neurocognitive representations of the fundamental building blocks of language: words.

- 1) The structure of the mental lexicon and the semantic interpretation of words.
- 2) The brain semantic systems: cortical regions, temporal dynamics and information content.

Wednesday 16:30 – 18:00

start: 19 April 2017

Investigating Mind-Brain-Body Interactions in Virtual Reality

Zeynep Akbal (Universität Potsdam) / Mert Akbal (Hochschule der Bildenden Künste Saar) / Dr. Michael Gaebler (Berlin School of Mind and Brain and Max Planck Institute for Human Cognitive and Brain Sciences Leipzig)

venue: Alte Nervenklinik, Bonhoefferweg 2 (Studenteneingang), Charité Campus Mitte, 10117 Berlin, Seminarraum Level 3

MIND/BRAIN

We are observers, movers, and users of our bodies (Todes, 2011) but how often are we really aware of our body as our access to the world? In other words, how are mind-brain-body interactions related to our experience of the world?

Any behavior or conscious experience requires a subject or self in a body that is felt as one's own and that occupies a certain location in space (*Blanke et al., 2015*). Our body is "always there" (*James, 1890*) and lets us interact with the world through perception and action. Thus, it serves as a "vehicle" that enables our being in the world and structures all our experiences (*Limanowski & Blankenburg, 2013*). This vehicle, our phenomenal body, is a subject-object that co-exists with other objects. We can perceive the depth of other objects because we can look at them from different angles, for example by walking around them. Yet, our phenomenal body is inaccessible for us to observe. Therefore, we experience several ambiguities, as we tend to perceive our bodies both visually and sensorially.

In this seminar, we will investigate whether Virtual Reality (VR) systems could help us explore and understand these ambiguities and we attempt to relate empirical research with phenomenological philosophy of mind. We will discuss how the special status of the body – compared to other physical entities – has been recognized in philosophy and other brain and mind sciences: (1) philosophical phenomenologists have written about the double role of the "lived body" (*German: "Leib"*) and the "body-as-object" (*German: "Körper"; Merleau-Ponty, 1945/1962*), (2) cognitive science has realized that the interaction with the environment underlies all our mental phenomena (i.e., that the mind is "embodied"; Clark, 1998), and (3) artificial intelligence is building robots that interact with physical environments (Brooks, 1986).

We will also connect conceptual approaches to hands-on empirical experimentation using VR setups (e.g., HTC Vive or Samsung Gear VR). We will thereby touch on the conceptualization, planning, and realization of VR projects. Through hands-on workshops (with no prior knowledge required), we will also introduce current VR hardware and software as well as open-source microcontroller-based measurements of physiology and behavior.

Through this interdisciplinary work, we will explore whether philosophy can employ new technologies to inform both considerations in philosophy of the body and a phenomenological way of understanding the lived body experience (*German: Leibliche Erfahrung; Waldenfels, 2012*). In the end, participants will have a firm understanding of the philosophy behind VR and the application of VR in the study of mind-brain-body interactions.

Thursday 15:15 – 16:45

start: 20 April 2017

Please note that the class does not take place at 22 June / 29 June / 13 July 2017. The canceled sessions will be made up for. The dates of the replacement sessions will be announced in the beginning of the class.

Python

Luke Tudge (Berlin School of Mind and Brain)

venue: Invalidenstraße 110, 10115 Berlin, room 449

BRAIN

Python is a free, flexible and relatively easy-to-use programming language. It has become a very popular tool in many fields of research, including cognitive science. Along with the Psychopy add-on, Python can be used to create psychophysical experiments. In this course, students will learn the basics of how to use Python and Psychopy. The first half of the course concerns Python itself, and covers writing basic commands, manipulating numbers and text, and reading and writing data files. The second half of the course concerns creating experiments with Psychopy. Classes will be based around practical demonstrations and tasks. No previous knowledge of Python or other programming languages is assumed; the course is aimed at complete beginners. By the end of the course, students should have the necessary skills to program and run a simple visual experiment with Python, and to save, manipulate and display the resulting data.

In general, this course is for *Mind and Brain students only* but if not all places are taken by our students we are happy to offer those places to interested students of other programs. When you would like to take the course, please send an email to the program coordinator who will put you on a waiting list: mb-education@hu-berlin.de (Dirk Mende).

Block Courses

31 July – 2 August 2017, 9:00 – 17:00

Mindreading, Nativism and Cognitive Development

Dr. Richard Moore (Berlin School of Mind and Brain)

venue: Invalidenstraße 110, 10115 Berlin, room 449

MIND

Mindreading (involving the application of a ‘theory of mind’, or ‘ToM’) is the ability to attribute sets of intentions, beliefs, and desires to others in order to predict and explain their behaviour.

While such reasoning comes easily to adults, a series of seminal developmental studies (e.g., Wimmer & Perner, 1984) show that children younger than four years old struggle to attribute false beliefs to others when asked to make predictions about their behaviour. This has often been interpreted as showing that children younger than four do not have a concept of belief, and – by extension – that they do not understand that others have minds. However, when shown videos of others engaged in search behaviour (e.g., Onishi & Baillargeon, 2005), measures of pre-verbal infants’ gaze suggest that they form accurate predictions about where others will look when their beliefs are false.

Children’s contrasting performance in these ‘implicit’ and ‘explicit’ measures of false belief understanding raises a number of philosophical questions about the nature of belief, and the conditions under which an understanding of belief should be attributed. Philosophers are currently divided into two camps. Nativists (including Peter Carruthers) argue that children possess a concept of belief from birth, but are unable to apply it in reasoning about others’ behaviour until they are older. Others (for example, Ian Apperly and Stephen Butterfill) argue that children’s mindreading abilities develop incrementally. At the end of their first year of life, they are able to attribute non-propositional ‘belief-like states’ to others, but do not acquire a full concept of belief until they have acquired language.

In this course, we will consider both empirical and philosophical arguments for and against the nativist hypothesis, with a view to better understanding the foundations of our knowledge of the minds of others. Will we also consider the question of whether animals – and chimpanzees in particular – are able to attribute minds to others.

Readings will include:

Apperly, I. & Butterfill, S. (2009) ‘Do Humans Have Two Systems to Track Beliefs and Belief-Like States?’, *Psychological Review*, 116: 953–70.

Carruthers, P. (2013) Mindreading in Infancy. *Mind & Language*, 28(2): 141-172.

Onishi, K.H. & Baillargeon, R. (2005) Do 15-Month-Old Infants Understand False Beliefs?’, *Science*, 308: 255–8.

Penn, D. & Povinelli, D. (2007) On the Lack of Evidence that Non-Human Animals Possess Anything Remotely Resembling a 'Theory Of Mind'. *Philosophical Transactions of the Royal Society of London B: Biological Sciences*, 362(1480): 731-744.

Wimmer, H. & Perner, J. (1983) Beliefs About Beliefs: Representation and Constraining Function of Wrong Beliefs in Young Children's Understanding of Deception, *Cognition*, 13: 103–28.

9 – 12 October 2017, 10:00 – 18:00

Culture, Embodiment, Cognition

Dr. Joerg Fingerhut (Einstein Group Jesse Prinz, Berlin School of Mind and Brain)

venue: Invalidenstraße 110, 10115 Berlin, room 449

MIND

In this course we will discuss in what way mental states (such as perceptual experiences, emotions, etc.) are influenced by the tools and cultural artifacts we engage with. We will embed this question within the framework of the 4EA Mind. This is a framework that sees the mind as embodied, embedded, enactive, extended, and affective. When it comes to enculturation, most debates regarding the impact of culture on cognition focus on technological, linguistic, and social influences. We will touch upon these as well, but the focus of this course will mostly be on other realms of culture . A specific focus will be on the way material cultural artifacts (architecture, pictures, film) influence the mind – a concept that has been discussed under the notion of the “artifactual mind.” In what ways have cultural artifacts altered our habits of perceiving? What skills have evolved in our interaction with such artifacts? Are there culturally different ways of experiencing the world? We will discuss texts from philosophy, psychology and cognitive neuroscience in order to assess in what ways our perception and experience are penetrated by the objects and cultural contexts we are exposed to.

Preliminary reading:

Clark, A. (2015). *Surfing Uncertainty: Prediction, Action, and the Embodied Mind*, New York: Oxford University Press, cap 8: “Being Human.”

Colloquia:

Tuesday 18:15 – 19:45

start: 2 May 2017

Philosophical Colloquium

Prof. Dr. Michael Pauen (Institut für Philosophie, HU Berlin & Berlin School of Mind and Brain)

venue: Berlin School of Mind and Brain, Luisenstraße 56, 10117 Berlin, room 220

MIND

The weekly colloquium is open for advanced students and doctoral students who are interested in current debates in the philosophy of mind. We will discuss recent research papers as well as papers by the participants.

Participation by appointment only. Please contact my secretary Anja Mayer if you want to sign up for the colloquium: anja.mayer@hu-berlin.de.

Thursday 12:15 – 13:45

start: 20 April 2017

Research Colloquium

Prof. Dr. Isabel Dziobek (Institut für Psychologie, HU Berlin & Berlin School of Mind and Brain)

venue: Berlin School of Mind and Brain, Luisenstraße 56, North Wing, 10117 Berlin, room 419

BRAIN

If you have questions, please contact

Dr. Dirk Mende

mb-education@hu-berlin.de

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NB: The lectures/courses which are flagged as “For Mind and Brain students only!” are for Mind and Brain students only!

If you are a student of Humboldt-Universität zu Berlin, please register for our courses in the *überfachlicher Wahlpflichtbereich* section of AGNES.

If you are a student of another university, please print out the Registration as guest auditor / visiting student form you find on our website: <http://www.mind-and-brain.de/master/course-calendars/>. The form has to be signed by the lecturer of the class you plan to attend and the master’s program coordinator (Dirk Mende).

Thursdays next semester (20 April – 20 July 2017)

Please note that on the days of the double sessions there is *also* (!) a regular session of either Clinical Neuroscience *before* the double sessions of the Ethics and Neuroscience tutorial (4 May, 18 May, 8 June) or there is a regular session of Ethics and Neuroscience *after* the double sessions of the Clinical Neuroscience tutorial (11 May, 1 June, 15 June, 6 July).

On the days of the block courses (22 June / 29 June / 13 July) there won't be any other M&B classes!

20 April	Regular sessions Clinical Neuroscience and Ethics and Neuroscience
27 April	Clinical Neuroscience <i>anceled</i> , Ethics and Neuroscience takes place
4 May	1st double session B. Braun Ethics and Neurosc. (11:00 – 12:30 and 13:15 – 14:45)
11 May	1st double session C. Finke Clinical Neuroscience (9:00-10:30 and 11:00–12:30)
18 May	2nd double session B. Braun Ethics and Neurosc. (11:00–12:30 and 13:15–14:45)
25 May	Holiday (Ascension Day)
1 June	2nd double session C. Finke Clinical Neuroscience (9:00-10:30 and 11:00–12:30)
8 June	3rd double session B. Braun Ethics and Neurosc. (11:00–12:30 and 13:15–14:45)
15 June	3rd double session C. Finke Clinical Neuroscience (9:00-10:30 and 11:00–12:30)
22 June	Functional MRI day long block session Computer Pool BCCN – NO other M&B classes!
29 June	Structural MRI day long block session Computer Pool BCCN – NO other M&B classes!
6 July	4th double session C. Finke Clinical Neuroscience (9:00-10:30 and 11:00–12:30)
13 July	EEG day long block session Computer Pool BCCN – NO other M&B classes!
20 July	Regular sessions Clinical Neuroscience and Ethics and Neuroscience