CARL VON OSSIETZKY universität OLDENBURG
FAKULTÄT VI
MEDIZIN UND GESUNDHEITSWISSENSCHAFTEN

DEPARTMENT OF PSYCHOLOGY
CARL VON OSSIETZKY UNIVERSITY OLDENBURG

Oldenburg, August 2019

Dear prospective student,

We are very pleased to inform you that we accepted you to our study programme Neurocognitive Psychology. As one of the very few psychology Master's programmes in Germany our course is entirely taught in English and international students are more than welcome.

If you decide to accept your place in our programme, you can expect:

- **a comprehensive two-year programme in psychology and cognitive neuroscience with lots of hands-on research experience**
- **cutting-edge research topics such as multisensory integration, brain oscillations and behaviour, cortical plasticity, computational neuroscience, brain-machine interfacing, statistical modelling techniques and pharmaco-neuroimaging**
- **state-of-the-art neuroscience and psychology labs (fMRI, (mobile) EEG, TBS, MEG, fNIRS)**
- **many elective modules, individual research projects and a long internship**
- **interdisciplinary background of teachers and students**
- **(intensive) German courses free of charge at the language centre of the University (credits can be used for the module Minor)**
- **academic writing support and a LaTeX typesetting workshop for your Master's thesis**
- **guidance through your studies by the programme coordinator**
- **a career day organized by students for students**
- **opportunity to find a student job in the labs of the department**
- **opportunity to go abroad for an internship or courses (for Marseille mobility fellowships are available)**
- **membership in the Network of European Neuroscience Schools (NENS) with courses, schools, travel grants etc.**

Attached to this letter you can find detailed information about our programme, the orientation week and the student body. Lots of handy information regarding the programme as well as studying and living in Oldenburg can also be found on the following websites:

www.uol.de/en/neurocogpsy (programme website)
https://www.facebook.com/NeurocognitivePsychologyOldenburg (our programme on Facebook)
www.uol.de/en/students/ (all about studying at Oldenburg University)
https://uol.de/en/io/study/ (information for international students)
https://uol.de/orientierungswoche/ (schedule of the orientation week with events for all new students at the university)
https://uol.de/en/io/study/international-orientation/ (schedule of the international orientation week)
https://uol.de/en/campus-map/ (campus map)

Please save the following dates:

Orientation week for international students:	**September 30 – October 4, 2019**
Orientation week for all students:	**October 7 – October 11, 2019**
Official introduction to the programme:	**October 10, 2019, 10-13.30h, room A7 0-031**
Beginning of lectures:	**October 14, 2019**

Please feel free to contact us if you need further information or assistance.
psychology@uol.de or +49 (0)441 798 2947

We hope we can welcome you in Oldenburg in autumn.

Best regards

Dr. Kerstin Bleichner
Programme coordinator

Prof. Dr. Christiane Thiel
Director of the Psychology Department

Moin!

Congratulations! You are one of the lucky ones to be admitted to the Master of Neurocognitive Psychology at the University of Oldenburg.

We, the students who have been in the very same situation as you are now, are very happy to welcome you here. To give you a smooth start onto the year, we would like to provide you with some helpful information.

First of all, you might want to save the email address of the student body: fs.psy@uni-oldenburg.de .
This is the email address from which you'll receive information about what's going on in the student body. You will get to know us during the orientation week and receive information on what we do and how you can get involved. For now, what you need to know is that you can contact the student body whenever you have any kind of issue regarding your study life. We're always there to help you!

(This is the student body)

Another place to get help or get to know you future classmates is the Facebook group we will set up for you, just search Facebook for Neurocognitive Psychology Oldenburg 2019. There will also be students who started the master in previous years who might be able to provide help regarding your arrival in Oldenburg.

Before the real start of the academic year we would be happy to see you at the orientation week which will take place from 7 to 11 October 2019. Here you will have the opportunity to meet your new classmates and current students, get information about courses and basically everything else that's important. There won't just be practical information but also some fun

activities planned by the student body, such as a city rally so you can get to know Oldenburg. We highly recommend attending! See the schedule attached but keep an eye out on Facebook for announcements about any changes or additional events that might occur.

One more thing we'd like to tell you about is the Freshie trip. This will take place on a weekend in November and is organised by a group of current students. You will receive more information about this very soon. It will be a fun really to really get to know your new classmates. We hope to see you there!

That's all for now! We can't wait to meet you and we will do our best to make you feel welcome here in Oldenburg. See you soon!

Preliminary Schedule

Time	Monday 7.10.	Tuesday 8.10.	Wednesday 9.10.	Thursday 10.10.
8	Info Market			
9	Official Welcome			
10			A14 031: Programming Course	A07 031: Offical introduction by Kerstin, Labs + Nessy Tour
11	Official Welcome			
12				
13		A14 031: Official - Introduction by Student Body -Module description by students -Internships	Lunchbreak	
14	Outside A07: Welcome by students + Campus Tour		-Introduction Stud IP -Study abroad Kerstin -Q&A with Kerstin	
15				
16		Coffee, Cake & Games	Tour to „Haus des Hörens“	Julius-Mosen-Platz: City Rallye to bar (open end)
17				
18				
19				
20				

KEEP
CALM
AND
LOVE
PROGRAMMING

You don’t know how to program …

Don’t worry! We (Anna Lena and Marc) will give a little introduction to programming for everyone who is new to the topic.

We want you to have a first look on programming basics and to help you master this challenge, rather with fun than frustration.

When: 09th October, 10:00-13:00

Where: Room A14 031

If you have questions, feel free to contact:
mareike.daeglau@uni-oldenburg.de

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PLEASE NOTE

The Master's program Neurocognitive Psychology is a research-oriented study programme. We do not focus on clinical psychology.

Please be aware that (amongst others) the following modules are mandatory for all students:

Computation in Neuroscience (9 CP; lectures and seminars 4-6 h/week in the first year)
You will acquire scientific programming skills in MATLAB and Presentation.

Research Methods (12 CP; lectures and seminars 4h/week in the first year)
This module includes multivariate statistical data analysis and programming in R.

Many elective modules require programming and statistical knowledge from the two modules mentioned above. Passing *Computation in Neuroscience* is a requirement for entering the research modules *Practical Project* and *Master's thesis*.

Work with patients or experimental data acquisition with (older) participants generally require a very good command of German (B2-C1)! You can take German courses as your Minor. Please also note the attached information on language classes.

Language Courses / Intensive German Language course

You are welcome to attend language courses during the semester. The language centre offers a wide variety of language courses. All regular language courses are free for enrolled students. Feel free to improve your German language skills by attending German courses. Classes take place 6 hours a week. 9 credit points are given for active participation and passing the exam at the end of the semester. You can use credits from German classes for your module Minor. In order to find out your language level, you must take a placement test offered at the beginning of the semester. More information here: www.uol.de/en/school3/language-centre/languages/

Moreover, intensive German language courses, comprising a total of 100 hours, take place in the semester breaks (September and March). This is a good way to learn German while you do not have to study for your other classes. Participation costs of € 250 will be covered once for each enrolled international Neurocognitive Psychology student by the Department of Psychology. Enrolment is mandatory. To enrol and for more information, please visit the following website http://www.uni-oldenburg.de/en/intensivkurse-deutsch/

Organizing your Stay and Housing

Please check first the website of the International Office for steps to arrange your stay: https://uol.de/en/io/study/international-degree-students/life-in-oldenburg/

The Studentenwerk is the first address for finding accommodation in Oldenburg. They also help with finding private rooms for international students.
https://www.studentenwerk-oldenburg.de/en/internationale-studierende.html

The Hermann-Ehlers-House is another possibility to check. Here it is sometimes easier to find accommodation on short notice.
http://www.primestudentenwohnen.de/oldenburg-en/hermann-ehlers-haus-oldenburg-en/

APPLIED NEUROCOGNITIVE PSYCHOLOGY LAB

Prof. Dr. Jochem Rieger

We investigate neural processes in the sensation-perception-action-cycle in an interdisciplinary team. Central to our research are cutting edge brain decoding methods which we use to learn from invasive and noninvasive neuroimaging methods in humans how the brain accomplishes everyday tasks. The aim of our research is twofold. On the one hand we are interested in basic research questions on how the brain constructs percepts from environmental sensory data, represents percepts, makes decisions, and controls muscles to interact with the environment. On the other hand we are interested to apply our research to construct brain-machine interfaces to supplement human cognition, communication, and motor function. Examples for our work on decoding of cognitive states and our brain controlled grasping project can be found on the lab-website.

jochem.rieger@uni-oldenburg.de

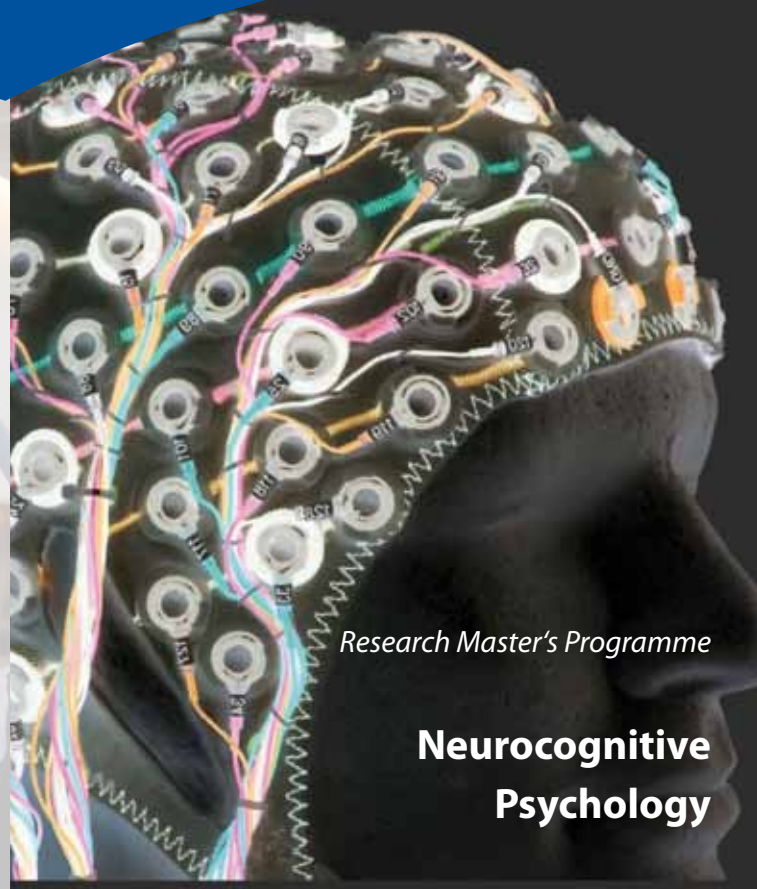
BIOLOGICAL PSYCHOLOGY LAB

Prof. Dr. Christiane Thiel

Our research focuses on visuospatial attention, learning and plasticity and the pharmacological modulation of such processes. The combination of pharmacological challenges with cognitive tasks in the context of functional neuroimaging (fMRI) studies is a powerful approach to directly assess pharmacological modulation of human brain activity. For example, we have performed several pharmacological fMRI studies showing a nicotinic modulation of visuospatial attention. A long-term goal of such studies is to provide an experimental approach that has relevance to studying mechanisms of recovery and treatment effects in patients with neurological damage.

christiane.thiel@uni-oldenburg.de

CARL VON OSSIETZKY universität OLDENBURG



Research Master's Programme

Neurocognitive Psychology

DEPARTMENT OF PSYCHOLOGY
CARL VON OSSIETZKY UNIVERSITY OLDENBURG

in Oldenburg, Germany

PSYCHOLOGICAL METHODS AND STATISTICS LAB

Prof. Dr. Andrea Hildebrandt

By applying and advancing multivariate statistical and psychometric modeling techniques, our research aims at better understanding individual differences in general cognitive functioning and social cognition. We develop and evaluate computerized test batteries rooted in experimental psychology for measuring human abilities and combine psychometric, neurometric (EEG, (f)MRI), molecular-genetic and hormonal assessments to investigate within- and between-person variations in cognition, emotion and personality. A special focus of our research is the processing of invariant and variant facial information – a basic domain of social cognition. We ask how are abilities in the social domain special as compared with cognitive processing in general. To this aim we investigate typically functioning individuals across the life span, including old age and pathological conditions. Beyond these goals, we enjoy contemplating about conceptual issues in psychological measurement.

andrea.hildebrandt@uni-oldenburg.de

EXPERIMENTAL PSYCHOLOGY LAB

Prof. Dr. Christoph Herrmann

The lab is headed by Christoph Herrmann and focuses on physiological correlates of cognitive functions such as attention, memory and perception. The methods that are used comprise electroencephalography (EEG), magnetoencephalography (MEG), functional magnetic resonance imaging (fMRI), transcranial electric stimulation (TES), transcranial magnetic stimulation (TMS), eye-tracking, neural network simulations, and psychophysics. A focus of the research lies in the analysis of oscillatory brain mechanisms. Oscillatory brain activity is considered to be one of the electrophysiological correlates of cognitive functions. We analyse these brain oscillations in healthy and pathological conditions, simulate them for a better understanding and try to modulate them.

christoph.herrmann@uni-oldenburg.de

NEUROPSYCHOLOGY LAB

Prof. Dr. Stefan Debener

We use methods from experimental psychology and psychophysiology to study the relationship between the human brain and cognitive functions. One focus of our research is related to sensory deprivation and compensatory mechanisms. We study how hearing loss and deafness change the functional organization of the brain and what the consequences of these changes are for auditory rehabilitation. Related to this topic are studies investigating how information from different sensory modalities is combined to create a coherent percept of an object. Our key tool is the high-density EEG, but we also use MEG, fMRI, concurrent EEG-fMRI and mobile, wireless EEG. Because these tools provide us with complex, mixed signals that reflect different features of human brain function, we spend some time on the application and evaluation of signal un-mixing and signal integration procedures as well.

stefan.debener@ uni-oldenburg.de

PROGRAMME OVERVIEW

The Master's course Neurocognitive Psychology is a research-oriented international graduate programme which offers systematic coverage of the major fields in psychology as well as an in-depth training in cognitive neuroscience.

The programme takes 2 years to complete and is offered through the Department of Psychology. As a graduate student, you will be able to choose from a variety of research and/or applied modules. The department's research spans cutting-edge topics such as multisensory integration, brain oscillations and behaviour, cortical plasticity, computational neuroscience, brain-machine interfaces and pharmaco-neuroimaging, to name a few. Different state-of-the-art neuroscience tools and psychology labs are available to gain hands-on experience in magnetic resonance imaging, magnetoencephalography, high-density electroencephalography, eye tracking, transcranial magnetic and electrical stimulation and psychophysics. As such, the Department of Psychology in Oldenburg is probably among the best-equipped in the country. Practical experience is provided in several of our applied modules in collaboration with local hospitals and rehab centres.

This programme has been accredited by AQAS and is running since October, 2010. It is part of the Network of European Neuroscience Schools (NENS).

REASONS TO STUDY NEUROCOGNITIVE PSYCHOLOGY IN OLDENBURG

* Hands-on research experience in state-of-the-art neuroscience and psychology labs (fMRI, EEG, TBS, MEG, fNIRS)
* International: English-taught psychology programme with many international students
* Interdisciplinary background of teachers and students
* Extracurricular opportunities: academic writing, LaTeX, career day, option to go abroad

TESTIMONIAL:

'As a student from the U.S., I feel that this is the perfect program for international students! The neurocognitive psychology program is all in English and the faculty does everything they can for foreign students to transition well! With an active student body and a lot of research opportunities, I am having a great learning experience without ever getting homesick!'
- Brittni, USA

CURRICULUM

The programme is entirely taught in English and comprises a total of 120 ECTS credit points (CP). It consists of a general component (45 CP), a specialisation component (24 CP), a practical part (21 CP), and a Master's thesis (30 CP). The programme is designed in a modular fashion and the number of mandatory modules decreases towards the end of the programme, offering increased flexibility to students. The mandatory general component includes research methods, psychological diagnostics, scientific work, a MATLAB course as well as an elective subject. The specialized component offers ten different modules from which students may choose, depending on interest. There is an especially extensive range of study offerings in the field of applied and experimental cognitive neuroscience, reflecting the research focus of the Department of Psychology. Practical components such as the internship, the practical project, and the Master's thesis facilitate the application of acquired knowledge. In the two latter modules, students are encouraged to formulate their own research question, carry out a scientific experiment, and present their findings according to academic conventions.

The Master's programme Neurocognitive Psychology has the following structure:

General part (mandatory): 45 CP
* Research methods 12 CP
* Psychological Assessment and Diagnostics 12 CP
* Communication of scientific results 6 CP
* Computation in Neuroscience 9 CP
* Minor 6 CP

Specialized part (choose 4*6, or 2*9 + 1*6): 24 CP
* Clinical Psychology 9 CP
* Transcranial Brain Stimulation 6 CP
* Neurophysiology 6 CP
* Neurocognition 6 CP
* Sex and Cognition 6 CP
* Neuropsychology 6 CP
* Applied Cognitive Psychology 6 CP
* Human Computer Interaction 6 CP
* Neuromodulation of Cognition 6 CP
* fMRI Data Analysis 9 CP

Project part (internship mandatory; choose 1 practical project): 21 CP
* Internship or lab visit 12 CP
* Practical project 9 CP

(chose from Applied Neurocognitive Psychology, Biological Psychology, Psychological Methods and Statistics, Experimental Psychology, Neuropsychology)

Master's part (mandatory): 30 CP
* Master's thesis 27 CP
* Master's colloquium 3 CP

Total: 120 CP

CAREER PERSPECTIVES

The programme prepares students for a career in research or for an employment in applied settings (such as hospitals or industry). Several of the research based modules prepare students in depth for entering a PhD programme in the area of cognitive neuroscience. The applied modules additionally guarantee a basic training in the area of clinical neuropsychology and human computer interaction.

APPLICATION AND ADMISSION

Admission Requirements
Bachelor's degree with a main focus on psychology or cognitive sciences (alternatively, Bachelor's degree from other relevant disciplines: natural sciences, mathematics, informatics, audiology, or medicine) including 5 CP in statistics, 5 CP in psychological/neuroscientific experimental work, 6 CP in general/cognitive psychology and 5 CP in biological psychology/neurosciences.

Proof of English proficiency, level B2 or above.

Letter of motivation, written in English.

The degree of eligibility depends upon the grade of the Bachelor's degree and additional qualifications (scientific work experience, motivation, publications, stay abroad, volunteer work). Further details on admission can be found on our website.

Application
Applicants with German Bachelor's degree:
apply via www.uol.de/studium/bewerben-master/
(June 1 - July 15)

International applicants:
apply via www.uni-assist.de
(May 1 - July 15, but preferably June 15)

FURTHER INFORMATION

For questions regarding the study programme
Dr. Kerstin Bleichner
phone: +49 (0)441 798-2947
e-mail: psychology@uni-oldenburg.de

For full details on the programme visit:
www.uol.de/en/neurocogpsy

Study plan (winter term 2019/2020)

Time	Monday	Tuesday	Wednesday	Thursday	Friday
08-10	**3rd sem.:** psy181 (Neurocognition, part 1) lecture Title: Introduction to cognitive neuroscience Person: C. Thiel Room: A07 0-031 Dates: starts 2.12.19 5.02.614 German language class level A1.2, A2.1, A2.2	psy201 (Neuropsychology, part 1) lecture Title: Clinical Neuropsychology Person: St. Debener Room: A07 0-031 6.02.201_1	psy110 (Research Methods, part 1) lecture Title: Multivariate statistics I Person: A. Hildebrandt Room: A07 0-031 6.02.110_1L	**3rd sem.:** psy181 (Neurocognition, part 1) seminar Title: Introduction to cognitive neuroscience Person: C. Thiel Room: A07 0-031 Dates: starts 05.12.19 5.02.614 German language class level A1.1	Psy251 (Internship) seminar Person: C. Kranczioch Room: V03 0-E005 Dates: 18.10.19 08.11.19 10.01.20 6.02.251 German language class level A1.2, A2.1, A2.2

10-12	**3rd sem.:** mam (Master's thesis, part 2) seminar lab meeting Title: Masters colloquium Room: A07 0-025 (C. Thiel) Room: A07 0-056 (S. Debener) A07 0-031 Cogn. Psych. (A. Hildebrandt.) A07 Laborbereich Exp. Psych. (C. Herrmann) NeSSY Laborbereich Applied Neurocogn. Psych. (J. Rieger) 5.02.011/5.17.026, 6.02.003-6.02.006 German language class level A1.2, A2.1, A2.2	**1st or 3rd sem.:** psy150 (Clinical Psychology, part 1) lecture Title: Neurobiological basis of psychiatric disorders and psychopharmacological intervention Person: C.Thiel. Room: A10 1-121 Dates: starts 3.12.19 5.02.615 **3rd sem.:** psy210 (Applied Cognitive Psychology, part 2) seminar Title: (Neuro)Cognitive Psychology in the wild II Person: n.n. Room: A7 0-031 6.02.210_2 Max no. of participants: 30	psy130 (Communication of Scientific Results, part 1) seminar Title: Communication of scientific results - group 1 Person: C. Herrmann Room: A07 0-031 6.02.130_1_Gr1 psy130 (Communication of Scientific Results, part 1) seminar Title: Communication of scientific results - group 2 Person: F. Kasten Room: ? 25 students 6.02.130_1_Gr2 **3rd sem.:** psy190 (Sex and Cognition, part 2) seminar Title: Sex, brain, and behaviour Person: D. Strüber Room: A07 0-025 6.02.190_2 Max. no participants: 15	**3rd sem.:** psy181 (Neurocognition, part 2) seminar Title: Neurocognitive Development Person: D. Strüber Room: A07 0-031 6.02.181_2 Max no. of participants: 20 German language class level A1.1 *Bridging module* Title: Introductory Course Statistics Tutorial Person: G. Garis Room: A7 0-036 6.02.001_T Number of notebooks:	psy121 (Psychological Assessment and Diagnosis, part 2) seminar Title: Psychological Testing – Assessment process – group 2 Person: A. Hildebrandt Room: A7 0-025 Not 25.10., 8.11., 22.11. 6.02.121_2_Gr2 Max. no participants: 20 psy121 (Psychological Assessment and Diagnosis, part 2) seminar Title: Psychological Testing – Assessment process – group 1 Person: A. Hellmann Room: ? Not 25.10., 8.11., 22.11. 6.02.121_2_Gr1 Max. no participants: 20 *Bridging module* Title: Introductory Course Statistics Person: A. Hildebrandt Room: A7 0-025 Dates: 3x: 25.10., 8.11., 22.11. 6.02.001

12-14	**3rd sem.:** psy260 (Practical Project) seminar Pbio: Person: J. Özyurt (A14 1-115) Pexp: Person: C. Herrmann, F. Popp, F. Kasten (A07 0-025) Pneuro: Person: S. Debener, M. Bleichner (A07 0-036) Pappl: Person: J. Rieger Pcog: Person: A. Hildebrandt 6.02.260pbio-6.02.260cog	psy240 (Computation in Neuroscience, part 1) lecture Title: Introduction to scientific programming I Person: H. Stecher Room: A10 1-121 (Hörsaal F) 6.02.240_1 **3rd sem.:** psy190 (Sex and Cognition, part 1) lecture Title: Introduction to the study of sex differences Person: D. Strüber Room: A07 0-025 6.02.190_1 Max. no participants: 15	psy110 (Research Methods, part 2) seminar Title: analysis methods with R Person: A. Hildebrandt, Xinyang Liu Room: A07 0-031 Number of notebooks: 45 6.02.110_2	psy121 (Psychological Assessment and Diagnosis, part 1) lecture Title: Introduction to psychological assessment Person: A. Hildebrandt Room: A07 0-031 6.02.121_1	psy121 (Psychological Assessment and Diagnosis, part 2) seminar Title: Psychological Testing – Assessment process – group 1 Person: A. Hellmann Room: ? Additional 3 dates: 1.11., 15.11., 29.11.? 6.02.121_2_Gr1 Max. no participants: 20 psy121 (Psychological Assessment and Diagnosis, part 2) seminar Title: Psychological Testing – Assessment process – group 2 Person: A. Hildebrandt Room: A7 0-025 Additional 3 dates: 1.11., 15.11., 29.11.? 6.02.121_2_Gr2 Max. no participants: 20 *Bridging module* Title: Introductory Course Statistics Person: A. Hildebrandt Room: A7 0-025 Dates: 3x: 25.10., 8.11., 22.11. 6.02.001 psy240 (Computation in Neuroscience) Title: Introduction to scientific programming Tutorial Person: n.n. Room: A7 0-025 Dates: starts 6.12.19 6.02.240_T Number of notebooks: 45

14-16	psy170 (Neurophysiology, parts 1) lecture Title: Neurophysiology and Neuroanatomy Person: C. Herrmann Dates: 14.10.-25.11.19 Room: A7 0-031 6.02.170_1 psy170 (Neurophysiology, part 2): practical seminar EEG recording and analysis concepts (group 1) Person: St. Debener, F Kasten, J. Scanlon, n.n. Room: lab area Debener Dates: starts 2.12.19 6.02.170_2_Gr1 Max no. of participants: 10 **3rd sem.:** Psy276 (Essentials of fMRI data analysis with SPM and FSL) seminar Person: R Weerda, P Sörös Room: A7 0-025 Dates: 14.10.-25.11.19 6.02.276_1S Number of notebooks: 0 Max no. of participants: 15-20 German language class level A1.1	psy240 (Computation in Neuroscience, part 3) practical excercise Title: Scientific Programming I Person: H. Stecher Room: A10 1-121 (Hörsaal F) 6.02.240_3 **3rd sem.:** psy230 (Neuromodulation of Cognition, part 1) lecture Title: Neuromodulation of cognition Person. J. Rieger Room: A07 0-025 6.02.230_1 Max no. of participants: 15	Committee slot German conversation class level B1	**1st or 3rd sem.:** psy150 (Clinical Psychology, part 1) lecture Title: Neurobiological basis of psychiatric disorders and psychopharmacological intervention Person: C. Thiel Room: A10 oder A6 Dates: starts 5.12.19 5.02.615 psy240 (Computation in Neuroscience) Title: Introduction to scientific programming Tutorial Person: n.n. Room: A10 Hörsaal F Dates: 17.10.-28.11.19 6.02.240_T Number of notebooks: 45	**3rd sem.:** Psy276 (Essentials of fMRI data analysis with SPM and FSL) exercise Person: R Weerda, P Sörös Room: A07 0-031 Dates: 18.10.-29.11.19 6.02.276_1E Number of notebooks: 40 Max no. of participants: 15-20 *Bridging module* Title: Introductory Course Statistics Person: A. Hildebrandt Room: A7 0-025 Dates: 3x: 25.10., 8.11., 22.11. 6.02.001 German language class level B

16-18	psy170 (Neurophysiology, part 2) practical seminar EEG recording and analysis concepts (group 2) Person: St. Debener, F Kasten, J. Scanlon, n.n. Room: Lab area Debener Dates: starts 2.12.19 6.02.170_2_Gr2 Max no. of participants: 10 **3rd sem.:** Psy276 (Essentials of fMRI data analysis with SPM and FSL) seminar Person: R Weerda, P Sörös Room: A7 0-025 Dates: 14.10.-25.11.19 6.02.276_1S Number of notebooks: 0 Max no. of participants: 15-20	**3rd sem.:** psy230 (Neuromodulation of Cognition, part 2) seminar Title: Topics in Neuromodulation Person: J. Rieger Room: A07 0-025 6.02.230_2 Number of notebooks: ? Max no. of participants: 15 psy110 (Research Methods, part 1) Title: Multivariate statistics I Tutorial Person: F. Weeren Room: A7 0-031 6.02.110_1T	**3rd sem.:** Psy276 (Essentials of fMRI data analysis with SPM and FSL) exercise Person: R Weerda, P Sörös Room: A07 0-031 Dates: 16.10.-27.11.19 6.02.276_1E Number of notebooks: 40 Max no. of participants: 15-20 **1st or 3rd sem.:** psy150 (Clinical Psychology, part 1) seminar Title: Clinical case-based seminar Person: Sattler, Zimmermann Room: A07 0-031 Dates: starts 5.12.19 6.02.150_1S final time slots may vary depending on the lecturers German language class level B	psy130 (Communication of Scientific Results, part 2) colloqium Title: Psychological colloquium Person: D. Strüber Room: A07 0-031 6.02.130_2	**3rd sem.:** Psy276 (Essentials of fMRI data analysis with SPM and FSL) exercise Person: R Weerda, P Sörös Room: A07 0-031 Dates: 18.10.-29.11.19 6.02.276_1E Number of notebooks: 40 Max no. of participants: 15-20
18-20			German language class level B	**1st or 3rd sem.:** psy201 (Neuropsychology, part 4) seminar Title: Funktionelle Neuroanatomie auf klinischer Basis, Teil II: Die Gruppe der Demenzen (Functional neuroanatomy on a clinical basis, part II: the group of dementias) Taught partly in German Person: H. Hildebrandt Room: A07 0-031 6.02.201_4 Max no. of participants: 30	

Mandatory modules

Additional courses which do not give credit points:

- **Psychophysiological data acquisition (6.02.007)** (Wed 10-12h) and **Analysis of Psychophysiological data (6.02.008)** (Mon 16-18h)**;** Dipl.-Psych. R. Emkes**,** room A07 0-051
- **PP-support in Data collection and Analysis (6.02.260supp);** Dipl.-Psych Riklef Weerda; Thu 10-12h, room A7 0-055
- **Academic Writing workshop for Neurocognitive Psychology students (6.02.009),** Dr. U. Protz, date to be announced, room A7 0-036

German language classes:
Registration (and placement test for level > A1.1) via language center.
Recommended: Intensive German classes (free of charge) in the semester breaks at level A1.1, A2.1 or B1.1.

Module structure Research Master Neurocognitive Psychology (valid from winter term 2019)

Semester	Module						credit points
4	**mam** Master's thesis and colloquium, 30 CP						30 CP compulsory
Mobility window to study abroad (January until June)[8]							
3	**psy141** Minor, 6 CP[7]		**psy260** Practical Project, 9 CP		Choose from: **psy181** Neurocognition- 1 & 2, 6 CP **psy190** Sex and Cognition- 1 & 2, 6 CP **psy230** Neuromodulation of Cognition- 1 & 2, 6 CP **psy276** Essentials of fMRI Data Analysis[5], 9 CP	Continue: **psy150** Clinical Psychology- 1[4], 6 CP **psy210** Applied Cognitive Psych.- 2, 3 CP	15 CP compulsory max. 36 CP elective
	Mobility window for **psy251** Internship, 12 CP (semester break between 2. and 3. semester)[6]						12 CP compulsory
2	**psy110** Research methods- 3 & 4, 6 CP	**psy121** Psychol. Assess. & Diagnostics- 3 & 4, 6 CP	**psy130** Communication of scientific results- 2[1], (3 CP)	**psy240** Computation in Neuroscience- 3, 4, 5, 6 CP	Continue: **psy150** Clinical Psychology- 2[3], 3 CP **psy170** Neurophysiology- 3, 3 CP **psy201** Neuropsychology[2]- 2, 3 CP	Choose from: **psy210** Applied Cognitive Psych.- 1, 3 CP **psy220** Human Computer Interaction- 1 & 2, 6 CP **psy270** Functional MRI Data Analysis[5], 9 CP **psy280** Transcranial Brain Stimulation- 1 & 2, 6 CP	18 CP compulsory max. 33 CP elective
1	**psy110** Research methods- 1 & 2, 6 CP	**psy121** Psychol. Assess. & Diagnostics- 1 & 2 6 CP	**psy130** Communication of scientific results- 1 & 2[1], (3 CP or) 6 CP	**psy240** Computation in Neuroscience- 1 & 2, 3 CP	Choose from: **psy150** Clinical Psychology- 1[4], 6 CP **psy170** Neurophysiology- 1 & 2, 3 CP **psy201** Neuropsychology[2]-1 & 3[3], 3 CP or 6 CP	voluntary course Introductory course statistics 0 CP	21 CP compulsory max. 15 CP elective
	General part compulsory modules 45 CP in total	**Practical part** research modules internship compulsory 51 CP in total	**Specialized part** elective modules choose 24 CP in total				total: 120 CP in 4 semesters

Students should aim to study 30 +/- 3 credit points per semester. 1 CP equals 30 hours of work including preparation outside class.

[1] This module part can be taken during the 1st and/or 2nd semester.
[2] For module psy201 choose 2 out of 3 module parts. Part 1 is mandatory.
[3] This module part is (partly) taught in German. Accompanying English material will be available.
[4] This module part can be taken during the 1st or 3rd semester.
[5] Modules psy270 and psy276 are very similar in content. Students can take either psy270 or psy276. Both modules are blocked over 7 weeks.
[6] The internship can also be performed any other semester.
[7] Module psy141 can be studied in any semester. You will chose Master classes of your interest outside or inside the Department of Psychology.
[8] For the Research Master Neurocognitive Psychology we recommend performing research internships abroad rather than studying abroad.
If you want to study abroad, please contact the programme coordinator as early as possible to discuss your individual study plan.

Learning outcomes and competencies Research Master Neurocognitive Psychology

			skills / competencies													
			expert neuropsychological / neurophysiological knowledge	interdisciplinary kowledge & thinking	experimental methods	statistics & scientific programming	data presentation & discussion	independent research	scientific literature	scientific English / writing	ethical evaluation / good scientific practice / professional behaviour	critical & analytical thinking	scientific communication skills	knowledge transfer	group work	project & time management
modules (mandatory / elective)	psy110	Research Methods		++		++	++	+	+		++	++	++		+	
	psy121	Psychological Assessment & Diagnostics	+	+							+	+				
	psy130	Comminucation of Scientific Results					++		++	++			++		+	
	psy141	Minor		++												
	psy150	Clinical Psychology	++		+		+		+			+		+		
	psy170	Neurophysiology	++		++	++					++				+	+
	psy181	Neurocognition	++	++			++		++				+		+	
	psy190	Sex and Cognition	++	+			++		++			+	++		+	+
	psy201	Neuropsychology	++	+	++		+		++			+	+			
	psy210	Applied Cognitive Psychology	++	+	+				+		+	+	+	+		
	psy220	Human Computer Interaction	++	++	+	++						+	+	+	+	+
	psy230	Neuromodulation of Cognition	++	+	++						+	+	+			
	psy241	Computation in Neuroscience	+		+	++						+		+	+	
	psy251	Internship	++	+	+						++			++		+
	psy260	Practical Project			++	+	++	+	+		+		+	+	+	++
	psy270	Funtional MRI Data Analysis			++	++	+								++	
	psy276	Essentials of fMRI Data Analysis with SPM and FSL	+	+	++	++	+	+	+	+	+	+			+	
	psy280	Transcranial Brain Stimulation	++		++	+			+		+					
	Mam	Master's thesis			++	+	+	++	+	++	+	+	+	+		++

CARL VON OSSIETZKY universität OLDENBURG
FAKULTÄT VI
MEDIZIN UND GESUNDHEITSWISSENSCHAFTEN

DEPARTMENT OF PSYCHOLOGY
CARL VON OSSIETZKY UNIVERSITY OLDENBURG

Handbook of modules and study plan

for the

Research Master programme

Neurocognitive Psychology

Date: August, 2019

Introduction:

The Handbook of modules lists all modules of the MSc programme *Neurocognitive Psychology*. Each module description gives the following information:

- Name of the module
- Goals of the module
- Contents of the module
- The teaching methods of the module
- Requirements for participation within a module
- The effort for the student
- The number of credit points
- The method of assessment
- The person responsible

The programme is composed of four parts. The general part contains five mandatory modules comprising 45 CP. The specialized part contains 11 modules from which students are free to choose at least three with a total of 24 CP. The programme lasts two years or four semesters during which a total of 120 CP must be achieved. This includes 12 CP for an internship lasting 360 hours and 30 CP for completing the Master’s thesis with the accompanying Master’s colloquium. Another 9 CP must be acquired via a practical research project which can be carried out in one of the Psychology labs at the University of Oldenburg or an external research group. The programme is designed in a modular fashion. The study structure offers increased flexibility to the students in the second half of their studies.

Please be aware that we strongly advise to attend at least one of the five modules psy170: Neurophysiology, psy270/276: fMRI Data Analysis, psy220: Human Computer Interaction, and psy280: Transcranial Brain Stimulation! Knowledge of either EEG, fMRI, HCI or TBS is essential for most practical projects and Master’s theses offered in the Department of Psychology.

Work with patients or experimental data acquisition with participants generally require a good command of German! You can take German courses as your Minor.

Overview:

The Master’s programme *Neurocognitive Psychology* has the following structure:

General part (mandatory):		**45 CP**
psy110	Research methods	12 CP
psy121	Psychological Assessment and Diagnostics	12 CP
psy130	Communication of scientific results	6 CP
psy141	Minor	6 CP
psy240	Computation in Neuroscience	9 CP
Specialized part (choose 24 CP; taking psy170, psy270/276, psy220 or psy280 is strongly recommended):		**24 CP**
psy150	Clinical Psychology	9 CP
psy170	Neurophysiology	6 CP
psy181	Neurocognition	6 CP
psy190	Sex and Cognition	6 CP
psy201	Neuropsychology	6 CP
psy210	Applied Cognitive Psychology	6 CP
psy220	Human Computer Interaction	6 CP
psy230	Neuromodulation of Cognition	6 CP
psy270	Functional MRI Data Analysis	9 CP[1]
psy276	Essentials of fMRI Data Analysis with SPM and FSL	9 CP[1]
psy280	Transcranial Brain Stimulation	6 CP
Practical part (mandatory):		**51 CP**
psy251	Internship or lab visit	12 CP
psy260	Practical project	9 CP[2]
mam	Master’s thesis (27 CP) and Master’s colloquium (3 CP)	30 CP
Total:		**120 CP**

[1] These modules have a very similar content and are mutually exclusive.
[2] Chose from Applied Neurocognitive Psychology, Biological Psychology, Psychological Methods and Statistics, Experimental Psychology, Neuropsychology

Restriction in participant numbers apply for each elective module. There is no guarantee that students can take all modules of their choice.

psy110 - Research methods

Module label	Research methods
Module code	psy110
Credit points	12.0 KP
Workload	360 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Andrea Hildebrandt
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	**Goals of module:** Students will acquire basic knowledge in planning empirical investigations, managing and understanding quantitative data and conducting a wide variety of multivariate statistical analyses. They will learn how to use the statistical methodology in terms of good scientific practice and how to interpret, evaluate and synthesize empirical results from the perspective of statistical modeling and statistical learning in basic and applied research context. The courses in this module will additionally point out statistical misconceptions and help students to overcome them. **Competencies:** ++ interdisciplinary kowledge & thinking ++ statistics & scientific programming ++ data presentation & discussion + independent research + scientific literature ++ ethics / good scientific practice / professional behavior ++ critical & analytical thinking ++ scientific communication skills + group work
Module contents	**Part 1: Multivariate Statistics I (lecture): winter** • Graphical representation of multivariate data • The Generalized Linear Modeling (GLM) framework • Multiple and moderated linear regression with quantitative and qualitative predictors • Logistic regression • Multilevel regression (Generalized Linear Mixed Effects Modeling – GLMM) • Non-linear regression models • Path modeling • Factor analysis (exploratory & confirmatory) • (Multilevel) Structural equation modeling (SEM linear and non-linear) **Part 2: Multivariate Statistics I (seminar): winter** • Data examples and applications of GLM, GLMM, polynomial, spline and local regression, path modeling, factor analyses and SEM **Part 3: Multivariate Statistics II (lecture): summer** • Supervised and unsupervised statistical learning and prediction

- Regularized regression
- Resampling methods
- Tree-based methods
- Support Vector Machines
- Neural Networks (basics)
- Principal components and clustering

Part 4: Evaluation research (seminar): summer

- Paradigms and methods in applied evaluation research (quantitative, mixed-methods)
- Types of studies and designs in evaluation research (experimental, quasi-experimental, (multiple) time series, etc.)
- Specific statistical tools (e.g., Propensity score matching)
- Research synthesis and meta-analysis

Reader's advisory	
Links	
Language of instruction	English
Duration (semesters)	2 Semester
Module frequency	The module will start every winter term.
Module capacity	unlimited
Modullevel	MM (Mastermodul / Master module)
Modulart	Pflicht / Mandatory
Lern-/Lehrform / Type of program	Parts 1 and 3: lectures; Parts 2 and 4: seminars; additional tutorials are offered.
Vorkenntnisse / Previous knowledge	basic statistics; otherwise please attend Introductory Course Statistics

Examination	Time of examination	Type of examination
Final exam of module		The module will be tested with an oral exam (20 min). required active participation for gaining credits: attendance of at least 70% in the seminars (use attendance sheet that will be handed out in the beginning of the winter term).

Course type	Comment	SWS	Frequency	Workload attendance
Lecture		4.00	SuSe and WiSe	56 h
Seminar		4.00	SuSe and WiSe	56 h
Tutorial	winter term: statistics	0.00	SuSe and WiSe	0 h

Course type	Comment	SWS	Frequency	Workload attendance
	summer term: statistics and R			
Total time of attendance for the module				112 h

psy121 - Psychological diagnostics

Module label	Psychological diagnostics
Module code	psy121
Credit points	12.0 KP
Workload	360 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Andrea Hildebrandt Authorized examiners ◦ Andrea Hildebrandt ◦ Andreas Hellmann Module counceling ◦ Stefan Debener
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	**Goals of module:** Students will acquire specific knowledge about psychological assessment and will be trained to utilize this knowledge within a research context and in applied settings. With respect to research applications they will learn about traditional and modern test theories and about their usage in the domain of test construction and the systematic design of interviews and observational methods. From the perspective of applied assessment, students will reflect on the assessment process as a whole. They will learn how to analyze cases ("case conceptualization"), how to plan and conduct the information assessment phase, how to record and summarize collected data and how to integrate across the multitude of information in order to draw conclusions about the case given specific diagnostic strategies (status vs. process assessment and norm oriented vs. criterion oriented assessment, including classificatory decisions). Finally, students will learn about the requirements of report generation in written an oral form given a specific applied context. Ethical guidelines and quality norms will be an implicit topic in all courses in the module. **Competencies:** + Neuropsychological / neurophysiological knowledge + interdisciplinary kowledge & thinking + ethics / good scientific practice / professional behavior + critical & analytical thinking
Module contents	**Part 1: Introduction to Psychological Assessment (lecture): winter** • Psychological assessment as a decision process – descriptive and prescriptive models • Introduction to test theories (will be detailed in Part 3) • Assessment methods, their construction and design, quality criteria • The logic of decision making in the assessment process • Classificatory decisions • Psychometrics to single cases • Summarizing results and writing reports **Part 2: The Assessment Process applied (seminar): winter** • Case conceptualization (neuropsychology and clinical psychology) • Formulating hypotheses • Selecting assessment procedures and planning administration • Deciding upon decision rules for data integration • Evaluating the application of assessment procedures • Analyzing, summarizing and visualizing results

	• Integrating results based on the decision rules • Writing a psychological/assessment report • Discussing a report with the client **Part 3: Test theory and test construction (lecture): summer** • Classical test theory • Generalizability theory • Item response theory • Latent-State and Trait theory • Measurement invariance across groups and time • Constructing faking-resistant questionnaires and tests **Part 4: Assessment in Clinical Neuropsychology (seminar): summer** • specific knowledge • exercises in testing / practising tests
Reader's advisory	Will be specified in the courses.
Links	
Language of instruction	English
Duration (semesters)	2 Semester
Module frequency	The module will start every winter term.
Module capacity	unlimited
Modullevel	MM (Mastermodul / Master module)
Modulart	Pflicht / Mandatory
Lern-/Lehrform / Type of program	Part 1 and 3: 2 lectures ; Part 2 and 4: seminars
Vorkenntnisse / Previous knowledge	You should know basic statistical concepts as they are also covered in the introductory course statistics.

Examination	Time of examination	Type of examination
Final exam of module	summer term	The module will be tested by a practical exercise (test application and protocol) 90% and an oral presentation of the planned contents 10%. required active participation for gaining credits: 2 presentations or test executions handing in 10 excercises participation in discussions on other presentations attendance of at least 70% in the seminars (use attendance sheet that will be handed out in the beginning of the winter term).

Course type	Comment	SWS	Frequency	Workload attendance

Lecture	4.00	SuSe and WiSe	56 h
Seminar	4.00	SuSe and WiSe	56 h
Total time of attendance for the module			112 h

psy130 - Communication of scientific results

Modulbezeichnung	Communication of scientific results
Modulcode	psy130
Kreditpunkte	6.0 KP
Workload	180 h
Verwendet in Studiengängen	• Master Neurocognitive Psychology > Mastermodule
Ansprechpartner/-in	Modulverantwortung ◦ Christoph Siegfried Herrmann Modulberatung ◦ Daniel Strüber
Teilnahmevoraussetzungen	Enrolment in Master's programme Neurocognitive Psychology.
Kompetenzziele	**Goals of module:** Students will acquire specific knowledge about the presentation of scientific results both orally and in writing. Students will learn modern techniques for presentation, literature research and writing skills. They will also be taught about arguing scientifically. **Competencies:** ++ data presentation & discussion ++ scientific literature ++ scientific English / writing ++ scientific communication skills + group work
Modulinhalte	**Part 1: Communication of scientific results (seminar)** • Literature search • Presentation skills • Writing skills **Part 2: Psychological colloquium** Experienced scientists from various psychological disciplines will be giving talks about their experimental results. Speakers will be invited also from other universities. Students are encouraged to discuss the results with the experts and to make suggestions on whom to invite.
Literaturempfehlungen	• Sternberg, Robert (2000) Guide to Publishing in Psychology Journals, Cambridge University Press
Links	
Unterrichtssprache	Englisch
Dauer in Semestern	1-2 Semester
Angebotsrhythmus Modul	Part 1 will be offered every winter term. Part 2 will be offered every semester.

Aufnahmekapazität Modul	unbegrenzt
Hinweise	Students can chose whether they want to attend the colloquium in the first, second or both semesters.
Modullevel	MM (Mastermodul / Master module)
Modulart	Pflicht / Mandatory
Lern-/Lehrform / Type of program	Communication of scientific results: seminar; Psychological colloquium: colloquium
Vorkenntnisse / Previous knowledge	

Prüfung	Prüfungszeiten	Prüfungsform
Gesamtmodul	during winter term	Oral presentation required active participation for gaining credits: 70% attendance of the seminar and at least 8 colloquia (use attendance sheet that will be handed out in the beginning of the winter term) and active discussion in at least 1 colloqium.

Lehrveranstaltungsform	Kommentar	SWS	Angebotsrhythmus	Workload Präsenzzeit
Seminar		2.00	WiSe	28 h
Kolloquium		2.00	SoSe und WiSe	28 h
Präsenzzeit Modul insgesamt				56 h

psy141 - Minor

Module label	Minor
Module code	psy141
Credit points	6.0 KP
Workload	180 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module counceling ◦ Jochem Rieger ◦ Kerstin Bleichner
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	**Goals of module:** Students will gain an overview of non-psychological topics related to cognitive neuroscience and neuropsychology. They will see how psychological theories apply in other fields. Students can strengthen their own professional profile. **Competencies:** ++ interdisciplinary kowledge & thinking
Module contents	Students can take Master modules and courses from the fields • Biology • Neurosciences • Computer Science • Physics • Mathematics • Pedagogy • Philosophy • related fields • Psychology (additional elective module (NOT psy170, psy220, psy270, psy276, psy280) or from another study programme) Students whose first language is not German, may take German classes. Upon approval, German-speaking students can attend a career-relevant language course (i.e. necessary for internship, practical project or Master's thesis). English classes cannot be taken as Minor. A list of already approved courses/modules can be found on our website. You can take other courses/modules upon approval. **We recommend taking modules/courses that strengthen your own professional profile.**
Reader's advisory	
Links	List of approved courses/modules and approval form: https://uol.de/en/psychology/master/course-overview/ -> Supporting documents
Languages of instruction	English , German

Duration (semesters)	1 Semester
Module frequency	irregular
Module capacity	unlimited
Reference text	PLEASE NOTE: • If you want to take a module/course which is not listed in the list of approved courses/modules, please request approval BEFORE you start the course/module (list of approved courses/modules and approval form can be found on our website) • If you want to take an additional elective module for your Minor, you need to inform the contact person for the respective module in writing BEFORE the start of the module. If your request is NOT rejected in written form within 4 weeks, the module counts as approved for the Minor. You will receive a pass/fail for this module. You CANNOT use it afterwards as a normal elective module. You can also NOT rededicate an elective that you have already started as your Minor. • Bachelor level courses are NOT acceptable. Note that Bachelor level courses can be listed in some Master programmes (e.g. Master of Education). This does not qualify a Bachelor level course for the Minor module. • It is your responsibility to ask the teacher whether you can take part.
Modullevel	MM (Mastermodul / Master module)
Modulart	Pflicht / Mandatory
Lern-/Lehrform / Type of program	Lectures and seminars (depends on the chosen modules)
Vorkenntnisse / Previous knowledge	

Examination	Time of examination	Type of examination
Final exam of module		If grades are earned in the minor, those are counted as pass/fail. Certificates for grades can be separately requested from the examination office.

Course type	Course selection
SWS	4.00
Frequency	SuSe or WiSe
Workload attendance	56 h

psy240 - Computation in Neuroscience

Module label	Computation in Neuroscience
Module code	psy240
Credit points	9.0 KP
Workload	270 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Heiko Stecher
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	**Goals of module:** Students will acquire scientific programming skills as well as specific knowledge of computational methods in neuroscience and cognition. They will learn to judge the appropriateness and complexity of computational problems and solutions. **Competencies:** + Neuropsychological / neurophysiological knowledge + experimental methods ++ statistics & scientific programming + critical & analytical thinking + knowledge transfer + group work
Module contents	**Part 1: Introduction to scientific programming I (lecture): winter** • Basic data types and structures • Flow control (conditions, loops, errors) • Testing and debugging • Functions **Part 2: Introduction to scientific programming II (lecture): summer** • Classes and objects • Parallel processing • Frequency analysis methods • EEG processing **Part 3: Scientific programming I (excercise): winter** • Implementation of examples from part 1 **Part 4: Scientific programming II (exercise): summer** • Implementation of examples from part 2 **Part 5: Computer-controlled experimentation (seminar): summer** • Computer hardware basics

- Scripting and programming in Presentation
- Combining stimulus delivery with EEG
- Temporal precision

Reader's advisory

- Mathworks (2009): MATLAB online documentation
- Wallisch P., et al. (2009): MATLAB for Neuroscientists: An Introduction to Scientific Computing in MATLAB. Elsevier/Academic

Links

Language of instruction	English
Duration (semesters)	2 Semester
Module frequency	The module will start every winter term.
Module capacity	unlimited
Modullevel	MM (Mastermodul / Master module)
Modulart	Pflicht / Mandatory
Lern-/Lehrform / Type of program	Part 1 and 2: lectures; Part 3 and 4: excercises; Part 5: seminar; additional tutorials
Vorkenntnisse / Previous knowledge	

Examination	Time of examination	Type of examination
Final exam of module	exam period at the end of the summer term	The participants will have to independently develop and program a solution for a given neuroscientific problem. Both the written code as well as the documentation of the approach taken will be assessed. required active participation for gaining credits: script for the presentation of experimental stimuli in part 5 attendance of at least 70% in the seminar 'Presentation', part 5 (use attendance sheet that will be handed out in the beginning of the winter term).

Course type	Comment	SWS	Frequency	Workload attendance
Lecture		4.00	SuSe and WiSe	56 h
Seminar		2.00	SuSe	28 h
Exercises		2.00	SuSe and WiSe	28 h

Course type	Comment	SWS	Frequency	Workload attendance
Total time of attendance for the module				112 h

psy150 - Clinical Psychology

Module label	Clinical Psychology
Module code	psy150
Credit points	9.0 KP
Workload	270 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Christiane Margarete Thiel
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	**Goals of the Module:** Students acquire scientifically sound, critical thinking regarding the genesis and psychopharmacological treatment of various mental illnesses; decision making based on the medical guidelines and evidence-based practice. **Competencies:** ++ Neuropsychological / neurophysiological knowledge + experimental methods + data presentation & discussion + scientific literature + critical & analytical thinking + knowledge transfer
Module contents	The first part of the module provides students with a theoretical and practical background on neurobiological and neurochemical bases of psychiatric disorders and pharmacological interventions. This will be complemented by psychiatric interviews in simulated patients focussing on psychopathological assessment. In the second part, the students will learn to plan and assess the effectiveness of psychological interventions for selected disorders. **Part 1: Neurobiological basis of psychiatric disorders and pharmacological intervention (lecture and seminar): winter** • Basics of neurotransmitter systems and psychopharmacology • Substance Abuse (e.g. psychostimulants, hallucinogenics) • Depression • Anxiety Disorders • Alzheimer's Disease • Schizophrenia • psychopathological assessment **Part 2: Psychological interventions within the framework of evidence-based medicine (seminar): summer** • (partly in German): Concepts of evidence based treatment and treatment of acquired dysfunctions of the brain • Treatment of ADHD
Reader's advisory	

- Meyer, J.S. & Qenzer, L.F. (2013) Psychopharmacology: Drugs, the Brain and Behaviour. Sunderland, MA: Sinauer Associates. (part 1)
- Kring, A.M, Johnson, S.L., Davison, G.C., & Neale, J.M., (2012) Abnormal Psychology. John Wiley & Sons (12th ed) (introductory literature)
- Selected papers (part 2)

Links	
Languages of instruction	English , German
Duration (semesters)	2 Semester
Module frequency	Part 1 will be offered every winter term, part 2 every summer term.
Module capacity	unlimited
Modullevel	MM (Mastermodul / Master module)
Modulart	Wahlpflicht / Elective
Lern-/Lehrform / Type of program	Part 1: lecture and seminar: part 2: seminar
Vorkenntnisse / Previous knowledge	

Examination	Time of examination	Type of examination
Final exam of module	in the term holiday (usually March)	The module will be tested with a written exam (2 h) on the contents of part 1. required active participation for gaining credits: 1 presentation participation in discussions on other presentations attendance of at least 70% in the seminars (use attendance sheet that will be handed out in the beginning of the winter term).

Course type	Comment	SWS	Frequency	Workload attendance
Lecture		2.00	WiSe	28 h
Seminar		4.00	SuSe and WiSe	56 h
Total time of attendance for the module				84 h

psy170 - Neurophysiology

Module label	Neurophysiology
Module code	psy170
Credit points	6.0 KP
Workload	180 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Stefan Debener
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	**Goals of module:** Students will understand the basic concepts of biomedical signal processing. They will use EEG analysis tools interactively and independently and will understand the complete chain of EEG analysis steps, from data import to the illustration of results. They will be able to use open source tools for EEG analysis and apply theoretical knowledge to practical problems of physiology. **Competencies:** ++ Neuropsychological / neurophysiological knowledge ++ experimental methods ++ statistics & scientific programming ++ ethics / good scientific practice / professional behavior + group work + project & time management
Module contents	Students will acquire specific knowledge about neurophysiology and neuroanatomy, learn the fundamental concepts of multi-channel EEG analysis, and acquire hands-on skills in using EEGLAB, an open-source software toolbox for advanced EEG analysis. **Part 1: Neurophysiology and neuroanatomy (lecture): winter** • Neurophysiology, EEG, EMG, ECG • Neuroanatomy • Time-domain and frequency-domain analysis methods **Part 2: EEG recording and analysis (seminar): winter** • Recording and analysis of biomedical signals • Averaging, filtering, signal-to-noise • Topographical EEG analysis **Part 3: EEG analysis with Matlab (seminar): summer** • EEGLAB file I/O, data structure and scripting • Preprocessing, artefact rejection and artefact correction • Statistical decomposition • Event-related potentials, topographical mapping and power spectra • Illustration of results

Reader's advisory

- Kandel et al. (2000). Principles of Neural Science, McGraw-Hill
- Luck, S.J. (2005). An Introduction to the ERP Technique, The MIT Press
- Van Drongelen, W. (2006). Signal Processing for Neuroscientists, Academic Press

Links	
Language of instruction	English
Duration (semesters)	2 Semester
Module frequency	The module will start every winter term.
Module capacity	18 (The lecture is not restricted.)
Reference text	PLEASE NOTE: We strongly recommend to take either psy170, psy270, psy276, psy280, or psy220 to gain methodological competencies (EEG, fMRI, TBS, HCI) that are needed for most practical projects and Master's theses!
Modullevel	MM (Mastermodul / Master module)
Modulart	Wahlpflicht / Elective
Lern-/Lehrform / Type of program	Part 1: lecture; Part 2 and 3: seminars; additional tutorial
Vorkenntnisse / Previous knowledge	

Examination	Time of examination	Type of examination
Final exam of module	exam period at the end of the summer term	The module will be tested with a written exam of 2 h duration. required active participation for gaining credits: recording of electroencephalographic data attendance of at least 70% in the seminars (use attendance sheet that will be handed out in the beginning of the winter term).

Course type	Comment	SWS	Frequency	Workload attendance
Lecture	2 semester hours per week in first half of the winter term.	1.00	WiSe	14 h
Seminar	2 semester hours per week in second half of the winter term. 2 semester hours per week in summer term.	3.00	SuSe and WiSe	42 h

Course type	Comment	SWS	Frequency	Workload attendance
Tutorial	2 hours/week	0.00	SuSe	0 h
Total time of attendance for the module				56 h

psy181 - Neurocognition

Module label	Neurocognition
Module code	psy181
Credit points	6.0 KP
Workload	180 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Christiane Margarete Thiel
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	**Goals of module:** Students should be able to recognize and critically evaluate the value of considering neuroscience in the study of psychological topics. **Competencies:** ++ neuropsychological / neurophysiological knowledge ++ interdisciplinary kowledge & thinking ++ data presentation & discussion ++ scientific literature + scientific communication skills + group work
Module contents	Students will first acquire a general understanding of the brain mechanisms of different cognitive functions and the methods used to study these functions. They will then apply this knowledge by discussing current research topics (part 1). General knowledge will be focused on the relation between the development of the human brain and the cognitive processes it supports (part 2). **Part 1: Introduction to cognitive neuroscience (lecture and seminar)** • Brain and cognition, methods of cognitive neuroscience • Attention, learning and memory • Emotional and social behaviour • Language, executive functions **Part 2: Neurocognitive development (seminar)** • Brain development and cortical plasticity • Effects of early-life stress on brain development • Development of object recognition, social cognition, memory, and executive functions
Reader's advisory	• Ward (2015) The Student's Guide to Cognitive Neuroscience, Psychology Press • Nelson, Haan & Thomas (2006) Neuroscience of Cognitive Development: The Role of Experience and the Developing Brain, Wiley & Sons • Johnson (2011) Developmental Cognitive Neuroscience, 3rd ed., Wiley-Blackwell.

Links	
Language of instruction	English
Duration (semesters)	1 Semester
Module frequency	The module will be offered every winter term.
Module capacity	20 (Part 1 (lecture and seminar) are unrestricted, part 2 is restricted to 20 students.)
Modullevel	MM (Mastermodul / Master module)
Modulart	Wahlpflicht / Elective
Lern-/Lehrform / Type of program	Part 1: lecture and seminar; Part 2: seminar
Vorkenntnisse / Previous knowledge	

Examination	Time of examination	Type of examination
Final exam of module	in the term holidays (usually March).	The module will be tested with a written exam of 2 h duration on the contents of part 1. required active participation for gaining credits: 1 presentation participation in discussions on other presentations attendance of at least 70% in the seminars (use attendance sheet that will be handed out in the beginning of the winter term).

Course type	Comment	SWS	Frequency	Workload attendance
Lecture		1.00	WiSe	14 h
Seminar		3.00	WiSe	42 h
Total time of attendance for the module				56 h

psy190 - Sex and Cognition

Module label	Sex and Cognition
Module code	psy190
Credit points	6.0 KP
Workload	180 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Daniel Strüber
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology. Neuroscience students can take part on request.
Skills to be acquired in this module	**Goals of module:** Students will acquire specific knowledge about sex differences in cognitive abilities and social behaviours. They will be able to understand the interrelated impact of social and biological influences on the brain's control of the (sex-specific) behaviours. Students should be able to critically evaluate behavioural sex differences from different perspectives and to reflect on possible implications for society. **Competencies:** ++ neuropsychological / neurophysiological knowledge + interdisciplinary kowledge & thinking ++ data presentation & discussion ++ scientific literature + critical & analytical thinking ++ scientific communication skills + group work + project & time management
Module contents	**Part 1: Introduction to the study of sex differences (lecture)** • The measurement of sex differences • Sex differences in emotion • Sex differences in aggression • Sex differences in cognitive abilities • Hormones, sexual differentiation, and gender identity • Sex hormones and play preferences • Sex differences in hemispheric organization • Brain size and intelligence **Part 2: Sex, brain, and behaviour (seminar)** • Sex differences in empathy • The extreme male brain theory of autism (S. Baron-Cohen) • Sex differences in neuropsychiatric disorders • Sex differences in stress response • Social implications of sex differences
Reader's advisory	

- Diane F. Halpern (2000) Sex Differences in Cognitive Abilities, Lawrence Erlbaum Associates
- Doreen Kimura (2000) Sex and Cognition, MIT Press
- Melissa Hines (2004) Brain Gender, Oxford University Press
- Richard A. Lippa (2005) Gender, Nature, and Nurture, Lawrence Erlbaum Associates

Links	
Language of instruction	English
Duration (semesters)	1 Semester
Module frequency	The module will be offered every summer term.
Module capacity	30
Modullevel	MM (Mastermodul / Master module)
Modulart	Wahlpflicht / Elective
Lern-/Lehrform / Type of program	Part 1: lecture; Part 2: seminar
Vorkenntnisse / Previous knowledge	

Examination	Time of examination	Type of examination
Final exam of module	during summer term	oral presentation required active participation for gaining credits: participation in discussions on other presentations attendance of at least 70% in the seminar (use attendance sheet that will be handed out in the beginning of the winter term).

Course type	Comment	SWS	Frequency	Workload attendance
Lecture		2.00	SuSe	28 h
Seminar		2.00	SuSe	28 h
Total time of attendance for the module				56 h

psy201 - Neuropsychology

Module label	Neuropsychology
Module code	psy201
Credit points	6.0 KP
Workload	180 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Stefan Debener
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	**Goals of module:** Students will learn to understand changes in thinking and behaviour that may arise from brain dysfunctions (part 1, 3), acquire specific knowledge on cognitive rehabilitation (part 2), and learn to understand, communicate and evaluate progress in clinical practice and experimental research in neuropsychology (part 3). **Competencies:** ++ neuropsychological / neurophysiological knowledge + interdisciplinary kowledge & thinking ++ experimental methods + data presentation & discussion ++ scientific literature + critical & analytical thinking + scientific communication skills
Module contents	**Part 1: Introduction to Clinical Neuropsychology (lecture): winter** • Cortical lobes (anatomy, functions, lesion symptoms, neuropsychological tests) • Higher functions (learning & memory, language, emotion, spatial behavior attention) • Plasticity and disorders (development, learning and reading disabilities, recovery) **Part 2: Cognitive Neurorehabilitation (seminar): summer** • Behavioural and neuropsychological approaches • neurofeedback in neurorehabilitation and ADHD • memory rehabilitation • effects of physical activity on cognition • motor recovery **Part 3: Topics in Clinical Neuropsychology (seminar; taught partly in German): winter** • Clinical neuroanatomy • Neurodegenerative diseases • Dementia
Reader's advisory	

Links	
Language of instruction	English
Duration (semesters)	1-2 Semester
Module frequency	The module will start every winter term.
Module capacity	30 (Part 3 is not restricted.)
Reference text	3 CP for each module part, choose 2 out of 3 parts! Part 1 (lecture) is mandatory.
Modullevel	MM (Mastermodul / Master module)
Modulart	Wahlpflicht / Elective
Lern-/Lehrform / Type of program	Part 1: lecture; Part 2: seminar; Part 3: seminar
Vorkenntnisse / Previous knowledge	

Examination	Time of examination	Type of examination
Final exam of module	exam period at the end of winter term	The module will be tested with a written exam of 2 h duration. required active participation for gaining credits: presentation participation in discussions on other presentations attendance of at least 70% in the seminars (use attendance sheet that will be handed out in the beginning of the winter term).

Course type	Comment	SWS	Frequency	Workload attendance
Lecture		2.00	WiSe	28 h
Seminar		2.00	SuSe or WiSe	28 h
Total time of attendance for the module				56 h

psy210 - Applied Cognitive Psychology

Module label	Applied Cognitive Psychology
Module code	psy210
Credit points	6.0 KP
Workload	180 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Jochem Rieger
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology. Neuroscience students can take part on request.
Skills to be acquired in this module	**Goals of the module:** Students will gain an overview of theories of (Neuro)Cognitive Psychology with potential for application. On completion of this module students should have a repertoire of cognitive psychology concepts relevant for real world situations, be able to transfer the learned theoretical concepts into practical contexts and evaluate potential issues arising in the process of translation. **Competencies:** ++ Neuropsychological / neurophysiological knowledge + interdisciplinary kowledge & thinking + experimental methods + scientific literature + ethics / good scientific practice / professional behavior + critical & analytical thinking + scientific communication skills + knowledge transfer
Module contents	The module will cover core concepts of cognitive psychology, their neuronal basis, basic knowledge of neuroimaging and data analysis techniques. Special emphasis will be put on research aiming at complex real-world settings and translation of basic science in to practice. Examples of successful transfers will be analyzed. The lecture provides the theoretical basis. In the seminar the material is consolidated by examples from the literature which will be presented, critically analyzed and discussed. **Part 1: (Neuro)Cognitive Psychology in the wild I (lecture): summer** • Neurocognitive Psychology with emphasis in real world context • Methodological considerations: Generalization, validity of theories and research methods • Information uptake and representation: Sensation, perception, categorization • Selection of information and capacity: Attention and memory enhancement and failure • Generation and communication: Language, reading, dyslexia • Pursuing goals: Thinking, problem solving and acting **Part 2: (Neuro)Cognitive Psychology in the wild II (seminar): winter** In the accompanying seminar we will work through recent examples in the literature for topics of the lecture. The goal is to apply novel knowledge from the lecture to understand and critically discuss actual research approaches.
Reader's advisory	• Esgate, A. (2004) An Introduction to Applied Cognitive Psychology, Psychology Press

- Sternberg, RJ and Sternberg, K. (2011) Cognitive Psychology, Wadsworth
- Ward (2010) The Student's Guide to Cognitive Neuroscience, Psychology Press

Links	
Language of instruction	English
Duration (semesters)	1 Semester
Module frequency	Part 1 will be offered every summer term, part 2 every winter term.
Module capacity	30
Modullevel	MM (Mastermodul / Master module)
Modulart	Wahlpflicht / Elective
Lern-/Lehrform / Type of program	Part 1: 1 lecture (2 SWS), Part 2: 1 seminar (2 SWS).
Vorkenntnisse / Previous knowledge	

Examination	Time of examination	Type of examination
Final exam of module	last class in summer term	The module will be evaluated with a written exam of 2 hours duration. required active participation for gaining credits: 1-2 presentations participation in discussions on other presentations attendance of at least 70% in the seminar (use attendance sheet that will be handed out in the beginning of the winter term).

Course type	Comment	SWS	Frequency	Workload attendance
Lecture		2.00	SuSe	28 h
Seminar		2.00	WiSe	28 h
Total time of attendance for the module				56 h

psy220 - Human Computer Interaction

Module label	Human Computer Interaction
Module code	psy220
Credit points	6.0 KP
Workload	180 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Jochem Rieger
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology or other programs related to the field (e.g. neuroscience, computer science, physics etc.).
Skills to be acquired in this module	**Goals of module:** The goal of the module is to provide students with basic skills required to plan, implement and evaluate brain computer interfaces as devices for human computer interaction. BCIs are an ideal showcase as they fully span the interdisciplinary field of HCI design, implementation and evaluation. Moreover, BCI-techniques can be used for modern data-driven basic neuroscience. The module combines a lecture on the theoretical foundations of the most important techniques with a seminar/hands on course in which students learn to implement the BCI-processing steps on real neurophysiological data and further elaborate specific subtopics. **Competencies:** ++ Understanding of the foundations of statistical learning techniques + provide basics to understand technical time series processing and machine learning papers ++ interdisciplinary kowledge & thinking + experimental methods ++ statistics & scientific programming + critical & analytical thinking + scientific communication skills + knowledge transfer + group work + project & time management
Module contents	**Part 1: HCI and BCI Lecture: (Lecture on methodological foundations of BCI): summer** **Part 2: Hands on BCI implementation (practical seminar): summer** Topics covered: • A brief history of BCIs and examples of HCI control and basic neuroscience using BCI techniques. • Data preprocessing (e.g. filtering, projection techniques) and common artifacts and artifact treatment) • Feature generation (e.g. fourier transform, spectral estimation techniques, principle components) • Machine learning for classification and regression (e.g. model parameter optimization in multivariate regression) • Evaluation (e.g. measures of model quality, cross validation to test model generalization, permutation tests) Where possible the lecture provides mathematical backgrounds of the data analysis techniques. The practical seminar implements BCI techniques on a real data set and further elaborates specific topics in seminar form.

Reader's advisory	There is no required textbook. The lecture slides and notes should be sufficient. However some resources from which they were developed on are given below: General tutorial text providing and overview and accompanying python code on github: Holdgraf, Christopher R., Jochem W. Rieger, Cristiano Micheli, Stephanie Martin, Robert T. Knight, and Frederic E. Theunissen. 2017. “Encoding and Decoding Models in Cognitive Electrophysiology.” Frontiers in Systems Neuroscience 11. https://doi.org/10.3389/fnsys.2017.00061. (open access) Signal processing: Semmlow, J. L. (2008). Biosignal and medical image processing. CRC press. Basis of most of the signal processing section. Has some matlab code. PCA & SVD Shlens, Jonathon. 2014. “A Tutorial on Principal Component Analysis.” ArXiv:1404.1100 [Cs, Stat], April. http://arxiv.org/abs/1404.1100. Great accessible tutorial on PCA Unsupervised feature Learning and deep learning tutorial: http://deeplearning.stanford.edu/tutorial/ Basis of the multivariate machine learning techniques. Has some matlab code. General texts: Machine learning and AI: Hastie, Tibshirani, and Friedman. The elements of statistical learning. Covers a wide range of machine learning topics. Free online. Russell and Norvig. Artificial Intelligence: A Modern Approach. A comprehensive reference BCI Dornhege et al. (2007) Toward Brain Machine Interfacing, The MIT-Press. A collection of essays on BCI related topics. Additional literature and material will be provided on the course website.
Links	
Language of instruction	English
Duration (semesters)	1 Semester
Module frequency	The module will be offered every summer term.
Module capacity	15
Reference text	We strongly recommend to take either psy170, psy270, psy276, psy280, or psy220 to gain methodological competencies (EEG, fMRI, TBS, HCI) that are needed for most practical projects and Master's theses!
Modullevel	MM (Mastermodul / Master module)
Modulart	Wahlpflicht / Elective
Lern-/Lehrform / Type of program	Part 1: lecture; Part 2: practical seminar
Vorkenntnisse / Previous knowledge	Basic programming skills, some high-school level maths

Examination	Time of examination	Type of examination
Final exam of module	last lecture in summer term	The module will be evaluated with an oral exam (max. 20 min). Bonus for a presentation and participation in discussions on other presentations in the seminar. required active participation for gaining credits: 1-2 presentations max. 24 programming exercises in the seminar participation in discussions on other presentations attendance of at least 70% in the seminar (use attendance sheet that will be handed out in the beginning of the winter term).

Course type	Comment	SWS	Frequency	Workload attendance
Lecture		2.00	SuSe	28 h
Seminar		2.00	SuSe	28 h
Total time of attendance for the module				56 h

psy230 - Neuromodulation of Cognition

Module label	Neuromodulation of Cognition
Module code	psy230
Credit points	6.0 KP
Workload	180 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Jochem Rieger
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology. Neuroscience students can take part on request.
Skills to be acquired in this module	**Goals of module:** The aim of this module is to provide students with a theoretical background on how cognitive functions can be altered via neuromodulation. **Competencies:** ++ Neuropsychological / neurophysiological knowledge + interdisciplinary kowledge & thinking ++ experimental methods + ethics / good scientific practice / professional behavior + critical & analytical thinking + scientific communication skills
Module contents	Students will be introduced to the concepts of neuromodulation and the application of theoretical knowledge of neurophysiology to the modulation of cognitive functions. **Part 1: Neuromodulation of cognition (lecture)** • Neurotransmitter and neuromodulator systems • Neuropharmacological intervention • Mechanisms of neural plasticity • Neurofeedback • Electric and magnetic brain stimulation • Therapeutical applications **Part 2: Topics in Neuromodulation (seminar)** • Psychological an therapeutical effects of neuromodulation • Modulation of neuronal network function • Deep brain stimulation for therapeutical modulation
Reader's advisory	• Kaczmarek, L.K., Levitan, I.B. (1986) Neuromodulation: The Biochemical Control of Neuronal Excitability, Oxford University Press • Demos J.N. (2005) Getting Started with Neurofeedback, Norton Professional Books • Tarsy, D. et al. (2008) Deep Brain Stimulation in Neurological and Psychiatric Disorders, Springer Verlag

Links	
Language of instruction	English
Duration (semesters)	1 Semester
Module frequency	The module will be offered every winter term.
Module capacity	15
Modullevel	MM (Mastermodul / Master module)
Modulart	Wahlpflicht / Elective
Lern-/Lehrform / Type of program	Part 1: lecture; Part 2: seminar
Vorkenntnisse / Previous knowledge	

Examination	Time of examination	Type of examination
Final exam of module	during winter term	Presentation 80% written test on the topics of the lecture 20% required active participation for gaining credits: participation in discussions on other presentations attendance of at least 70% in the seminar (use attendance sheet that will be handed out in the beginning of the winter term).

Course type	Comment	SWS	Frequency	Workload attendance
Lecture		2.00	WiSe	28 h
Seminar		2.00	WiSe	28 h
Total time of attendance for the module				56 h

psy270 - Functional MRI Data Analysis

Module label	Functional MRI Data Analysis
Module code	psy270
Credit points	9.0 KP
Workload	270 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Carsten Gießing
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	**Goals of module:** Students will learn the basics about planning and performing a neuroimaging study. They will focus on the statistical and methodological background of functional neuroimaging data analysis and analyse a sample functional MRI data set. **Competencies:** ++ experimental methods ++ statistics & scientific programming + data presentation & discussion ++ group work
Module contents	**Part 1: Functional MRI data analysis (lecture)** **Part 2: Planning, performance and analysis of functional neuroimaging studies using MATLAB-based software (seminar)** **Part 3: Hands-on fMRI data analysis with SPM (exercise)**
Reader's advisory	• Frackowiak RSJ, Friston KJ, Frith C, Dolan R, Price CJ, Zeki S, Ashburner J, and Penny WD (2003). Human Brain Function. Academic Press, 2nd edition. San Diego, USA. • Huettel, SA, Song, AW, & McCarthy, G (2009). Functional Magnetic Resonance Imaging (2nd Edition). Sinauer Associates. Sunderland, MA, USA. • Poldrack RA, Mumford JA, & Nichols TE (2011). Handbook of Functional MRI Data Analysis. Cambridge University Press. New York, USA.
Links	
Language of instruction	English
Duration (semesters)	1 Semester
Module frequency	The module will be offered every summer term.
Module capacity	15 (

	The remaining places are reserved for Biology and Neuroscience students.)
Reference text	Since the module is primarily offered for the Master's programme Biology it has to be offered as a blocked course. Please contact us if you are interested in the module but have problems with interfering other courses. PLEASE NOTE: We strongly recommend to take either psy170, psy270, psy276, psy280, or psy220 to gain methodological competencies (EEG, fMRI, TBS, HCI) that are needed for most practical projects and Master's theses! You can take either psy270 or psy276 due to overlapping content.
Modullevel	MM (Mastermodul / Master module)
Modulart	Wahlpflicht / Elective
Lern-/Lehrform / Type of program	Part 1: lecture; Part 2: seminar; Part 3: exercise
Vorkenntnisse / Previous knowledge	Students need to have solid statistical knowledge as taught in the Introductory Course Statistics and in Research Methods.

Examination	Time of examination	Type of examination
Final exam of module	end of summer term	Oral or written examination required active participation for gaining credits: 1-2 presentations participation in discussions on other presentations attendance of at least 70% in the seminars and exercises (use attendance sheet that will be handed out in the beginning of the winter term).

Course type	Comment	SWS	Frequency	Workload attendance
Lecture		2.00	SuSe	28 h
Exercises		4.00	SuSe	56 h
Seminar		1.00	SuSe	14 h
Total time of attendance for the module				98 h

psy276 - Essentials of fMRI Data Analysis with SPM and FSL

Module label	Essentials of fMRI Data Analysis with SPM and FSL
Module code	psy276
Credit points	9.0 KP
Workload	270 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Riklef Weerda ◦ Peter Sörös
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology, 3rd semester or higher.
Skills to be acquired in this module	+ Neuropsychological / neurophysiological knowledge + interdisciplinary knowledge & thinking ++ experimental methods ++ statistics & scientific programming + data presentation & discussion + independent research + scientific literature + ethics / good scientific practice / professional behaviour + critical & analytical thinking + group work This module offers a concise introduction to the basic principles of functional magnetic resonance imaging (fMRI). Students will gain essential knowledge about experimental design, data collection and analysis. Special emphasis will be laid on the statistical background of fMRI data analysis and a hands-on introduction to SPM and FSL, two widely-used and free software packages for fMRI data analysis and results visualisation.
Module contents	1. Methodological basics of functional magnetic resonance imaging (fMRI) 2. Basic principles of fMRI experimental design and data collection 3. Statistical background of fMRI data analysis 4. Hands-on training in fMRI data analysis and results visualisation with SPM and FSL
Reader's advisory	• Huettel, S.A., Song, A.W., McCarthy, G. (3rd ed., 2014). Functional Magnetic Resonance Imaging. Sunderland, MA: Sinauer. • Friston, K.J., Ashburner, J.T., Kiebel, S. (Ed., 2006). Statistical Parametric Mapping: The Analysis of Functional Brain Images. Amsterdam etc.: Elsevier, Academic Press.
Links	
Language of instruction	English
Duration (semesters)	1 Semester
Module frequency	The module will be offered in the winter term, blocked in the first half (seven weeks).
Module capacity	unlimited

Reference text	PLEASE NOTE: We strongly recommend to take either psy170, psy270, psy276, psy280, or psy220 to gain methodological competencies (EEG, fMRI, TBS, HCI) that are needed for most practical projects and Master's theses! You can take either psy270 or psy276 due to overlapping content.
Modullevel	MM (Mastermodul / Master module)
Modulart	Wahlpflicht / Elective
Lern-/Lehrform / Type of program	Part 1: 1 seminar (2 SWS) Part 2: 1 supervised exercise (3 SWS)
Vorkenntnisse / Previous knowledge	

Examination	Time of examination	Type of examination
Final exam of module	end of winter term	written exam required active participation for gaining credits: 1 presentation participation in discussions on other presentations attendance of at least 70% in the seminars and exercises (use attendance sheet that will be handed out in the beginning of the winter term).

Course type	Comment	SWS	Frequency	Workload attendance
Seminar		2.00	WiSe	28 h
Exercises		3.00	WiSe	42 h
Total time of attendance for the module				70 h

psy280 - Transcranial Brain Stimulation

Module label	Transcranial Brain Stimulation
Module code	psy280
Credit points	6.0 KP
Workload	180 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Christoph Siegfried Herrmann
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	**Goals of module:** Students will gain theoretical and practical knowledge on various non-invasive brain stimulation techniques. **Competencies:** ++ Neuropsychological / neurophysiological knowledge ++ experimental methods + statistics & scientific programming + scientific literature + ethics / good scientific practice / professional behaviour
Module contents	In this module, we will introduce the theoretical concepts, neurophysiological underpinnings and neurocognitive as well as clinical applications of various non-invasive brain stimulation techniques such as transcranial magnetic stimulation (TMS), transcranial direct current stimulation (tDCS), transcranial alternating current stimulation (tACS), and transcranial random noise stimulation (tRNS). A focus will be tACS, because it is especially suited to modulate brain oscillations which have been shown to correlate with cognitive processes. **Part 1: Introduction to transcranial brain stimulation (lecture)** • Historical overview of brain stimulation • Different techniques (TMS, tDCS, tACS, tRNS) • Physiological mechanisms (entrainment, after-effects etc.) • The use of transcranial brain stimulation in cognitive neuroscience - Experimental parameters (intensity, electrode montage, etc.) • Pros and cons of TMS vs. tACS • Technical aspects (artefact correction, modelling current flow, etc.) • Safety issues • Ethical considerations of brain stimulation **Part 2: Effects of tACS on physiology and cognition (seminar)** • Physiology of tACS (on-line and after-effects) • Modulating cognitive functions (e.g. memory, attention, and perception) • Clinical applications of tACS • Hands-on experience in the lab
Reader's advisory	

- Miniussi et al. Transcranial brain stimulation, CRC Press, 2013.
- Kadosh. The stimulated brain, Academic Press, 2014.

Links	
Language of instruction	English
Duration (semesters)	1 Semester
Module frequency	The module will be offered every summer term.
Module capacity	10
Reference text	We strongly recommend to take either psy170, psy270, psy276, psy280, or psy220 to gain methodological competencies (EEG, fMRI, TBS, HCI) that are needed for most practical projects and Master's thesis!
Modullevel	MM (Mastermodul / Master module)
Modulart	Wahlpflicht / Elective
Lern-/Lehrform / Type of program	Part 1: lecture; Part 2: seminar
Vorkenntnisse / Previous knowledge	

Examination	Time of examination	Type of examination
Final exam of module	during summer term	Oral presentation in the seminar. required active participation for gaining credits: attendance of at least 70% in the seminar (use attendance sheet that will be handed out in the beginning of the winter term).

Course type	Comment	SWS	Frequency	Workload attendance
Lecture		2.00	SuSe	28 h
Seminar		2.00	SuSe	28 h
Total time of attendance for the module				56 h

psy251 - Internship

Module label	Internship
Module code	psy251
Credit points	12.0 KP
Workload	360 h
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Cornelia Kranczioch-Debener
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	**Goals of module:** Students will to obtain provide direct experience in the field of psychology. This includes being involved in the provision of psychological or neuropsychological services in real-life situations, such as neuropsychological testing or counselling in a hospital or mental health clinic, or conducting and contributing to psychological research. The internship should be chosen by the student such that it can provide a meaningful educational opportunity that will help students to decide on their preferred area of work. **Competencies:** ++ expert neuropsychological/neurophysiological knowledge + interdisciplinary knowledge & thinking + experimental methods ++ ethics / good scientific practice / professional behavior ++ knowledge transfer + project & time management
Module contents	The students will work in a field of psychology of personal choice. The student will get to know and participate in the daily work routines of a psychologist.
Reader's advisory	
Links	Information on internships and necessary forms: https://uol.de/en/psychology/master/course-overview/
Languages of instruction	English , German
Duration (semesters)	1 Semester
Module frequency	irregular
Module capacity	unlimited
Reference text	The internship lasts 360 hours (9-10 weeks). It can be performed at 2 different institutions with a minimum duration of 150 hours (4 weeks) for each part. A part of your internship (maximally 150 hours) can be performed internally in the Department of Psychology. Internal internships cannot be performed in the same lab in which you will perform / have performed your Practical Project psy260!

	Your supervisor must be a psychologist. If your supervisor is NOT a psychologist, please contact us for approval BEFORE you start your internship. Please note that details are regulated in the exam regulations. A blank internship certificate and the report form can be found on the programme website. To generate ideas, a folder with information on internships that other students have performed is available in the office of Dr. Cornelia Kranczioch.
Modullevel	MM (Mastermodul / Master module)
Modulart	Pflicht / Mandatory
Lern-/Lehrform / Type of program	internship at (external) institution
Vorkenntnisse / Previous knowledge	

Examination	Time of examination	Type of examination
Final exam of module	Individual; 2-3 possibilities per semester to present the internship to other students	The students have to hand in a written report (2-3 pages) and give a short presentation about their internship. They have to show a certificate from the institution at which they performed the internship. The internship is evaluated as pass/fail.

Course type	Practical
SWS	0.00
Frequency	SuSe or WiSe
Workload attendance	0 h *(360 hours presence at internship institution)*

psy260 - Practical project

Module label	Practical project
Module code	psy260
Credit points	9.0 KP
Workload	270 h (attendance in the lab and accompanying seminars as necessary for your project (~ 200h))
Used in course of study	• Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility ◦ Jochem Rieger ◦ Christoph Siegfried Herrmann ◦ Stefan Debener ◦ Jalenur Özyurt ◦ Andrea Hildebrandt Module counceling ◦ Riklef Weerda
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology. **You can only start the practical project if you have passed the exam of psy241 / psy240 Computation in Neuroscience!** Priority is given to students with experience in methods used in the respective lab or students who have taken the respective teaching modules.
Skills to be acquired in this module	**Goals of module:** Students will learn to plan, perform and analyse a study in the field of neurocognition. They will need to apply statistical knowledge and programming competencies to the data acquisition and analysis of data. Results will be related to the current neurocognitive literature and presented in a student poster symposium at the end of the module. Additionally, students should gain experience as participants in studies. **Competencies:** ++ experimental methods + statistics & scientific programming ++ data presentation & discussion + independent research + scientific literature + ethics / good scientific practice / professional behavior + scientific communication skills + knowledge transfer + group work ++ project & time management
Module contents	• The students develop an empirical investigation, carry it out and analyse the results. • The students present and discuss their project in respect to recent literature in regular meetings and in a poster symposium. • Students can develop an experimental design for a follow-up study which could potentially be the topic of their Master's thesis. • As part of the practical project, students should participate in studies of other practical projects!

Reader's advisory	
Links	https://uol.de/en/psychology/master/course-overview/
Language of instruction	English
Duration (semesters)	1 Semester
Module frequency	The module will be offered every winter term.
Module capacity	unlimited
Reference text	Topics for projects will be presented in a colloquium at the end of the summer term. Students can chose to perform the practical work in either of the research groups of the Department of Psychology. External projects are possible upon approval (information and approval form can be found on the programme website).
Modullevel	MM (Mastermodul / Master module)
Modulart	Pflicht / Mandatory
Lern-/Lehrform / Type of program	practical work and regular seminar meetings in the group where the project is performed
Vorkenntnisse / Previous knowledge	PLEASE NOTE: Many projects require knowledge of either EEG, fMRI, TBS, or HCI analysis! We strongly recommend to take either psy170: Neurophysiology, psy270/276: fMRI Data Analysis, psy280: Transcranial Brain Stimulation, or psy220 Human Computer Interaction prior to the practical project. It is expected that students show basic knowledge of Matlab programming before starting the practical project.

Examination	Time of examination	Type of examination
Final exam of module	usually end of April	Poster presentation in a student symposium (30% of the grade) and daily project work (70% of the grade).

Course type	Comment	SWS	Frequency	Workload attendance
Seminar	Please select the group in which you perform your practical project.	2.00	WiSe	28 h
Practical	attendance as necessary for your project (~ 200h)	0.00	WiSe	0 h
Total time of attendance for the module				28 h

mam - Master´s Degree Module

Module label	Master´s Degree Module
Module code	mam
Credit points	30.0 KP
Workload	900 h (attendance in the lab meetings: 28h (2 SWS); thesis work: 872 hours)
Used in course of study	• Master's Programme Neurocognitive Psychology > Thesis module
Contact person	
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology. Completion of at least 60 credit points in other modules including module psy241 or psy240 (Computation in Neuroscience). Assignment of a topic by thesis supervisor and official application with the examination office.
Skills to be acquired in this module	**Goals of module:** Students will demonstrate that they are able to perform a psychological experiment according to scientific standards. In addition, they will demonstrate that they are acquainted with the necessary methods and can present their results orally and in written form. **Competencies:** ++ experimental methods + statistics & scientific programming + data presentation & discussion ++ independent research + scientific literature ++ scientific English / writing + ethics / good scientific practice / professional behavior + critical & analytical thinking + scientific communication skills + knowledge transfer ++ project & time management
Module contents	**Part 1: Master's thesis** The students work on a given topic in cognitive neuroscience using literature research and the appropriate experimental methods. **Part 2: Master's colloquium** The preparation of the thesis is accompanied by regular participation in the lab meetings of the groups in which the thesis is performed. Students present their study design at the beginning of their thesis preparation and their results towards the end. In addition, they listen to the presentations of the other lab members and students in the group.
Reader's advisory	
Links	Rules for external Master's theses are explained here: https://uol.de/en/psychology/master/course-overview/
Language of instruction	English
Duration (semesters)	1 Semester
Module frequency	irregular

Module capacity	unlimited
Reference text	If you want to do a Master's thesis outside the Department of Psychology, please follow the rules stated on the program website. We encourage students to use the LaTeX template provided on the course website.
Modullevel	Abschlussmodul (Abschlussmodul / Conclude)
Modulart	Pflicht / Mandatory
Lern-/Lehrform / Type of program	individual thesis preparation with supervision
Vorkenntnisse / Previous knowledge	contact your supervisor for details

Examination	Time of examination	Type of examination
Final exam of module	individual appointments	The written thesis will be evaluated by the supervisor and an additional reviewer (90%). The oral presentation and defence of the thesis results will be evaluated (10%).

Course type	Seminar und Projekt
SWS	2.00
Frequency	SuSe
Workload attendance	28 h *(Attendance as required for your project and 2 hours per week for participating in the lab meetings.)*

Slots in national courses

FENS and IBRO-PERC stipends are available for European and non-European MSc and PhD students to attend short courses outside the country where they are studying. These courses are organised by the schools registered as members of the Network of European Neuroscience Schools (NENS).

The European Neuroscience Conference by Doctoral Students

ENCODS holds annual crossdisciplinary conferences to prepare young researchers to meet current and future challenges in neuroscience.

encods
European Neuroscience Conference by Doctoral Students

Supporting international students and early career scientists

Other grants & stipends

FENS provides grants and stipends for international students and early career scientists to facilitate mobility and scientific exchange in FENS training activities and international meetings (FENS Forum, The Brain Conferences, FENS Regional Meeting - FRM).

Engage with an international network of 24,000 neuroscientists

For enquiries about training and education opportunities, contact us at chet@fens.org and visit **www.fens.org/training**

Visit our job market web page to find out the latest career opportunities in neuroscience.

Get involved!

FENS | Federation of European Neuroscience Societies

www.fens.org/training

Higher Education & Training in neuroscience

Are you a young researcher in neuroscience?

Are you looking to improve your skills and knowledge?

Discover the opportunities FENS offers you!

FENS | Federation of European Neuroscience Societies

www.fens.org/training

Looking ahead and supporting the next generation of neuroscientists

At FENS, we support neuroscience education and research in Europe and beyond. Our priority is to invest in the next generation of neuroscientists.

We offer a wide range of opportunities to international students and early career scientists in neuroscience.

FENS | Federation of European Neuroscience Societies

www.fens.org/training

NENS exchange grants

The NENS exchange grants offer to MSc and PhD students registered with a NENS graduate school programme the opportunity to gain methodological and practical experience, while acquiring new key skills to integrate into their own research by spending from one to three months in another European laboratory, which is part of the Network of European Neuroscience Schools (NENS).

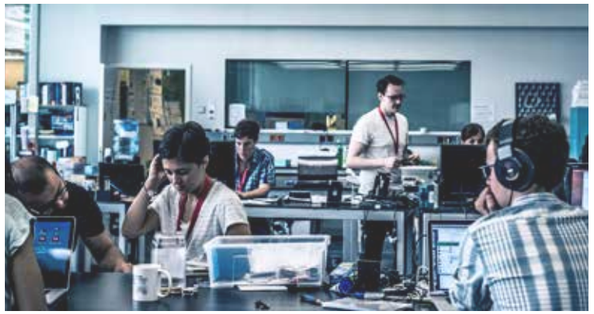
Facilitating training mobility: over 200 laboratories within NENS

Promote scientific exchange across continents

Travel grants supporting the participation of neuroscientists in meetings and training courses in Europe, US, Japan, Australia and China are available through bilateral agreements between FENS and the following international partners: the Society for Neuroscience (SfN), the Japan Neuroscience Society (JNS), the Australasian Neuroscience Society (ANS), the Chinese Neuroscience Society (CNS).

Schools

Two annual neuroscience schools are implemented in collaboration with longstanding partners: the Society for Neuroscience (SfN) in the summer and the Hertie Foundation in the winter. The schools consist of a one-week course where students can broaden their knowledge of their research field and learn and discuss with first-rate senior neuroscientists.



ADVANCED NEUROSCIENCE TRAINING — CAJAL —

State-of-the-art and hands-on training

The CAJAL Advanced Neuroscience Training Programme

The CAJAL Programme provides three-week hands-on courses to groups of about 20 international students in two major European neuroscience facilities. Courses combine lectures by renowned scientists with methodological training sessions, by guiding the students through hands-on experiments within the frame of short scientific projects.