UNIVERSITÄT OSNABRÜCK

Institute of Cognitive Science / Institut für Kognitionswissenschaft

www.ikw.uos.de

Welcome!

Cognitive science is a thriving interdisciplinary research endeavor. It not only changed and continues to change our understanding of mind and brain, it also has an enormous impact on future computing paradigms for scientific and economic applications. As such, cognitive science touches upon some of the deepest, most profound issues of our modern society.

Osnabrück University is one of only a few institutions of higher education in Germany and Europe that offer a full range of degree programs in cognitive science. Furthermore, the *Institute of Cognitive Science* at Osnabrück University is one of only a handful of academic institutions in Europe where research is carried out on the entire spectrum of cognitive processes. Research at the *Institute of Cognitive Science* is based on the close interdisciplinary cooperation among researchers from a wide variety of fields. The institute comprises core research groups in

- Artificial Intelligence
- Biologically Oriented Computer Vision
- Cognitive Modeling
- Computational Linguistics
- Neurobiopsychology
- Neuroinformatics
- Philosophy of Mind and Cognition
- Psycho- and Neurolinguistics

and associated research groups in

- Human-Computer Interaction
- Knowledge-Based Systems
- Media Informatics
- Neurobiology

Osnabrück University offers curricular academic programs leading to B.Sc., M.Sc., and Ph.D. degrees in Cognitive Science. The undergraduate curriculum is designed to provide comprehensive knowledge in all core areas of cognitive science and to introduce students to more advanced topics in their selected areas of study, while graduate training is closely integrated with the research activities of the *Institute of Cognitive Science*.

What Is Cognitive Science?

Cognitive science is the interdisciplinary study of mind and intelligent behavior. It is a multifaceted research program that combines empirical and conceptual approaches at various levels of analysis. The aim of cognitive scientists is to investigate and understand those capacities that enable natural or artificial systems – humans, other animals, computer simulations, or robots – to intelligently solve problems and successfully adapt to ever-changing circumstances. This includes their abilities to perceive, move, plan, reason, memorize, learn, communicate, recognize objects, react emotionally, make decisions, categorizations, or inferences, etc. In its attempt to uncover the mechanisms underlying these capacities, to study their structural and functional representation in the brain, and to implement them in artificial systems, cognitive science is an essentially interdisciplinary endeavor drawing on the resources of various academic disciplines. Historically, the dominant disciplines were artificial intelligence, linguistics, neuroscience, philosophy, and psychology. Nowadays, cognitive science has branched out into specialized sub-fields, such as cognitive modeling, neuropsychology, neuroinformatics, neurolinguistics, psycholinguistics, and cognitive robotics.

The common research core, however, that unites these diverse approaches and also resonates into neighboring fields, such as anthropology, computer science, mathematics, and media science has remained constant. What cognitive scientists want to understand, first and foremost, is how the mind works, how the approximately 1400 grams of soggy grey tissue that are our brain, or maybe some complex arrangement of appropriately wired circuits on a small chip and some other gear in a robot or a computer, can bring about consciousness, intelligence, rationality, etc.

»We'll show you that you can build a mind from many little parts, each mindless by itself.«

Marvin Minsky

Cognitive Science in Osnabrück

The interdisciplinary *Institute of Cognitive Science (Institut für Kognitionswissenschaft,* IKW) forms the institutional core of a larger research endeavor at Osnabrück University, spanning multiple disciplines, institutes, and faculties, whose common research focus is a better understanding of human beings, technologies, and their interaction.

With its eight research groups in the fields of artificial intelligence, biologically oriented computer vision, cognitive modeling, computational linguistics, neurobiopsychology, neuroinformatics, neurolinguistics, and philosophy of mind and cognition, with four associated research groups on human-computer interaction, knowledge-based systems, media informatics, and neurobiology, and with many further cooperation partners from the *Institute of Computer Science,* the *Institute of Philosophy,* the *Institute of Psychology,* the *Institute of Mathematics,* and several more, the IKW encapsulates the full spectrum of state of the art research in the field of cognitive science.

Students in three international study programs (a three-year bachelor's program, a two-year master's program and a three-year Ph.D. program), with more than hundred graduations each year, benefit from this unique research environment as much as the many international guest researchers at all levels of qualification that come to the IKW each year, making it one of the most thriving and attractive top level research institutes in the field of cognitive science.

Come and join us!

Artificial Intelligence

Artificial Intelligence (AI) is the scientific discipline studying the development of computational models for cognitive abilities and behavior we usually call intelligent. Examples of such abilities include game playing, reasoning, understanding natural language, perceiving complex scenes, playing soccer, or acting in uncertain environments. Many methodological aspects of AI are borrowed from computer science, but often novel methods, algorithms, and formal theories are developed.

AI has a significant impact on economy and society. By now, it is hard to imagine a world without AI technologies used by companies such as Google, Facebook, IBM, and Microsoft. But more importantly, recent developments in areas such as cognitive computing, machine learning on Big Data, neural-symbolic reasoning and learning, and robotics will produce even more services, tools, and support systems that will change our way of living. Examples for this evolution include intelligent e-learning systems, autonomous driving, smart energy grids, smart private households, prediction models in the public health sector, and intelligent assistants for more or less every situation, just to mention a few of them.

The journey of AI has just begun and there is at present an enormous number of open problems that need to be solved to continue this journey successfully. Joining the field of AI means addressing these problems in theory and practice and building interesting applications that will make our future life easier and more convenient.

Prof. Dr. Kai-Uwe Kühnberger

How can we make computers creative?
We develop cognitively inspired models for enabling computers to compose music, to write poetry, or invent new mathematical concepts. How can we measure creativity? What are economically interesting domains for computational creativity?

How can we base models on cognitive mechanisms?
What are adequate computational models for analogy, conceptual blending, heuristic reasoning, or similarity? What are good formal methods in order to represent such mechanisms? To which extent do such mechanisms facilitate general intelligence?

What is needed for artificial general intelligence?
How can we construct generally intelligent systems that achieve human-level performance in a wide variety of tasks? Are there models for integrating low-level streams of input with high-level structured knowledge? Is the cognitive computing paradigm a way to achieve general intelligence?

Biologically Oriented Computer Vision

Biologically oriented computer vision is an interdisciplinary field of research that tries to implement findings from cognitive science and neurobiology in computer vision algorithms.

Computer vision has experienced a boost in recent years. Many tasks that have appeared unsolvable a decade ago now have become tractable, such as face recognition and person detection in real world scenes. Applications like the recognition of traffic signs and road markings are even ready for the market.

However, vision systems still suffer from fundamental limitations. Applications are highly task-specific because they lack a generally applicable representation of visual knowledge. Further, acquisition of visual knowledge requires tremendous effort since images need to be labeled manually as training samples. And last, but not least, 3D-analysis of scenes is still difficult.

Biologically inspired computer vision tries to overcome these limitations. Three new directions of research appear most promising. Firstly, deep neural networks have been surprisingly successful at solving vision tasks. This is achieved by forming suitable intermediate representations, but the functional principles are still unclear. Secondly, vision systems require improved user interaction, both in training and application. Humans need advanced interaction to tell the system about tasks, and the system should communicate its output in an understandable form. Thirdly, the acquisition of 3D-models has become feasible. The ultimate goal is to obtain models of such quality that a 3D-printout looks exactly like the original object, and to supply functional additions, such as flexible joints, by user interaction.

Prof. Dr. Gunther Heidemann

How do deep neural networks represent visual knowledge?
Deep networks develop powerful representations of the visual input, but how can we visualize and understand such intermediate representations?

How can we interact with a vision system?
How can visual knowledge be made available for the training of adaptive vision systems? How can a vision system best communicate its output? How can we interactively insert functional elements, such as joints, into 3D-models obtained from real objects?

Computational Linguistics

Computational Linguistics (CL) and Natural Language Processing (NLP) are scientific disciplines studying the understanding of natural language and communication from a computational and cognitive perspective. CL/NLP researchers typically develop formal and computational models of linguistic processing by blending together methods from linguistics and computer science.

CL/NLP researchers investigate foundational topics in linguistics (e.g., cross-linguistic analyses of structure and meaning) in order to integrate the results in models of language comprehension/production and human-human/human-machine communication. A big challenge, e.g., is semantics and pragmatics processing, which requires both a better understanding of natural language semantics/pragmatics and technical tools for integrating such processing effectively into computer programs. Accordingly, in collaboration with artificial intelligence researchers, we pursue the formalization and computational implementation of the semantic ontologies and algorithms that enable both spoken language interaction and text-based information extraction in order to develop NLP applications that automatically facilitate and analyze social media interactions, web searches, and multi-agent dialogue systems. Formal and computational models are grounded psychologically through experimental methods that probe the cognitive and neural mechanisms enabling human linguistic processing, on which researchers of CL/NLP and psycho- and neurolinguistics work closely together.

CL/NLP is a very lively and challenging scientific field, due to the constant development and improvement of theoretical models and rapid technological advances. Joining the CL/NLP group means that you can get involved in further developing the technical tools implementing both neurologically and psychologically plausible models of human language processing and novel practical applications.

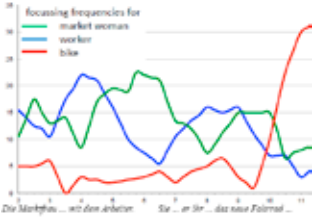
How can we analyze the language used in spoken or text-based communication?

Our research focus is the ubiquitous phenomenon of context dependence. We develop robust analyses of linguistic structure that can cope with degenerate input, e.g., the fact that both human dialogues and large corpora of text from the internet provide us with noisy, fragmentary, and ill-formed data. We design formal systems involving semantic/pragmatic representations that can model, e.g., the interaction of lexical and compositional meaning with discourse and background knowledge. Such representations can be integrated into automated reasoning and human-computer interaction systems, providing more naturalistic user interfaces.

How does linguistic information interact with non-linguistic experience?

Using eye tracking methods, we measure at which point in time people focus on which objects in a visually presented scene while listening to a brief discourse.

The pattern of eye movements over time reveals how auditory language processing interacts with visual input.



Cognitive Modeling

Cognitive modeling is the theoretical branch of cognitive psychology concerned with simulating mental processes, typically with computer programs. Psychological experiments test human performance on cognitive tasks. Typical tasks include detecting faint sounds, tracking several objects on a screen, remembering lists of words, recognizing objects, learning new concepts, and solving puzzles. Cognitive models describe the processes and mechanisms that underlie human cognitive performance. For example, memory models describe in detail the differences between short-term and long-term memory and how the processes of encoding and retrieving information work. These models are specified formally in mathematical equations. Usually the models are implemented as computer simulations.

Since the aim of cognitive modeling is to develop computer programs that behave intelligently in various cognitive tasks, it has close connections to artificial intelligence. However, contrary to programs in artificial intelligence, cognitive models should also have the same limitations as humans, e.g., in working memory or attention span. Hence, cognitive models not only explain how people master cognitive tasks, but also when and why they fail.

How do we recognize objects?
Seeing is effortless. You open your eyes and you see what is where. However, your eye only registers the light intensity on different parts of the retina. There aren't any objects in the image that is captured by the eye. The objects are detected in the image by your visual system. Edges and object boundaries have to be extracted from the image in order to separate the objects from the background before objects can be recognized. Which representations underlie our capacity for recognizing objects? Which processes transform image-based representations into object-based representations? How are these processes implemented in the brain?

How does memory work?
Broadly, memory can be divided into short-term and long-term memory. Short-term memory can only hold small amounts of information for a short time, whereas long-term memory can store vast amounts of information for a much longer time. Like working memory in a computer, short-term memory only holds information that is immediately relevant to the task at hand. But how is information transferred between these two buffers? How is information encoded, retrieved, and forgotten? How does the structure of memory limit memory performance and what can be done to improve memory?

What is the architecture of the mind?
Just like a modern computer, the mind is hypothesized to consist of separate functional modules that interact with each other. Key components are different memory buffers, perceptual systems, the motor system, and a central controller. A cognitive architecture is a unified computer model of the mind that explains how these modules interact. Can such a cognitive architecture explain intelligent behavior?

Neurobiopsychology

Neurobiopsychology investigates human embodied cognition at the intersection of neuroscience, biology, and psychology. One of the main issues addressed by the research of the neurobiopsychology group in Osnabrück is multisensory integration, e.g., how the nervous system combines information from different senses into a coherent perception. Another important topic we examine is sensorimotor coupling, e.g., how the sensory system interacts with the motor system. For this purpose, we study human perception, behavior, and physiology, using a variety of different methods. Perception is examined using psychophysics experiments and sensory augmentation in laboratory, natural, or virtual reality settings. Eye movements and spatial navigation are used to investigate behavior. Physiological evidence about brain processes is collected by EEG. Modern technologies allow investigating human cognition and behavior in the natural environment, using a combination of mobile eye tracking and mobile EEG measurements. In collaboration with our research partners, we also have the opportunity to use technology such as fMRI or MEG. These empirical studies are complemented by theoretical work based on computer simulations and conceptual philosophical analysis.

The results of our work are further developed and applied in various companies:

http://www.eyequant.com/
http://www.feelspace.de/
https://scicovery.com/

Prof. Dr. Peter König

Can humans learn a new sensory modality?
Using a sensory augmentation device, the *feelSpace belt,* subjects who train in the natural environment receive information on magnetic north via vibrating elements onto the waist. This changes how space is perceived, while increasing trust in navigational abilities.

How does the level of visual information change the sampling behavior of an object?
We investigate the influence of eye movements on the perception and recognition of ambiguous objects. We demonstrate that action precedes perception, i.e., that there is a reverse sensorimotor coupling.

How does visual, vestibular, and kinesthetic information interact while moving in space?
In a fully immersive virtual reality setup, subjects perform a triangle completion task actively walking and turning. To study integration of multiple sensory modalities, we investigate brain activity using mobile EEG.

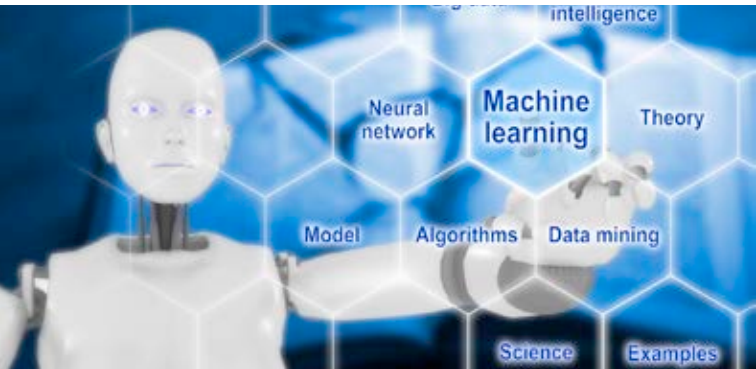
Can partners in a joint visual search task use tactile and auditory cues to exchange gaze information?
In a psychophysics experiment, we examine whether partners improve their performance through multisensory cueing, translating close links of their individual perception and action to a teamwork context.

Neuroinformatics

Neuroinformatics investigates how cognitive functions are implemented in the brain. It uses models or simulations of complex systems composed of millions of neurons, such as the human brain or neuro-inspired artificial systems, compact statistical descriptions, or purely mathematical analyses of such systems, in order to unravel the information processing principles they rely upon. Neuroinformatics also develops new neuro-inspired technologies with the potential to revolutionize coming generations of computing devices, thereby providing the link between academic research and technology.

Neuroinformatics relies on simulations and mathematical analyses of complex dynamical systems and on probabilistic approaches, machine learning and data science methods that model cognitive and neuronal processes at several levels of abstraction. By combining these methods with the use and development of cutting-edge tools, the field of neuroinformatics advances technologies used in cognitive science to record, monitor, and stimulate the brain in order to gain conceptual insights into cognitive functions, including technologies such as virtual reality, mobile and IoT devices for the recording of eye movements, and EEG.

Neuroinformatics provides fantastic opportunities for research and an industrial career. Its use of machine learning, data science, and big data approaches, combined with the development of new neuro-inspired computing devices, makes neuroinformatics indispensable for any company working with data, including, e.g., Google, IBM, and Microsoft.



Prof. Dr. Gordon Pipa

How do neurons learn?
We investigate how the brain can self-organize, adapt to new tasks, and compensate damage in neuronal systems. To this end, we use mathematical and simulation-based analyses of larger populations of neurons and define principles of how neurons can optimize information processing induced by neuronal plasticity.

Can we build an artificial brain?
We study and develop models for neuro-inspired computing devices composed of silicon neurons or even built by optical laser elements. The size and complexity of these artificial brains will equal the size of the human brain already in the coming years. We investigate how such systems can be used for computation and made adaptive in order to learn cognitive processes and behavior in a brain-like way. To this end, we implement cutting-edge machine learning principles, such as deep learning or reservoir computing, based on neuro-inspired artificial systems.

Can we read brain activity?
The brain processes information and produces electrical signals. We develop tools and technologies to read these signals and to decode the information they contain. This information is then used in brain-computer-interfaces that allow us to control cognitive processes and also enable us to identify critical states that can be used as early markers of diseased neuronal activity.

Philosophy of Mind and Cognition

Philosophy of mind and cognition is a subfield of *theoretical philosophy*. Theoretical philosophy is concerned with general and fundamental questions about us human beings and the world surrounding us, such as *What is there?* (metaphysics), *What can we know?* (epistemology), *What is meaning?* (philosophy of language), *What are laws?* (philosophy of science), and *What are numbers?* (philosophy of mathematics). The philosophy of mind and cognition is concerned with all aspects of human, animal, and artificial minds and their relationship to physical or physiological processes in the brain, the body, and the environment.

On the one hand, our waking life is filled with feelings, thoughts, hopes, emotions, beliefs, memories, decisions, etc. We experience ourselves as persons that persist for a lifetime, regardless of the various changes our bodies undergo, and as agents who freely and deliberately act the way they do. It is this status as persons and agents that accounts for many of the moral and legal rights and duties we enjoy, but withhold from objects who are not yet or no longer persons or never have been and never will be persons. On the other hand, the empirical sciences offer fascinating and detailed accounts of how our body – and in particular our brain – enables us to cope with all sorts of environmental, cognitive, and social challenges. In their accounts however, the mental categories above do not seem to play any role.

How, then, do these two different perspectives fit together? How can our body, and in particular the approximately 1400 grams of soggy grey tissue that are our brain, bring about emotions, experiences, decisions, etc., eventually resulting in complex systems that are not mere automata, blindly following the laws of nature, but conscious individuals who can make rational choices?

Prof. Dr. Achim Stephan
Prof. Dr. Sven Walter

What are emotions?
Are emotions mere subjective feelings or experiences? Or do they include other aspects as well, e.g., bodily aspects such as neurophysiological reactions or facial expressions, motivational aspects such as action tendencies, or cognitive aspects such as the appraisal of something as being dangerous, joyful, etc.? Can emotions only be had by humans or by other non-human animals or artificial agents as well? Can emotions only be had by individuals or also by supraindividual systems?

Are we free?
Do we have something like »free will«? What would that even mean? Can we be free in a deterministic universe? Can we be free if all our decisions and actions result from brain processes and unconscious psychological and social influences? Is »My brain made me do it« an acceptable excuse for morally wrong behavior?

What is cognition?
Is cognition restricted to computational processes over mental representations in a central processing unit like the human brain? Or does it involve noncomputational and nonrepresentational processes that emerge in the active, real-time interaction of an agent with its natural, technological, or social environment? What role do the concrete bodily makeup of an agent and the environment it is embedded in play? Can cognitive processing transcend the biological boundaries of the individual organism?

Psycho- and Neurolinguistics

Psycho- and neurolinguistics are the scientific disciplines which are concerned with the psychological and (neuro)physiological mechanisms supporting language production and comprehension. Which knowledge systems and cognitive processes make human language possible? How does our brain deal with such a complex system as language? When and how do infants learn the different properties of their first language? Why is learning a language later in life so difficult compared to learning the first language early in life? How do language disorders come about and how can they be treated?

Psycho- and neurolinguistics includes theoretical, behavioral, and neurophysiological methods from linguistics, psychology, and neuroscience. For example, eye tracking helps to determine the allocation of attention during language comprehension. Methods based on magnetic resonance imaging (MRI) serve to detect the structural and functional neural basis of language processing. Electrophysiology (e.g., Electroencephalography, EEG) serves to precisely determine the time course of neural processes while we process language.

Prof. Dr. Jutta L. Müller

How do we learn the rules of language?
Language enables us to create an infinite number of sentences out of a limited number of words. This makes sentences sometimes very complex. When and how do we learn the relation between words in sentences such as »The cat the dog chased fought back.«? Are humans the only animals able to learn complex linguistic rules?

How do we acquire the meaning of words?
Many different indicators support the learning of word meanings. We are interested in finding out how meanings related to our different senses, such as the shape of an object, the ringing of a telephone, or the softness of a touch, are learned as aspects of word meaning by young infants.

How are language and memory related?
Language supports our memory. We easily remember linguistic information and often even predict upcoming sentence parts. How are memory and language related and which neural processes support both processes?

What is special when we learn a second language?
Production and comprehension in a second language is often more effortful compared to our native language. What are the neural differences between first and second language processing? How do the mechanisms of language learning change across development?

Human-Computer Interaction

Apl. Prof. Dr. Kai-Christoph Hamborg
associated research group

Human-computer interaction (HCI) is an interdisciplinary field of research and practice embracing psychology, cognitive science, computer science, design science, and many other disciplines. HCI deals with the design, evaluation, and implementation of interactive computing systems for human use.

One of the main factors which contribute to the quality of human-computer interaction is usability. Today, usability is defined by three aspects, these being whether the users can achieve specified goals with a product (effectiveness), how much physical and cognitive effort they have to put into this (efficiency), and how satisfied they are (satisfaction). Usability engineering is the discipline that provides structured methods, such as usability-testing, for achieving usability during product development.

The Usability Lab of Osnabrück University is a professionally equipped facility for performing a wide range of research in the field of HCI. It comprises a control room and two test rooms and is equipped with behavior observation and usability testing tools, including an eye tracker and professional software for usability research. The lab serves both educational and research purposes.

What makes a system usable?

How can we guide users' attention to the relevant information on a screen? How can we help users to develop an adequate mental model of a system?

How can we design for usability?

How can we measure the usability of a system? How can we identify design features that impede the user's goal achievement and how can we fix usability problems from an understanding of human action and cognition?

Knowledge-Based Systems

Prof. Dr. Joachim Hertzberg
associated research group

Knowledge-based systems (KBS) in the scientific mainstream in AI are software systems that explicitly represent and reason about domain knowledge in order to solve problems in a smart way. Expert systems are the classical example for such systems and a typical way of applying the respective technology. The KBS group in Osnabrück goes beyond that. Our challenge is to make use of explicitly represented knowledge in the control of autonomous robots. That puts the classical topics of knowledge representation and reasoning into an integration context. Robots need to update their knowledge from noisy and typically incomplete sensor data, which needs to be interpreted in real time. They need to integrate reasoning results into their fast-running cycles of non-symbolic control. The hypothesis behind our research is that a knowledge-based robot control system can generate more flexible, more robust, and easier communicable robot action than one based on sub-symbolic and statistical methods alone.

How can we update a knowledge base from noisy sensor data?
Domain knowledge allows a robot to generate expectations about its environment. What if sensor data differ from expectations? Is the data wrong or the expectation? Could knowledge help reconcile the two? How is noisy sensor data interpreted in terms of symbolic categories of a knowledge base in the first place?

How can a robot act in a goal-directed way?
Stubbornly following a plan towards a goal is easy – but what if there is an obstacle (physical or metaphorical)? When should a robot start to improvise, when give up? Based on its sensor data, how does it tell action failure from success? Should it re-try a failed action? Can sensor data interpretation explain action failure?

The research in the KBS group is done in close cooperation with the Osnabrück Branch of DFKI Robotics Innovation Center, which is headed by Joachim Hertzberg, too.

German Research Center for Artificial Intelligence

Media Informatics

Dr. Tobias Thelen
associated research group

Media informatics as a subdiscipline of computer science focusses on algorithms and tools for creating, processing, and using digital media. Digital media are omnipresent in everyday life and are used for communication, learning, and entertainment. They transport information in an unprecedented amount and speed. Research in media informatics not only covers questions of efficient production, encoding, and transmission of multimedia data, it also touches on issues of psychology, aesthetics, and didactics. Furthermore, artificial intelligence plays an important role in creating, arranging, filtering, recommending, and analyzing media content.

One of the main focuses of the Media Informatics group and the Center for Information Management and Virtual Teaching in Osnabrück is the relation of digital media to teaching and learning. In addition to the development, operation, and user support for open source learning tools like Learning Management Systems, Authoring Tools and Lecture Recording Solutions, we conduct research on e-learning effectiveness, intelligent learning systems, and adaptive hypermedia.

How can digital media facilitate learning?
Digital media are available at any time and at any place. They can be reconsulted as often as learners want to. But can they do more? Can they »recognize« learners' needs and adapt to learning styles, individual preferences, and prior knowledge?

How can we find relevant information for learning?
The amount of content available for learning is overwhelming. How can software help us in selecting the best media for our learning or teaching needs? How can results from different types of media be combined?

Neurobiology

Prof. Dr. Roland Brandt
associated research group

Neurobiology is the scientific study of the biology of the nervous system. It includes different approaches to studying the molecular, cellular, and systemic aspects of individual nerve cells, networks of neurons, and the brain. Key questions in the field are, e.g., how cells of the nervous system develop to form complex connectivity patterns, how neurons communicate with each other and adjust to the environment, what the biological basis of cognition is, what happens during aging, and what goes wrong during neurodegenerative diseases. Our department focuses on the analysis of the molecular mechanisms of neuronal development, modulation and adaption of neuronal networks, and neurodegenerative mechanisms during aging and disease. Our technical focus is on the development and use of novel quantitative live cell imaging approaches.

What are the cytoskeletal mechanisms of neurodegenerative diseases?

The cytoskeleton is the major intracellular structure that determines the shape of a neuron. Abnormalities in the cytoskeletal organization are a hallmark of many neurodegenerative diseases. In our research, we study the involvement of the neuronal protein tau during neurodegenerative processes in Alzheimer's disease and other tauopathies.

How does synaptic connectivity change during development, aging, and disease?

Contacts between brain cells in the form of synapses constitute an essential feature for the proper functioning of the nervous system. We are interested in investigating the density and structure of the highly dynamic dendritic spines in brain regions relevant for memory formation and storage. We examine age, gender, and disease-relevant effects and their modulation by environmental changes.

Joint Bochum – Osnabrück DFG Research Training School on Situated Cognition

From 2017 to 2021, the IKW is home to a bi-local international *Research Training Group* (»Graduiertenkolleg«) on *Situated Cognition,* in collaboration with colleagues at the Ruhr University Bochum (RUB).

Convinced that only a joint effort and the interplay between empirical research and philosophical reflection can provide us with an adequate account of the human mind, the more than 25 senior researchers and doctorate students of the research training group connect philosophy of mind and cognition with many other subdisciplines of cognitive science. They combine philosophical analysis with state of the art experimental research in biological psychology, developmental psychology, linguistics, neurolinguistics, neurobiopsychology, and psychiatry.

The overarching goal of the research training group is to develop a new account of cognition. The researchers try to identify deficits in traditional models of the human mind in order to refine and enhance existing conceptions by drawing on new developments in the cognitive sciences that have not yet made their way into the prevailing philosophical approaches, with a focus on four central cognitive phenomena that have been of longstanding philosophical interest, viz., perception, agency, emotions and social and linguistic understanding.

www.situated-cognition.de

DFG Deutsche Forschungsgemeinschaft

Speakers

Prof. Dr. Albert Newen (RUB), Philosophy
Prof. Dr. Achim Stephan (UOS), Philosophy

Principal Investigators

Prof. Dr. Onur Güntürkün (RUB), Biological Psychology
Prof. Dr. Peter König (UOS), Neurobiopsychology
Prof. Dr. Nikola Kompa (UOS), Philosophy
Prof. Dr. Jutta L. Müller (UOS), Neurolinguistics
Prof. Dr. Albert Newen (RUB), Philosophy
Prof. Dr. Tobias Schlicht (RUB), Philosophy
Prof. Dr. Silvia Schneider (RUB), Psychology
Prof. Dr. Ursula Stockhorst (UOS), Biological Psychology
Prof. Dr. Sven Walter (UOS), Philosophy
Prof. Dr. Markus Werning (RUB), Philosophy

Associated Researchers

Prof. Dr. Alexander Bergs (UOS), Linguistics
Dr. Peter Brössel (RUB), Philosophy
Prof. Dr. Sen Cheng (RUB), Neuroinformatics
Prof. Dr. Saskia Nagel (Twente), Philosophy
Prof. Dr. Thomas Staufenbiel (UOS), Psychology
Prof. Dr. Sarah Weigelt (RUB), Developmental Psychology

Sample Ph.D. Projects

- a situated account of personal freedom: the situatedness of decision making
- the neuronal foundations of the perception-to-action cycle
- a theory of embedded and extended affectivity
- investigating embodied emotions
- the situatedness of metaphors
- investigating the situatedness of linguistic understanding: the perceptual basis of word meaning acquisition
- sensory substitution experiments: testing enacted theories of cognition with experiments on sensory augmentation
- situated theories of perception
- a theory of situated social understanding
- social understanding in action contexts: visual cliff experiments
- the situatedness of linguistic understanding: the perceptual basis of word meaning acquisition

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RUB

Paradigmatic Research Projects at the IKW

Sleep is one of the most fascinating and maybe one of the most important cognitive features that enables complex behavior such as learning and emotional regulation. Yet, it is hardly understood. The sleep research of the IKW and the Student Initiative Sleep & Dream aims at untangling the mysteries of nightly slumber. For this, we conduct polysomnographic recordings in our own sleep laboratory, and we are developing new methods and devices for innovative sleep and dream experiments. Further, we organize lucid dreaming workshops, movie nights, and other events to attract new members to the group and to enthuse them with sleep and dream research. The Sleep & Dream group has become part of a lively network of international research partners, regularly visiting other European sleep labs, workshops, and conferences.

https://www.sleepdream.uni-osnabrueck.de/

The study group on **moral decision-making in autonomous vehicles** explores the behavior of humans in situations in which a moral decision procedure for (partly) autonomous vehicles requires ethical evaluation. We utilize virtual reality simulations to test subjects in realistic 3D-environments, in which their driving-behavior in moral dilemma situations can be observed. The goal is to gain insights into human preferences and intuitions, as well as infer cognitive processes which guide human decision-making and moral cognition. This knowledge can be applied to debates in philosophy, especially ethics, and guide policy decisions regarding autonomous vehicles. This interdisciplinary project links various workgroups and fields of interest at the IKW and strives to make scientific research useful in an area which in a few years will affect many people's lives.

The **flu prediction study group** has developed an application for predicting the spreading of waves of flu in the US. Our software combines real time twitter data, as well as historical data provided by health organizations, in a forecasting model. We analyze spatiotemporal dependencies between different locations, using a technique inspired by an algorithm to decode the causal relations between different brain areas. Additionally, the tool involves an option that uses the IBM software Watson in order to interact with the user and answer questions about the flu. The software could be applied to improve the allocation of resources and plan vaccination campaigns. We presented our project at the CeBIT 2016, one of the largest and most renowned trade fairs for information technology worldwide.

http://www.flu-prediction.com/

The **feelSpace** project is the result of ten years of research on multisensory integration, sensorimotor coupling, and its relation to conscious perception. In order to find out whether humans can, in addition to the classic senses, learn a new sensory modality, subjects are equipped with the feelSpace belt. This tactile compass continuously indicates the subject's orientation in space by activating a vibration element pointing to magnetic north. After training, subjects intuitively relate the newly supplied sensory input to their actions and to their orientation in space. We observe behavioral changes in spatial navigation in polygon completion tasks, fMRI measurements reveal differential cortical activation patterns, and subjects report a changed perception of space, as well as an increased trust in their navigational ability. This work has resulted in a spin-off company, headed by three former students in the cognitive science master's program who are developing products based on the feelSpace belt with the goal to help blind people and the elderly to live a more independent life.

http://www.feelspace.de/

External and Industry Collaborations

IBM

The IKW cooperates with IBM, using IBM's Watson and Bluemix services. The Flu Prediction project, e.g., predicts epidemics of influenza in the US based on analyzing health and real-time social media data (flu-prediction.com). Another project develops an embodied e-tutor using the humanoid robot Pepper besides IBM's services. IBM also supports Ph.D. students and hackathons organized by the IKW, and has recently awarded two IBM faculty awards to members of the IKW.

SALT AND PEPPER

Together with the business consultants from Salt and Pepper, the neurobiopsychology group of the IKW has submitted an EFRE research proposal on Embodied Engineering in Production Technology.

Universitätsklinikum Hamburg Eppendorf (UKE)

Prof. Dr. Peter König holds a visiting professorship at the UKE and has contributed to joint ERC and Horizon 2020 research proposals.

Spin-offs

WhiteMatterLabs GmbH

www.eyequant.com

feelSpace GmbH

www.feelspace.de

Scicovery i.G.

www.scicovery.com

Fantasieleben UG

www.fantasieleben.com

Collaborations within Osnabrück University

Prof. Dr. Bernhard Baumgartner, Marketing
research areas: consumer behavior, behavioral pricing, choice models contexts

Prof. Dr. Alexander Bergs, English and American Studies
research areas: language variation and change, cognitive linguistics, construction grammar, context in language

Prof. Dr. Susanne Boshammer, Philosophy
research areas: moral and political philosophy, normative ethics, applied ethics, forgiveness, moral dilemmas, ethics of assistance, ethics and dementia

Prof. Dr. Robert Gillenkirch, Business
research areas: judgment and decision making in business contexts

Prof. Dr. Angela Grimm, Applied Linguistics
research areas: first and second language acquisition, language assessment, language processing

Prof. Dr. Thomas Gruber, Experimental Psychology
research areas: EEG, neuronal mechanisms of perception, memory and object recognition

Prof. Dr. Michael Hensel, Microbiology
research areas: cellular microbiology, microbial pathogenesis, host pathogen interaction, imaging infection

Prof. Dr. Nikola Kompa, Philosophy
research areas: philosophy of language, epistemology, language comprehension, epistemic contextualism

Prof. Dr. Roman Osinsky, Differential Psychology
research areas: neuronal correlates of emotional attention, performance monitoring, and anxiety

Prof. Dr. Ursula Stockhorst, Psychology
research areas: classical conditioning, hormones and behavior, stress, insulin

Prof. Dr. Frank Teuteberg, Accounting and Information Systems
research areas: digital transformation, cloud computing, human computer interaction, e-health, industry 4.0

Bachelor's Program

The Osnabrück Cognitive Science **bachelor's program** provides comprehensive knowledge in all core areas of cognitive science, as well as fundamental knowledge in the neighboring fields of logic, statistics, mathematics, and computer science. Particular emphasis is put on the various methods employed in these fields and on their interdisciplinary relations. Students will acquire empirical, analytical, and also engineering skills and will be familiarized with advanced topics in their preferred areas of study. The program addresses both German and international students.

Structure and Organization

The bachelor's program leads to a »Bachelor of Science (B.Sc.)« degree in cognitive science. It comprises 180 credits, including a B.Sc. thesis on either basic theoretical questions or practical applications, supervised in the context of one of the research groups of the IKW. The standard period of study is six semesters. One semester (preferably the fifth) must be spent abroad.

Tutorials

Many undergraduate courses are accompanied by tutorials offered by senior students under the guidance of the instructor. They not only provide assistance to newcomers, but also foster cooperation between students.

Semester Abroad

Students of the bachelor's program are expected to spend one semester abroad, either doing an internship or studying at one of our many partner universities around the world. The IKW alone cooperates with almost 50 universities in over 20 countries, including Brazil, Italy, Spain, Sweden, Turkey, and the United Kingdom. In addition, Osnabrück University cooperates with over 160 universities in 23 countries, including Australia, China, Colombia, Costa Rica, Japan, Mexico, Russia, South Africa, South Korea, and the US.

Degree: B.Sc. in Cognitive Science
Duration: 6 semesters, commencing in October
Language of Instruction: primarily English

Contact: applicants@cogsci.uni-osnabrueck.de
https://cogsci.uni-osnabrueck.de/en/cogsci/bachelor/general

Language Requirements and Courses
With only a few lectures being offered in German, English is the primary language of instruction. The Osnabrück University Language Center provides optimal support for both German and international students in our programs, offering German, English, and many other language courses, as well as individual writing consultation in both languages.

Mentoring
In addition to the general student advisory service, the IKW offers its own mentoring program. Experienced students support freshmen, giving advice on all study related questions. International students in the master's program are especially encouraged to act as mentors in order to promote intercultural exchange.

Admission Requirements
- German »Abitur« or an equivalent foreign certificate providing right of entry to higher education
- documented good command of German and English
- documented knowledge of mathematics

» The IKW lives by the people, intense conversations, a multitude of study projects and a community that motivates to think out of the box. My time as a cognitive science student has broadened my horizon in terms of how to work scientifically and how to connect to people with different mindsets. «

Laura Ritter, currently in the bachelor's program

Master's Program

The Osnabrück Cognitive Science **master's program** covers multiple aspects of cognition, such as perception, attention, memory, learning, problem solving, reasoning, emotions, and language, focusing on how these cognitive abilities are realized in biological and artificial systems and how such systems are organized (e.g., brain structure, neural architectures and connectionist networks). In addition, complex information processing systems such as teaching systems and spoken language dialog systems are treated from a design and implementation perspective, including human-computer interface aspects. The program addresses German and international students.

Structure and Organization

The master's program leads to a »Master of Science (M.Sc.)« degree in cognitive science. It comprises 120 credits, including an M.Sc. thesis on either basic theoretical questions or practical applications, supervised in the context of one of the research groups of the IKW. The standard period of study is four semesters. In the second and third semester, preferably, students participate in a study project.

Major Subjects

Students choose two major subjects from the fields of

- artificial intelligence
- cognitive psychology
- linguistics and computational linguistics
- neuroinformatics and robotics
- neuroscience
- philosophy of mind and cognition

Excellent students of the master's program may be admitted to the Ph.D. program after the first year.

Degree: M.Sc. in Cognitive Science
Duration: 4 semesters, commencing in April and October
Language of Instruction: English

Contact: cogsci-info@cogsci.uni-osnabrueck.de
https://cogsci.uni-osnabrueck.de/en/cogsci/master/general

Study Projects
Groups of 5-10 students carry out a one-year research project under conditions very similar to those of regular research. Project themes cover all areas of cognitive science and focus on interdisciplinary cooperation, team work, and project management.

Language Requirements and Courses
The language of instruction is English. The Osnabrück University Language Center provides optimal support for both German and international students in our programs, offering German, English, and many other language courses, as well as individual writing consultation in both languages.

Admission Requirements
- Bachelor degree or equivalent in cognitive science or a neighboring discipline like artificial intelligence, biology, computer science, linguistics, mathematics, neuroscience, philosophy, or psychology
- documented good command of English

» I choose the cognitive science program because of its reputation and breadth of topics. Where else can you hear discussions about philosophy and artificial intelligence at parties? Starting my second year, I appreciate the freedom to develop interdisciplinary projects that draw on the strengths of the students. I couldn't have integrated so quickly without the support of the friends I made here. The scope of studies and richness of community life in the program are really exceptional. There's no place else I would rather be. «

Justin Shenk, currently in the master's program

Ph.D. Program

The objective of the Osnabrück Cognitive Science **Ph.D. program** is to enable excellent students to carry out independent research in promising and highly active areas of cognitive science. The program aims at optimal synergies between the dissertation projects and current research at the IKW.

Structure and Organization

The Ph.D. program leads to a »Ph.D. in Cognitive Science« within three years. Candidates write a Ph.D. thesis (in either English or German) and defend their thesis in an oral examination.

Admission Requirements

Master degree (or equivalent) in cognitive science or a related discipline. Candidates must have at least basic qualifications in at least two of the following disciplines: artificial intelligence, biology, computer science, linguistics, neuroscience, philosophy, and psychology.

Applicants whose previous education does not provide sufficient background for entering the Ph.D. program are advised to enter the master's program first. Excellent master's students may be admitted to the Ph.D. program after one year.

Candidates will be chosen by the selection committee, composed of two scientists from the IKW, one external member (a professor from another university), and two postgraduate students from the IKW. Candidates are chosen based on their academic achievements, as well as the scientific quality of their research proposal. The committee may invite candidates for an interview.

Degree: Ph.D. in Cognitive Science
Duration: 6 semesters, commencing in April and October
Language of instruction: English

Contact: gheidema@uni-osnabrueck.de
https://cogsci.uni-osnabrueck.de/en/cogsci/phd/contents

Program Highlights

- **interdisciplinary research seminars,** often taught jointly by two professors from different subdisciplines
- **specific subject area courses** providing specialized knowledge and in depth expertise relevant to the dissertation topic
- **doctorate research colloquium** giving candidates the opportunity to present and discuss their ongoing work in an interdisciplinary context
- **guest lectures**
- **co-teaching** a seminar in the bachelor's or master's program, usually together with the supervisor
- **ZePrOs,** the Ph.D./PostDoc Career Center at Osnabrück University, linking the entire research-oriented training for doctoral candidates and providing training opportunities, specially tailored to their needs, as well as individual advancement to optimize their scientific work and to enable them to acquire labor market related skills.

» The IKW is a unique place. Because »cognitive scientist« is not much of a job designation, you can be sure that whoever joins the course of studies will be driven by an intense passion and curiosity about how the mind works. This means that the IKW attracts excellent students, who receive an interdisciplinary education, skills, and insights that can be applied in many areas of research and industry. I have received great support from my colleagues and I have formed many lasting friendships. «

Joscha Bach, former Ph.D. student,
currently research scientist at the MIT

Fachschaft Cognitive Science Osnabrück

The **Cognitive Science Fachschaft** (student association) is the beating heart of this brain-focused study program! Students from all semesters come together to organize events, such as the Freshmen Week and Freshmen Trip, as well as regular festivities like our IKW summer party or the Christmas Gala.

In order to facilitate the exchange between current and former students, we recently organized an Alumni Conference that is sure to become a new tradition. Besides that, we are able to give funding to students visiting conferences all across the country or even worldwide.

The readiness to support others in tackling problems that arise during their studies and to aid especially the freshmen is characteristic of our institute. Our Fachschaft is the core of this awareness. We try to give everyone the help they need to make the most of their opportunities. We've established an active network that everyone is encouraged to join. New ideas and motivated students are more than welcome at any point in time!

From a Student's Perspective

Student's community

Cognitive science is a study program that attracts students with diverse interests, nationalities, and scientific backgrounds. Together they form an inspiring conglomerate, both on the professional and the social level. Our fascination for the human mind is what binds us together. What distinguishes us is our readiness and willingness to appreciate each other's abilities rather than regard them with envy and to openly share our ideas in lively discussion rather than keep them secret. Cooperation, tolerance, and constructive criticism are working principles that are understood and agreed upon by everyone.

Active participation and personal relations

There are many possibilities for students to contribute to research and teaching while pursuing their own ideas. Many students work as tutors or as research assistants already during their bachelor studies, and others even participate in study projects. The relationship between professors, staff, and students is personal and informal. For many, this is the starting point for creating a long-lasting network of friendships and cooperations.

Future prospects

Studying cognitive science is not the start of a clear-cut, predefined career, but instead provides you with a set of tools and the curiosity to develop in whatever direction suits you. While examining the brain and mind from fundamentally different points of view, you will gain the ability to combine different approaches and to make complex connections between distinct ideas. Most importantly, you will have the chance to contribute to a highly dynamical and fascinating study field that is likely to shape our future in many ways.

Iris Proff, currently in the bachelor's program

Future Career

Studying at the IKW is a gateway for a great career. Many former cognitive science students work in renowned research institutes all over the world, while others have founded their own companies, often profiting from the network they built up during their studies.

Thomas Börner is currently doing his Ph.D. in Oxford. He is trying to find out what happens in the brain of schizophrenia patients and how this knowledge could be used to develop new drugs to help them.

Melissa Libertus is an assistant professor at the University of Pittsburgh. In her research, she investigates the development of children's mathematical thinking.

»As an interdisciplinary researcher, the training I received during my undergraduate education is extremely useful for my interactions with scientists from a variety of other fields.«

Fabian Suchanek held several postdoctoral positions at Microsoft Research in Silicon Valley, INRIA in Paris, and the MPI in Saarbrücken. Now he works as an associate professor at Télécom ParisTech University in Paris and studies information extraction and ontologies. In particular, he created YAGO, one of the largest general purpose knowledge bases on the Semantic Web.

Maria Stuckenberg started her Ph.D. at the Max Planck Institute and is currently working at the University of Leipzig. Her research interest focuses on multisensory interaction mechanisms, predictive coding, and auditory processing.

»Cognitive science taught me that a specific question can be answered from several different perspectives. This approach, as well as the acquired programming skills, prepared me for a career in science.«

Markus Goldbach and **Johannes Knabe** founded the company PlagScan in 2009, involving a software for identifying text plagiarism. The project became a worldwide success, with more than 1.000 organizations, including world-class universities, enterprises, and ministries subscribing to the service.

»The diversity of the curriculum plus the flexibility and support from staff helped me to feed my curiosity and to become a well versed professional.«

Jan Dirk Capelle decided to join the Effective Altruism Foundation in Berlin after his studies at the IKW. Effective Altruists conduct scientific analyses on the effectivity of charitable organizations to find the best ways to solve neglected, tractable, and large-scale altruistic causes, such as poverty-related diseases and animal welfare.

Maren Urner founded the media start up *Perspective Daily* in Münster in 2016, after completing her Ph.D. in neuroscience. The company pursues an alternative and constructive approach to journalism. With a multi-disciplinary scientific perspective, it focuses on publishing articles that do not end with the description of problems, but also discuss possible solutions for societal challenges.

Manuel Ebert founded a data science and artificial intelligence consulting firm, summer.ai, in San Francisco. He helps companies such as SurveyMonkey and Slack to leverage their huge amounts of data.

»I'm a data scientist. This job description didn't even exist when I started my studies. Cognitive science encouraged a professional curiosity that has prepared me better for the future than any textbook.«

What the IKW Offers

ikw.uos.de
http://ikw.uos.de/en/lectures

Application Deadlines

- July 1 for the following winter semester
- January 1 for the following summer semester

Application Documents

- the completed application form
- a passport photo
- the enrollment certificate of your home university

Erasmus+

Osnabrück University
International Office
Neuer Graben 27
49074 Osnabrück/Germany
Phone: +49 541 969 4599
Fax: +49 541 969 4495
international@uni-osnabrueck.de
www.uni-osnabrueck.de

IKW
Mobility Office
Petra Dießel (50/E19)
Wachsbleiche 27
49090 Osnabrück/Germany
Phone: +49 541 969 3355
Fax: +49 541 969 2415
ikw-eras@uni-osnabrueck.de
http://ikw.uos.de/en/erasmus

Application Procedure

Before applying as an ERASMUS or exchange student, please make sure that your university and the IKW maintain a student exchange agreement. If this is not the case, contact the Mobility Office of the IKW, since we might be able to set up a new exchange agreement.

In addition, you need to be formally nominated by your home university to apply as an ERASMUS or exchange student at Osnabrück University.

For further information, please check out the website (www.ikw.uos.de). If you have concrete questions, contact the International Office of Osnabrück University or the Mobility Office of the IKW.

Services for ERASMUS and Exchange Students

Welcome Week

At the start of each semester, the International Office organizes a Welcome Week for ERASMUS and exchange students in order to facilitate their first weeks in Osnabrück. The Welcome Week includes:

- a pick-up service, where a student tutor will pick you up from the train station and take you to your student dormitory
- assistance with administrative matters, e.g., regarding taking out health insurance, opening a bank account, paying the semester fee and enrolling at the university
- an introduction to the university and city
- an international breakfast at which you will have the opportunity to socialize with fellow international and German students

LINK-OS Program

If you apply for the program, we will put you in contact with a German »buddy« who will introduce you to daily life in Germany, take you to student parties, and let you meet his or her friends, so that you get first-hand experience in German culture and customs.

International Cultural Program JOIN-OS

The »Joint Cultural Program for International Students in Osnabrück« offers a varied cultural program for international students. This includes day trips to cities such as Cologne, Hanover, and Düsseldorf, but also going ice skating, visiting the local theater, etc., or simply partying together.

Tandem Language Learning

Learn German and teach your native language at the same time! In the Tandem Language Learning Program, you will be matched with a fellow German student, who is eager to learn your native language. That way, both of you will benefit from meeting each other, as you will be able to improve your German skills, while your tandem partner gets the chance to improve her or his skills in your native language.

Osnabrück Student Services
… helping to make your studies a success!

Socializing and support are just as important as teaching and research. Osnabrück Student Services has been committed to nurturing the economic, social, health, and cultural development of students at the universities in Osnabrück and Vechta for more than 40 years. In this way, Student Services makes a contribution to creating equal opportunities for all. Working closely with the higher education institutions and the university towns, Student Services helps to improve general welfare in higher education and create an environment conducive to study. Its broad range of general and counseling services includes catering, student residences, student financial assistance and support for education and training (BAföG), psychosocial counseling, daycare facilities, and promoting cultural events. In addition, Student Services allocates loans to students experiencing financial difficulties. All activities offered by Student Services aim at creating social conditions, as well as living conditions, that facilitate learning. In turn, this enables students to graduate sooner, reducing overall costs.

Student Service Center (StudiOS)
Neuer Graben 27 · D-49074 Osnabrück
Email: studios@uni-osnabrueck.de
www.uni-osnabrueck.de/studios

The facilities and divisions

Central Student Advisory Service
www.zsb-os.de

Admissions Office
www.uni-osnabrueck.de/studierendenservice

Osnabrück Student Services
Student Financial Assistance (BAföG)
www.studentenwerk-osnabrueck.de

International Office
www.uni-osnabrueck.de/aaa

Professional Skills Development Office
www.uni-osnabrueck.de/kopro

Student Services facilities and divisions

Student Financial Assistance, BAföG Department
StudiOS · Neuer Graben 27 · D-49074 Osnabrück
Phone: +49 541 969 6310
Office hours: Mon–Thu 9:00–15:30, Fri 9:00–12:00
Additional appointments for urgent cases.

Student Accommodation
Ritterstraße 10 · D-49074 Osnabrück
Phone: +49 541 33107-26, -28, -29, -30
Office hours: Tue, Thu, Fri 11:00–13:00, Wed 13:00–15:00 and by telephone appointment

Psychosocial Counseling Center
Sedanstraße 1 · D-49076 Osnabrück · Phone: +49 541 969 2580
Email: psb@studentenwerk-osnabrueck.de
Office hours: Mon–Thu 9:00–12:00 and 13:00–16:00,
Fri 9:00–13:00

Social Counseling
Sedanstraße 1 · D-49076 Osnabrück · Phone: +49 541 969 2580
Email: sozialberatung@studentenwerk-osnabrueck.de
Open consultation hours: Tue 10:00–12:00

University Daycare Center »Die kleinen Strolche«
c/o Elternverein Uni-Kita e.V.
Sedanstraße 2 a · D-49076 Osnabrück
Phone: +49 541 6090360 · Email: uni-kita@osnanet.de

Osnabrück University

Osnabrück University is a dynamic place to study, offering a broad range of courses with strong research and quality credentials. The University is an integral part of a vibrant city that is rich in tradition and culture. Founded in 1974, the University soon earned itself an international reputation and positioned itself to attract academics who are leaders in their fields and to secure ample funding. The University is renowned for its excellent standards in academic supervision.

Osnabrück University offers more than 160 attractive, cutting edge degree programs. The range of courses comprises future-oriented bachelor's and master's programs and the traditional law program culminating in a state examination. The programs prepare graduates excellently for the national and international labor market, offering them outstanding job prospects.

A total of 1.000 professors, lecturers, and scientific staff research and teach across ten schools. With a student enrollment of 14.000, Osnabrück University has an ideal size, and new students will have no problems finding their way around campus.

Interdisciplinary Research

One feature of research at Osnabrück University is the linking of different academic disciplines. The interdisciplinary Institutes of Migration Research and Intercultural Studies, Cognitive Science, Environmental Systems Research and Early Modern Intercultural Studies all make use of the opportunity to develop a deeper understanding by taking a broader view. The prevention of occupational skin diseases and early childhood education and development are further key areas firmly established at the University's Associated Institutes.

Friends and Sponsors of the IKW

The *Friends and Sponsors of the Institute of Cognitive Science* is a registered association that aims at maintaining the contact between the IKW and former students and researchers by organizing scientific meetings and research projects, e.g., talks, symposia, students' projects, and evaluations. Such public events support us in our goal to advance the development of cognitive science in Osnabrück and also serve the IKW as well as the study program. Important contacts and connections, built up during study and work, can be intensified not only on a personal basis, but also in a broader sense through meetings, exchanges, and talks. Being a progressive alumni association, we strive to further cognitive science as well as its subdisciplines in and beyond the boundaries of Osnabrück. Not only do we hereby seek to improve education, we also promote communication between business, the research community, and politics.

We provide our members with information concerning current developments within the IKW, regularly support students attending conferences, summer schools, etc., invite alumni, and provide financial support for events such as the annual freshmen welcoming party.

In our continuous endeavor at providing an excellent and dynamic academic environment for our students, we welcome your support of our mission! You can become an integral part in sustaining and promoting the IKW as an internationally renowned research institute by becoming a member or making an individual contribution.

Contact:

f2ikw@ikw.uni-osnabrueck.de
https://cogsci.uni-osnabrueck.de/de/ikw/f2ikw/info

Contact

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