



University calendar

Master' program "Mind and Brain"

Berlin School of Mind and Brain

Humboldt-Universität zu Berlin

Winter semester 2014/2015

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

Monday	Tuesday	Wednesday	Thursday	Friday
9:30 – 11:00 Lecture: Neurophysiology and Neuroanatomy				
11:30 – 13:00 Lecture: Research Methods	10:00 – 11:30 Uncertainty (M) 10:15 – 11:45 Learning from Others (M)	10:00 – 11:30 Classics of Neuroscience (M/B)	10:00 – 11:30 Neuroscience of Decision Making (M/B)	10:00 – 11:30 Tutorial: Research Methods
	12:00 – 13:30 Social Cognitive and Affective Neuroscience (M/B)	12:00 – 13:30 Concepts (M)	12:00 – 13:30 Scepticism (M)	12:30 – 14:00 Tutorial: Neuroanatomy and Neurophysiology
	14:30 – 16:00 Resting State Data Analysis (B)	14:30 – 16:00 Cognitive Deficits in Neurological Diseases (B)	14:30 – 16:00 Theories of Emotion (M)	14:30 – 16:00 Taste and Smell – from molecules to subjective experiences (M/B)
18:15 – 19:45 Current Issues in Philosophy	18:00 – 20:00 Progress in Brain Language Research (M/B)	16:15 – 17:45 Woodward's Interventionism (M)	16:15 – 17:45 Writing and Argumentation (M)	

Block Courses:

16 – 19 Feb 2015, 11:00 – 17:00

Where does embodied cognition come from?

Prof. Dr. Martin Fischer (Univ. Potsdam)/ Prof. Dr. Michael Pauen (HU Berlin) / Prof. Dr. Dr. Friedemann Pulvermüller (FU Berlin)

venue: tba (to be announced)

MIND

(Registration required and binding!)

23 – 27 Feb 2015, 9:00 – 17:00

Winter School on Ethics and Neuroscience

venue: Lecture Hall, Ostertaghaus (Haus 4), Campus Nord, Philippstraße 12, 10115 Berlin

(Mandatory for new cohort of master students)

3 – 6 March 2015, 9:00 – 17:00

When Socio-Affective Neuroscience meets Decision Making:

The Puzzle of Understanding and Cooperating with Others

Prof. Dr. Tania Singer (MPI Human Cognitive and Brain Sciences, Leipzig / Social Neuroscience)

venue: Lecture Hall, Ostertaghaus (Haus 4), Campus Nord, Philippstraße 12, 10115 Berlin

MIND/BRAIN

(Open for only 10 master students. Registration required and binding!)

7 – 10 April 2015, 9:00 – 17:00

Consciousness and visual perception

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

venue: Invalidenstraße 110, 10115 Berlin, room 449

MIND/BRAIN

(Registration required and binding!)

Comprehensive Course Calendar

Mandatory Lectures:

Monday 9:30 – 11:00

start: 13.10.2014

Neurophysiology and Neuroanatomy

Dr. Derek Ott (Institut für Diagnostik der Epilepsien), Dr. Saskia Quester (Berlin School of Mind and Brain), Dr. Florian Schlagenhauf (MPI Human Cognitive and Brain Sciences, Leipzig), Dr. Bernhard Sehm (MPI Human Cognitive and Brain Sciences, Leipzig),

Alte Nervenlinik, Bonhoefferweg 2 (Studenteneingang), Charité Campus Mitte, 10117 Berlin, Seminarraum Level 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: 13.10.2014

Research Methods

Prof. Dr. Isabel Dziobek (Institut für Psychologie, HU Berlin & Berlin School of Mind and Brain), Dr. Kristin Prehn (Charité -Universitätsmedizin Berlin)

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

This course intends to provide knowledge on the theoretical principles and practical applications of psychological research methods in general and neurocognitive methods in particular. It will cover among others important steps of conducting quantitative research such as hypothesis testing, formulating experimental conditions, and statistical designs. Various technologies for measuring brain structure and function and the limitations of these techniques will be covered, including functional magnetic resonance imaging (fMRI), diffusion tensor imaging (DTI), event-related potentials (ERPs), and transcranial magnetic stimulation (TMS). In addition, eyetracking measures

and psychophysiological measures such as skin conductance response will be covered.

The application of those methods will be illustrated with examples from various cognitive abilities (e.g., emotion understanding, memory). Wherever possible, the course will allow for hands-on experience with the methods. The goal for students is to be able to understand the methods covered and critically evaluate research that uses them.

23 to 27 February 2015

Ethics and Neuroscience

Prof. Dr. Jesse Prinz (New York City University / Berlin School of Mind and Brain) / Prof. Dr. Thomas Schmidt (Department of Philosophy, HU Berlin)

venue: Lecture Hall, Ostertaghaus (Haus 4), Campus Nord, Philippstraße 12, 10115 Berlin

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.

This course is mandatory for the new cohort of master students.

30 March to 2 April 2015

Cognitive Neuroscience

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

venue: Alte Nervenlinik, Bonhoefferweg 2 (Studenteneingang), Charité Campus Mitte, 10117 Berlin, Seminarraum Level 3 (30 March – 1 April); Lecture Hall, Bernstein Center for Computational Neuroscience, Philippstraße 12 (Haus 6), 10115 Berlin (2 April)

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.

Mandatory Tutorials:

Friday 10:00 – 11:30

start: 17.10.2014

Tutorial: Neurophysiology and Neuroanatomy:

Dr. Veronika Witte (MPI Human Cognitive and Brain Sciences, Leipzig), Dr. Mauricio Martins (Berlin School of Mind and Brain)

Invalidenstraße 110, 10115 Berlin, room 449

Friday 12:00 – 13:30

start: 17.10.2014

Tutorial: Research Methods

Dr. Kristin Prehn (Charité - Universitätsmedizin Berlin), Prof. Dr. Isabel Dziobek (Institut für Psychologie / HU Berlin & Berlin School of Mind and Brain)

Invalidenstraße 110, 10115 Berlin, room 449

Elective Courses:

Focus MIND

Tuesday 10:00 – 11:30

start: 14.10.2014

Uncertainty

Dr. Timo Ehrig (MPI, Mathematics in the Sciences), Dr. Wasilios Hariskos (MPI Human Development)

Invalidenstraße 110, 10115 Berlin, room 449

MIND

In our life, we constantly have to make decisions under fundamental uncertainties. Many decision theories model uncertainty by probability distributions. But people in the real world more often than not face problems where uncertainty cannot be handled by probability. For instance, we make quick decisions in novel and ambiguous situations (such as when we move to a new country), and we constantly anticipate other people's behaviour, knowing that other people anticipate us. What these decisions have in common is that people need to cope with uncertainties that extend beyond risks: the set of choices and the distribution of outcomes is not specified, and people cannot adhere to the idea of optimization and probabilistic inference.

In this course, students will learn about theories from psychology and experimental game theory that explain how people cope with uncertainty characterized by the absence of probabilities. Students will learn about different ideas in the field of decision-making, starting from theories of decision-making given risk (expected utility theory), and the adaptive rationality hypothesis (Herbert Simon, Gerd Gigerenzer). The adaptive rationality hypothesis suggests that there is no universal thinking tool to cope with any situation in an optimal way, but that people have a toolbox of reasoning strategies that are functional in different task environments. Students will then learn newer theories about how people form theories of mind (how others think) when they interact strategically, in particular in coordination situations. We will discuss experimental results (Rosemarie Nagel) about theories of mind in coordination situations. A special emphasis in the course will be on game theory, to provide a conceptual basis for thinking about strategic uncertainty.

Literature:

Gigerenzer, G., & Brighton, H. (2009). Homo heuristicus: Why biased minds make better inferences. *Topics in Cognitive Science*, 1, 107143.

Heinemann, F., Nagel, R., & Ockenfels, P. (2004). The theory of global games on test: experimental analysis of coordination games with public and private information. *Econometrica*, 72(5), 1583-1599.

Tuesday 10:15 – 11:45

start: 14.10.2014

Cognition and Culture: Learning from Others

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

Unter den Linden 6, 10117 Berlin, room 2014 A

MIND

One key difference between humans and non-human great apes is the existence of *cumulative culture*, in which the knowledge acquired by previous generations is handed down to the next. The existence of such culture in humans has enabled the emergence of cultural artefacts like language and technology that are more sophisticated than individuals could have invented for themselves. These technologies have, in turn, extended the cognitive feats of which humans are capable.

In this course we set out to provide detailed answers to the question: what are the cognitive abilities and motivations that enabled the emergence of cumulative culture? Answering this will help us to better understand cognitive development in ontogeny and phylogeny, and to better understand what it means to be human. In particular we will consider two forms of social learning that have been hypothesised to support cumulative culture - the willingness to share valuable information and teach, and the capacity to imitate faithfully the skills and technique of others.

Literature:

Dennett, D. (1996). *Darwin's Dangerous Idea: Evolution and the Meanings of Life*. London: Penguin.

Sperber, D. (1996). *Explaining Culture: A Naturalistic Approach*. Oxford: Blackwell.

Richerson, P. & Boyd, R. (2005). *Not By Genes Alone: How Culture Transformed Human Evolution*. Chicago: Chicago UP.

Sterelny, K. (2011). *The Evolved Apprentice*. Cambridge, MA: MIT.

For those potentially interested in this course and wanting to know more, I recommend:

Moore, R. (2014). Social learning and teaching in chimpanzees. *Biology and Philosophy*, 28: 879-901.

Wednesday 12:00 – 13:30

start: 15.10.2014

Concepts

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

Invalidenstraße 110, 10115 Berlin, room 449

MIND

Concepts are the building blocks of our thinking, and their analysis is one of the main tools in philosophy. Hence it is important to understand what they are, how we use them, and how they might change over time. In this seminar we will be looking at some classical (philosophical) theories of concepts as well as contemporary research in philosophy, cognitive psychology, and linguistics. In this context we will also discuss how concepts get studied and assessed by scientists from different disciplines.

Wednesday 16:15 – 17:45

start: 15.10.2014

Woodward's Interventionism

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

Invalidenstraße 110, 10115 Berlin, room 449

MIND

How do scientists investigate and explain phenomena? In response to this question, James Woodward proposed an interventionist theory of causation and causal explanation (interventionism, for short). The basic idea of Woodward's approach is that causation is a matter of difference-making: if we can manipulate Y by intervening into X then—given certain assumptions—we can infer X causes Y. Interventionism has recently received a lot of attention in philosophy of science. But can it meet the high expectations it raises? We will encounter recent applications and attacks in due course.

Thursday 12:00 – 13:30

start: 16.10.2014

Scepticism

Felix Bräuer, M.A. (Department of Philosophy, HU Berlin)

Invalidenstraße 110, 10115 Berlin, room 449

MIND

We all think that we know a lot. I for one know, that I have two hands, that I live in Berlin or that Sartre turned down the Nobel Prize in Literature ... But, do I really know those things? After all, I might be deceived by an evil demon while entertaining those thoughts. Or I might be a brain in a vat, that a supercomputer tricks into believing it has a normal life.

In the seminar, we are going to look at sceptical scenarios and we are going to discuss several answers that philosophers have come up with in response to them. In doing so, we will address questions such as: Are there beliefs that are exempt from doubt? Can we rule out certain sceptical scenarios a priori? In how far does our knowledge depend on context? – Can we have knowledge in

one context while lacking it in another? Do sceptical scenarios really endanger our claims to knowledge in the way traditionally thought?

The seminar aims at giving an overview over the different reactions to scepticism and to highlight the respective strengths and weaknesses of those reactions. To this end, we are going to discuss G.E. Moore's common sense answer to scepticism, Hilary Putnam's influential semantic argument, contextualist approaches and a recent attempt to re-evaluate sceptical scenarios. Moreover, the topics discussed during the seminar shall be used to identify, evaluate and apply various lines of philosophical argumentation.

Literature:

Klein, Peter, "Skepticism", The Stanford Encyclopedia of Philosophy (Summer 2014 Edition)

Edward N. Zalta (ed.), URL= <<http://plato.stanford.edu/archives/sum2014/entries/skepticism/>>

Thursday 14:30 – 16:00

start: 16.10.2014

Theories of Emotion

Dr. Mareike Kühne (Max-Weber-Kolleg für kultur- und sozialwissenschaftliche Studien, Erfurt)

Invalidenstraße 110, 10115 Berlin, room 449

MIND

What has falling in love have in common with being proud of one's achievements or, for example, the fear of flying? Emotions are sometimes said to be a threat to reason, yet, they also appear to be what colors our lives. The past decades have seen an increasing interest of different disciplines in the study of emotions, but, interestingly, so far no agreed upon definition of an emotion exists. So, what is an emotion? Are emotions biological facts or socially constructed? Do they indeed form a natural kind? And what is the relation between emotion and cognition?

The seminar will provide an overview of main philosophical, psychological and neurobiological emotion theories and of related empirical research. We will cover a variety of theoretical and empirical issues, such as the relation of emotions to other mental states, physiological and cognitive aspects of emotions, their reasonableness and measurement. We will discuss differences in disciplinary perspectives on the study of emotions, enabling students to critically evaluate current research on the topic.

Literature:

Solomon, R. C.: The Philosophy of Emotions, in: Lewis/Heviland-Jones: Handbook of Emotions, 3rd Edition, New York, 2008

Damasio, A. R.: William James and The Modern Neurobiology of Emotion, in: Evans, D./ Cruse, P. (Eds.): Emotion, Evolution, and Rationality, Oxford University Press (USA), 2004

Thursday 16:15 – 17:45

start: 16.10.2014

Writing and Argumentation: An Introduction to Philosophical Argument

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

Invalidenstraße 110, 10115 Berlin, room 241 (!)

MIND

The goal of this series of seminars will be to train students in the language and argumentation skills required for reading and writing philosophy. It is aimed at both philosophy students and, perhaps especially, graduate students from the non-philosophy cognitive sciences. Students will be trained not just in how to read and understand philosophical arguments, but to evaluate critically them, too. The goal will be to enable students to argue with philosophers on their own terms – capable not just of appropriating philosophers' ideas for their own work, but to be able and confident to critically accept or reject and develop these ideas too.

In the earlier parts of the course, we'll look at the nature of philosophical argument and key aspects of philosophical reasoning. Later we'll look at particular examples of philosophical argument in more detail, through close readings of a series of classic papers in the Philosophy of Mind by a range of authors including Putnam, Burge, Fodor, Chomsky, Churchland and Jackson.

Literature:

Weston, A. (2009). *Rulebook for Arguments* (4th edition). Hackett Publishing.

Beakley, B. & Ludlow, P. (eds.) (2006). *The Philosophy of Mind: Classical Problems/Contemporary Issues*. Cambridge, MA: MIT.

16 – 19 Feb 2015, 11:00 – 17:00

Where does embodied cognition come from?

Prof. Dr. Martin Fischer (Univ. Potsdam) / Prof. Dr. Michael Pauen (HU Berlin) / Prof. Dr. Dr. Friedemann Pulvermüller (FU Berlin)

venue: tba (to be announced)

(Registration required and binding!)

MIND/BRAIN

Traditionally, philosophy, psychology, and linguistics used to focus on the brain when it comes to explain and understand cognition. This view has been challenged in recent years both by philosophical arguments and empirical evidence showing that cognitive processes can only be understood if bodily processes are taken into account.

The seminar will start with a discussion of the main philosophical issues. Afterwards, empirical papers from psychology and linguistics providing evidence for embodied cognition will be read.

Focus BRAIN

Tuesday 12:00 – 13:30

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start: 14.10.2014

Social Cognitive and Affective Neuroscience

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

Invalidenstraße 110, 10115 Berlin, room 449

MIND/BRAIN

The overarching goals of the field of Social Cognitive and Affective Neuroscience are the understanding the neural bases of social behavior, affect, and social cognition and using that knowledge to inform psychological and philosophical theory. The primary aim of this seminar is to survey key research and methods in social neuroscience in sufficient detail for you to have a sense of the scope of the field. The secondary aim of this course is to sharpen your critical skills as a consumer of social neuroscience and psychological science more broadly. To achieve this aim, the format of most of this semester's sessions will be that of a journal club, others, however, will include e.g. pro and con discussions on selected topics, learning about blogs dealing with social cognitive and affective neuroscience, and trying out and judging tests and paradigms frequently used in social cognition research.

Tuesday 14:30 – 16:00

start: 04.11.2014

Resting State Data Analysis

Dr. Carsten Finke (Charité - Universitätsmedizin Berlin / Berlin School of Mind and Brain)

Computer Pool BCCN, Institut für Biologie, Philippstr. 13, Haus 2 10115 Berlin (access via Luisenstr. 56). The computer Pool is located in the basement of the building.

BRAIN

Our brain is highly active and exhibits coordinated activity not only when we actively perform tasks, but also during resting conditions. Resting state functional connectivity analysis is a recently developed powerful method that investigates spontaneous brain activity in the absence of overt task performance or stimulation. Specifically, correlations of this spontaneous activity between brain regions are analyzed to identify functional brain networks. Importantly, resting state functional connectivity analysis offers several advantages that promote its application in clinical populations, including non-invasiveness, requirement of only minimal cooperation allowing investigation of a wide range of patients, circumvention of task-related confounds and short acquisition times.

In this hands-on seminar, students will analyze a clinical resting state fMRI dataset. Following an introduction on the background of the method, students will learn about the different steps of the analysis and immediately perform these steps. By the end of the seminar, students will be able to run a complete resting state functional connectivity analysis, including data quality assessment, selection of an analysis strategy, knowledge of the most common pitfalls and interpretation of the results.

Tuesday 18:00 – 20:00

start: 14.10.2014

Progress in Brain Language Research

Prof. Dr. Dr. Friedemann Pulvermüller (FU Berlin)

FU Berlin, Habelschwerdter Allee 45, 14195 Berlin, room: JK 31/102

MIND/BRAIN

This colloquium will focus on recent advances in the investigation of brain mechanisms of language. It is designed for students and young researchers interested in an explanation of how the brain controls speech production, realises language comprehension and connects linguistic symbols with meaning and human interaction. The field of neurolinguistics will be broadly covered, with possible foci on phonological, lexical, syntactic, semantic and pragmatic questions. Further topics will be neurological language deficits, the neuroplastic changes following lesion of language relevant areas of the brain and the learning and relearning of language both in an experimental/language teaching context and in neurorehabilitation. We may also discuss explicit explanatory models of language mechanisms in the human brain. The colloquium will cover cutting edge publications in the brain language domain and current research projects in the Brain Language Laboratory of the Freie Universität Berlin. Ideal participants will aim at a BA, MA or PhD in the brain language sciences and may come from linguistics, psychology, neuroscience, or medicine. Participants may review a recent research publication or will be given an opportunity to present their own research plan or ongoing research project. Presentations of guest scientists will be part of this course.

Recommended readings:

Cappa, S. F., & Pulvermüller, F. (2012). SPECIAL ISSUE - Language and the motor system. *Cortex*, 48(7), 785-787. doi: 10.1016/j.cortex.2012.04.010

Kiefer, M., & Pulvermüller, F. (2012). Conceptual representations in mind and brain: Theoretical developments, current evidence and future directions. *Cortex*, 48(7), 805-825. doi: 10.1016/j.cortex.2011.04.006

Pulvermüller, F. (2012). Meaning and the brain: The neurosemantics of referential, interactive, and combinatorial knowledge. *Journal of Neurolinguistics*, 25(5), 423-459. doi: 10.1016/j.jneuroling.2011.03.004

Wednesday 10:00 – 11:30

start: 15.10.2014

Classics of Neuroscience

Dr. Andrew Wold (Berlin School of Mind and Brain)

Invalidenstraße 110, 10115 Berlin, room 449

MIND/BRAIN

This course discusses scientific milestones that have shaped modern neuroscience. The lectures will elaborate on historical research discoveries that all students in neuroscience should be familiar with. This Classics of Neuroscience is intended to be an interdisciplinary venture, split into three modules: Classics of Neuropsychology, Classics of Social Cognition, and Classics of Decision Making. Those who wish to participate will get to review paradigm shifting research within each module, while looking more closely at the historical context in which the discoveries took place, and the implications they have on how we view/conduct modern neuroscience. The Classics of Neuroscience will not only provide the essentials that all aspiring neuroscientists should be versed in, but also the key breakthroughs that resonant in research today.

Wednesday 14:30 – 16:00

start: 05.11.2014

Cognitive Deficits in Neurological Diseases

Dr. Carsten Finke (Charité - Universitätsmedizin Berlin / Berlin School of Mind and Brain)

Bonhoefferweg 2 (Studenteneingang), 10117 Berlin, Ebene 2, Bonhoefferraum/Seminarraum 26

BRAIN

Almost all neurological diseases are associated with cognitive deficits, although frequently sensory or motor symptoms dominate the clinical presentation, e.g. in Parkinson's disease, multiple sclerosis or stroke. In this seminar, students will get to know the most common neurological diseases and their typical clinical manifestation with a specific focus on their distinct cognitive profiles. Recent studies investigating neural correlates of these cognitive deficits will be introduced. Students will learn about pathophysiological concepts and therapeutic strategies and whenever possible, patients will be invited to the classroom to report their symptoms and their view of the disease.

Thursday 10:00 – 11:30

start: 16.10.2014

Neuroscience of Decision Making

Dr. Dar Meshi (FU Berlin)

Invalidenstraße 110, 10115 Berlin, room 449

MIND/BRAIN

As human beings living in today's society, we're faced with a multitude of decisions every day. These decisions range from the somewhat trivial (e.g. what food to eat, and what clothes to wear), to the more important (e.g., what career path to take, and whom to spend the rest of your life with). But how do we make these decisions? How do we value and compare options? How do we finally decide to take action?

By using functional magnetic resonance imaging over the last 20 years, neuroscientists have been able to look into the brain to better understand the decision-making process. In this class, students will learn the answers to the above questions and others, as well as key theories and ideas in the field of decision neuroscience. Recent studies will be introduced and covered. Students will not only learn about the results of these studies, but they will be educated on the methodology and different types of relevant analyses in the field. Finally, students will critically discuss the usefulness of this field of research.

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.

Friday 14:30 – 16:00

start: 17.10.2014

Taste and smell – from molecules to subjective experiences

Dr. Kathrin Ohla (German Institute of Human Nutrition, Potsdam)

Invalidenstraße 110, 10115 Berlin, room 449

MIND/BRAIN

The abilities to taste and smell play a crucial role in the sensory analysis of food and thereby drive food acceptance or rejection. Taste and smell percepts are highly susceptible to (redundant) information from other senses but also from prior experiences and semantic cues. Given their relevance for food intake control and quality of life it is surprising that they remain the least explored senses.

In this seminar, students will explore the principles of taste and smell perception all the way from receptors to perceptual awareness including effects of cognition (e.g. learning and language) on taste

and smell perception. Furthermore, students will practice to read original research and review articles efficiently while maintain a critical view on the findings.

The seminar will be interactive and include student presentations of primary research articles, discussions as well as demonstrations and small experiments to reinforce the newly achieved knowledge.

The seminar will address most of the following topics:

- Taste peripheral coding – from molecules to the brain stem
- Taste central processing
- Taste lateralisation – insights from clinical studies
- Taste quality – perceptual categories or a mere semantic construct?
- Odor peripheral coding – from molecules to the brain stem
- Odor central processing
- Odour objects or learning to smell - odour recognition and naming
- Can the human nose really detect 1 trillion odours?
- Binocular rivalry – when the nostrils compete
- Flavor – when odor and taste merge
- Flavor in context – how meaning alters flavor experiences
- Seeing the flavor – how visual impressions influence flavor perception
- Eating with Tchaikovsky - how sound impacts flavor perception
- Breaching expectancies – how we perceive novel flavors
- Taste and smell disorders

3-6 March 2015, 9:00 – 17:00

When Socio-Affective Neuroscience meets Decision Making:

The Puzzle of Understanding and Cooperating with Others

Prof. Dr. Tania Singer (MPI Human Cognitive and Brain Sciences, Leipzig / Social Neuroscience)

venue: Ostertag-Haus (Haus 4), Campus Nord, Philippstraße 12, 10115 Berlin

MIND/BRAIN

(Open for only 10 master students. Registration required and binding!)

We humans are extensively social creatures. We interact and communicate with each other on a daily basis and have to make many decisions in such social context. But how do we actually understand what another wants or feels and how we should act accordingly? What allows us to cooperate and trust the other and which conditions lead to a break-down of such cooperation? What motivates our actions? And which role do emotions play for decision making? Can we learn to become more prosocial? Such questions have become the focus of many subfields of psychology and neuroscience in the last decades. Thus, the emergence of subdisciplines such as the affective and social neurosciences as well as the field of Neuroeconomics have tried to understand how human brains and bodies solve the problem of understanding others' minds, feelings and actions and how these different routes of social cognition can influence decision making and cooperation.

In this seminar, students will learn key concepts of social and affective neurosciences related to decision making including cognitive perspective taking and theory of mind, empathy and compassion, trust and fairness. Recent studies will be introduced that have linked these concepts to decision making and their neuronal basis. We will thus also explore the field of empirical micro-economics in relation to topics like human cooperation, trust and defection. This includes the introduction in the most important game theoretical paradigms and how these have been used in cognitive neurosciences of decision making and cooperation. However, we will not only focus on the brain, but also learn about the body and here more specifically about the autonomic nervous system as well as hormones such as oxytocin and cortisol and their relationship to human prosociality. Furthermore, some relevant methods will be introduced. Finally, the students will discuss how these findings can be used for society and discuss recent plasticity studies which show that prosocial motivation and social cognition can be trained and lead to an improvement of human cooperation; findings which can be of great relevance for applications in society such as in the field of education, economy and clinic.

7 - 10 April 2015, 9:00 – 17:00

Consciousness and visual perception

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

Invalidenstraße 110, 10115 Berlin, room 449

MIND/BRAIN

For many years the mechanisms of consciousness remained a riddle. Only recently, with advent of modern neuroscience, has it become possible to scientifically investigate the link between conscious experience and brain activity. This seminar will provide an overview of the current state of research on the so-called “neural correlates of consciousness”.

The specific topics covered are:

- Overview of the visual system
- History of research on consciousness
- Conceptual frameworks for studying consciousness
- Levels of consciousness versus contents of consciousness
- Definitions of consciousness in experimental studies
- Neural models and mechanisms of consciousness
- The special role of primary visual cortex in visual awareness
- The role of neural dynamics (synchronization, feedback, recurrent processing)
- Conscious versus unconscious information processing
- Decoding the contents of consciousness from brain activity

Literature:

- Baars BJ. (2002). The conscious access hypothesis: origins and recent evidence. *Trends in Cognitive Sciences* 6:47-52.
- Block N. (1995). On a confusion about a function of consciousness. *Behavioral and Brain Sciences* 18:227-47.
- Crick F, Koch C. (1995). Are we aware of neural activity in primary visual cortex? *Nature* 375:121-3.
- Dehaene S, Naccache L. (2001). Towards a cognitive neuroscience of consciousness: basic evidence and a workspace framework. *Cognition* 79:1-37.
- Haynes JD. (2009). Decoding visual consciousness from human brain signals. *Trends in Cognitive Sciences* 13:194-202.
- Haynes JD, Rees G. (2006). Decoding mental states from brain activity in humans. *Nature Reviews Neuroscience* 7: 523-534.
- Lamme VAF, Roelfsema PR. (2000). The distinct modes of vision offered by feedforward and recurrent processing. *Trends in Neuroscience* 23:571- 79.
- Rees G, Kreiman G, Koch C. (2002). Neural correlates of consciousness in humans. *Nature Reviews Neuroscience* 3:261-70.
- Tong F. (2003). Primary visual cortex and visual awareness. *Nature Reviews Neuroscience* 4:219-29.

If you have questions, please contact

Dr Dirk Mende

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NB: The Mandatory Lectures and the Mandatory Tutorials are for Mind and Brain students only. The Elective Courses are open for students of other programs. If you are a student of Humboldt-Universität, please register for these courses in AGNES. If you are a student of another university, please contact the course coordinator (Dr Dirk Mende): You have to fill a registration as guest auditor or visiting student which you can receive from the course coordinator.