

Handbook of modules and study plan

for the

Research Master programme

Neurocognitive Psychology

Date: August 7, 2018

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 42 CP. The specialized part contains 11 modules (with a total of 75 CP) from which students are free to choose at least three with a minimum total of 24 CP. The programme lasts two years or four semesters, during which a total of 120 CP must be achieved. This includes 15 CP for an internship lasting 12 weeks and 30 CP for completing the Master’s thesis with the accompanying Master’s colloquium. Another 9 CP must be acquired via the practical project which can be carried out in one of the Psychology labs at Carl von Ossietzky University, another research lab, or in a clinical institution. The programme is designed in a modular fashion. The number of mandatory modules decreases towards the end of the programme, offering increased flexibility to the students.

Please be aware that we strongly advise to attend at least one of the four modules psy170: Neurophysiology, psy270/275: 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): 42 CP

psy110	Research methods	12 CP
psy120	Psychological Assessment and Diagnostics	9 CP
psy130	Communication of scientific results	6 CP
psy140	Minor	9 CP
psy241	Computation in Neuroscience	6 CP

Specialized part (choose 24 CP; taking psy170, psy270, 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
psy200	Neuropsychology	9 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
psy275	Essentials of fMRI Data Analysis with SPM and FSL	6 CP ¹
psy280	Transcranial Brain Stimulation	6 CP

Project part (psy250 mandatory; choose 1 practical project): 24 CP

psy250	Internship or lab visit	15 CP
psy260	Practical project Applied Cognitive Psychology	9 CP
psy260	Practical project Cognitive Psychology and Psychophysics	9 CP
psy260	Practical project Experimental Psychology	9 CP
psy260	Practical project Experimental Neuropsychology	9 CP
psy260	Practical project Biological Psychology	9 CP

Master’s part (mandatory): 30 CP

mam	Master’s thesis (27 CP) and Master’s colloquium (3 CP)	30 CP
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Total: 120 CP

¹ These modules have a very similar content and are mutually exclusive.

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

Module structure Research Master Neurocognitive Psychology (valid from winter term 2018)

Semester	Module				Credit points
4	mam Master's thesis and colloquium, 30 CP				30 compulsory
Mobility window to study abroad (January until June) ⁶					
3	psy140 Minor, 9 CP	psy260 Practical Project, 9 CP	Choose from: psy181 Neurocognition- 1 & 2, 6 CP psy230 Neuromodulation of Cognition- 1 & 2, 6 CP psy275 Essentials of fMRI Data Analysis ⁴ , 6 CP	Continue: psy210 Applied Cognitive Psych.- 2, 3 CP	18 compulsory max. 21 elective
	Mobility window for psy250 Internship, 15 CP (semester break between 2. and 3. semester) ⁵				15 compulsory
2	psy110 Research methods- 3 & 4, 3 CP	psy120 Psychol. Assess. & Diagnostics- 2 & 3, 6 CP	psy130 Communication of scientific results- 2 ¹ , (3 CP)	Choose from: psy241 Computation in Neuroscience- 2 & 4, 3 CP	12 compulsory max. 42 elective
1	psy110 Research methods- 1 & 2, 9 CP	psy120 Psychol. Assess. & Diagnostics- 1, 3 CP	psy130 Communication of scientific results- 1 & 2 ¹ , (3 CP or) 6 CP	Choose from: psy150 Clinical Psychology- 1, 6 CP psy170 Neuropsychology- 1 & 2, 3 CP psy200 Neuropsychology ² -1 & 4 ³ , 6 CP	21 compulsory max. 15 elective
	General part compulsory modules 42 CP in total	Practical part research modules internship compulsory 54 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 credits per semester.

¹ This module part can be taken during the 1st and/or 2nd semester.

² For module psy200 choose 3 out of 4 module parts. Part 1 is mandatory.

³ This module part is (partly) taught in German. Accompanying English material will be available.

⁴ Modules psy270 and psy275 are very similar in content. Students can take either psy270 or psy275. Both modules are blocked over 7 weeks.

⁵ The internship can also be performed any other semester.

⁶ 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 in Neurocognitive Psychology

skills/competencies	modules																		
	110	120	130	140	150	170	181	190	200	210	220	230	241	250	260	270	275	280	mam
1) expert neuropsychological / neurophysiological knowledge		+			++	++	++	++	++	++	++	++	+	++			+	++	
2) interdisciplinary knowledge & thinking	++	+		++			++	+	+	+	++	+		+			+		
3) experimental methods					+	++			++	+	+	++	+	+	++	++	++	++	++
4) statistics & scientific programming	++					++					++		++		+	++	++	+	+
5) data presentation & discussion	++		++		+		++	++	+						++	+	+		+
6) independent research	+														+		+		++
7) scientific literature	+		++		+		++	++	++	+					+		+	+	+
8) scientific English / writing			++														+		++
9) ethical evaluation / good scientific practice / professional behavior	++	+				++				+		+		++	+		+	+	+
10) critical & analytical thinking	++	+			+			+	+	+	+	+	+				+		+
11) scientific communication skills	++		++				+	++	+	+	+	+			+				+
12) knowledge transfer					+					+	+		+	++	+				+
13) group work	+		+			+	+	+			+		+		+	++	+		
14) project & time management						+		+			+			+	++				++

psy110 - Research methods

Module label	Research methods
Module code	psy110
Credit points	12.0 KP
Workload	360 h
Used in course of study	<ul style="list-style-type: none"> Master's Programme Neurocognitive Psychology > Master module
Contact person	<p>Module responsibility</p> <ul style="list-style-type: none"> Andrea Hildebrandt
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>Goals of module:</p> <p>Students will acquire basic knowledge in planning empirical investigations, setting up computer controlled experiments, 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.</p> <p>Competencies:</p> <ul style="list-style-type: none"> ++ interdisciplinary knowledge & 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	<p>Part 1: Multivariate Statistics I (lecture)</p> <ul style="list-style-type: none"> Graphical representation of data Basic concepts of probability Frequentist and Bayesian statistical inference The Generalized Linear Modeling framework (Simple, multiple and moderated linear regression, Analyses of variance as a specific case of the General Linear Model, Logistic regression) Multilevel regression Path modeling Factor analysis (exploratory & confirmatory) Structural equation modeling <p>Part 2: Computer-controlled experimentation (seminar)</p> <ul style="list-style-type: none"> Computer hardware basics Scripting and programming in Presentation Combining stimulus delivery with EEG Temporal precision <p>Part 3: Multivariate Statistics II (lecture)</p>

- Supervised and unsupervised statistical learning and prediction
- Regularized regression and non-linear models
- Resampling methods
- Tree-based methods and Support Vector Machines
- Principal components and clustering

Part 4: Evaluation research (seminar)

- 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 be offered 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). Bonus for creating a script for the presentation on experimental stimuli in part 2.

Course type	Comment	SWS	Frequency	Workload attendance
Lecture	part 1: 8 semester hours per week in the second half of the winter term, part 3: 2 semester hours per week in summer term	6.00	SuSe and WiSe	84 h
Seminar	Part 2: 4 semester hours per week in the	4.00	WiSe	56 h

Course type	Comment	SWS	Frequency	Workload attendance
	first half of the winter term. Part 4: 2 semester hours per week			
Tutorial	winter term: 2 hours/week (statistics) summer term: 2 x 2 hours/week (statistics and R)	0.00	SuSe and WiSe	0 h
Total time of attendance for the module				140 h

psy120 - Psychological diagnostics

Module label	Psychological diagnostics
Module code	psy120
Credit points	9.0 KP
Workload	270 h
Used in course of study	<ul style="list-style-type: none"> Master's Programme Neurocognitive Psychology > Master module
Contact person	<p>Module responsibility</p> <ul style="list-style-type: none"> Andrea Hildebrandt <p>Authorized examiners</p> <ul style="list-style-type: none"> Andrea Hildebrandt Andreas Hellmann <p>Module counseling</p> <ul style="list-style-type: none"> Stefan Debener
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>Goals of module:</p> <p>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 and oral form given a specific applied context. Ethical guidelines and quality norms will be an implicit topic in all courses in the module.</p> <p>Competencies:</p> <ul style="list-style-type: none"> + Neuropsychological / neurophysiological knowledge + interdisciplinary knowledge & thinking + ethics / good scientific practice / professional behavior + critical & analytical thinking
Module contents	<p>Part 1: Introduction to Psychological Assessment (lecture)</p> <ul style="list-style-type: none"> Psychological assessment as a decision process – descriptive and prescriptive models Theories of reliability (classical and modern approaches) Theories of validity (classical and modern approaches) Assessment methods, their construction and design, quality criteria The logic of decision making in the assessment process Psychometrics to single cases Summarizing results and writing reports <p>Part 2: Psychological Testing (seminar)</p> <ul style="list-style-type: none"> Psychometric bases of tests and questionnaires Types of tests and questionnaires Challenges in psychological testing (for example faking good vs. bad)

- Examples of published tests and questionnaires
- Exercising test applications, scoring and result interpretations

Part 3: Assessment in Clinical Neuropsychology (seminar)

- 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 be offered every winter term.
Module capacity	unlimited
Reference text	If you want to earn the bonus, you need to use the official bonus sheet to prove your attendance which will be handed to you in the beginning of the winter term.
Modullevel	MM (Mastermodul / Master module)
Modulart	Pflicht / Mandatory
Lern-/Lehrform / Type of program	Part 1: 1 lecture ; Part 2: 1 seminar; Part 3: 1 seminar
Vorkenntnisse / Previous knowledge	

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). Bonus for two presentations or test executions (max.) and attendance of at least 70% in the seminars. Group presentations can be counted as one half.

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

psy130 - Communication of scientific results

Module label	Communication of scientific results
Module code	psy130
Credit points	6.0 KP
Workload	180 h
Used in course of study	<ul style="list-style-type: none"> Master's Programme Neurocognitive Psychology > Master module
Contact person	<p>Module responsibility</p> <ul style="list-style-type: none"> Christoph Siegfried Herrmann <p>Module counseling</p> <ul style="list-style-type: none"> Daniel Strüber
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>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.</p> <p>Competencies: ++ data presentation & discussion ++ scientific literature ++ scientific English / writing ++ scientific communication skills + group work</p>
Module contents	<p>Part 1: Communication of scientific results (seminar)</p> <ul style="list-style-type: none"> Literature search Presentation skills Writing skills <p>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.</p>
Reader's advisory	<ul style="list-style-type: none"> Sternberg, Robert (2000) Guide to Publishing in Psychology Journals, Cambridge University Press
Links	
Language of instruction	English
Duration (semesters)	1-2 Semester
Module frequency	Part 1 will be offered every winter term. Part 2 will be offered every semester.

Module capacity	unlimited			
Reference text	<p>Students can chose whether they want to attend the colloquium in the first, second or both semesters.</p> <p>If you want to earn the bonus, you need to use the official bonus sheet to prove your attendance which will be handed to you in the beginning of the winter term.</p>			
Modullevel	MM (Mastermodul / Master module)			
Modulart	Pflicht / Mandatory			
Lern-/Lehrform / Type of program	Communication of scientific results: seminar; Psychological colloquium: colloquium			
Vorkenntnisse / Previous knowledge				
Examination	Time of examination	Type of examination		
Final exam of module	during winter term	The module requires an oral presentation that will be evaluated. Bonus for active participation (contribution to discussion, e.g. questions or comments) during the colloquium and attendance of at least 8 colloquium sessions.		
Course type	Comment	SWS	Frequency	Workload attendance
Seminar		2.00	WiSe	28 h
Colloquium		2.00	SuSe and WiSe	28 h
Total time of attendance for the module				56 h

psy140 - Minor

Module label	Minor
Module code	psy140
Credit points	9.0 KP
Workload	270 h
Used in course of study	<ul style="list-style-type: none"> Master's Programme Neurocognitive Psychology > Master module
Contact person	<p>Module counseling</p> <ul style="list-style-type: none"> Kerstin Bleichner Jochem Rieger
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>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.</p> <p>Competencies ++ interdisciplinary knowledge & thinking</p>
Module contents	<p>Students can take Master modules and courses from the fields</p> <ul style="list-style-type: none"> • Biology • Neurosciences • Computer Science • Physics • Mathematics • Pedagogy • Philosophy • related fields <p>The content of the courses/modules taken as Minor needs to be clearly different from the contents of the Neurocognitive Psychology modules.</p> <p>A list of approved courses/modules can be found on our website.</p> <p>Upon approval, German-speaking students can attend a career-relevant language course (i.e. necessary for internship, practical project or Master's thesis; maximum of 6 CP for this module).</p> <p>Students whose first language is not German, may take German classes.</p> <p>We recommend taking modules/courses that strengthen your own professional profile.</p>
Reader's advisory	
Links	<p>List of approved courses/modules and approval form: http://www.uol.de/en/neurocogpsy/documents/ </p>
Languages of instruction	English , German
Duration (semesters)	1 Semester

Module frequency	irregular	
Module capacity	unlimited	
Reference text	PLEASE NOTE: <ul style="list-style-type: none">• 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)• Bachelor courses/modules that are also offered in Master of Education programmes are NOT acceptable! (Please check in StudIP)• 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 or seminar <i>(Please refer to the module description for information on the courses you can have counted towards psy140 Minor.)</i>	
SWS	0.00	
Frequency	SuSe and WiSe	
Workload attendance	0 h <i>(Depends on the chosen course, but at least 14 hours attendance.)</i>	

psy150 - Clinical Psychology

Module label	Clinical Psychology
Module code	psy150
Credit points	9.0 KP
Workload	270 h
Used in course of study	<ul style="list-style-type: none"> Master's Programme Neurocognitive Psychology > Master module
Contact person	<p>Module responsibility</p> <ul style="list-style-type: none"> Christiane Margarete Thiel
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>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.</p> <p>Competencies: ++ Neuropsychological / neurophysiological knowledge + experimental methods + data presentation & discussion + scientific literature + critical & analytical thinking + knowledge transfer</p>
Module contents	<p>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.</p> <p>Part 1: Neurobiological basis of psychiatric disorders and pharmacological intervention (lecture and seminar)</p> <ul style="list-style-type: none"> Basics of neurotransmitter systems and psychopharmacology Substance Abuse (e.g. psychostimulants, hallucinogenics) Depression Anxiety Disorders Alzheimer's Disease Schizophrenia psychopathological assessment <p>Part 2: Psychological interventions within the framework of evidence-based medicine (seminar)</p> <ul style="list-style-type: none"> (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. Bonus for a presentation and participation in discussions or group work in other parts of the module (the bonus must be achieved in all other classes/events).	
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	<ul style="list-style-type: none"> Master's Programme Neurocognitive Psychology > Master module
Contact person	<p>Module responsibility</p> <ul style="list-style-type: none"> Stefan Debener
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>Goals of module:</p> <p>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.</p> <p>Competencies:</p> <ul style="list-style-type: none"> ++ Neuropsychological / neurophysiological knowledge ++ experimental methods ++ statistics & scientific programming ++ ethics / good scientific practice / professional behavior + group work + project & time management
Module contents	<p>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.</p> <p>Part 1: Neurophysiology and neuroanatomy (lecture)</p> <ul style="list-style-type: none"> Neurophysiology, EEG, EMG, ECG Neuroanatomy Time-domain and frequency-domain analysis methods <p>Part 2: EEG recording and analysis (theoretical-practical seminar)</p> <ul style="list-style-type: none"> Recording and analysis of biomedical signals Averaging, filtering, signal-to-noise Topographical EEG analysis <p>Part 3: EEG analysis with Matlab (theoretical-practical seminar)</p> <ul style="list-style-type: none"> 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 be offered every winter term.
Module capacity	24 (The lecture is not restricted.)
Reference text	PLEASE NOTE: We strongly recommend to take either psy170, psy270, psy275, 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: theoretical-practical seminar; Part 3: theoretical-practical seminar; 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. Bonus for recording electroencephalographic data.

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
Theorie-Praxis-Seminare	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
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	<ul style="list-style-type: none">Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility <ul style="list-style-type: none">Christiane Margarete Thiel
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>Goals of module: Students should be able to recognize and critically evaluate the value of considering neuroscience in the study of psychological topics.</p> <p>Competencies: ++ neuropsychological / neurophysiological knowledge ++ interdisciplinary knowledge & thinking ++ data presentation & discussion ++ scientific literature + scientific communication skills + group work</p>
Module contents	<p>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).</p> <p>Part 1: Introduction to cognitive neuroscience (lecture and seminar)</p> <ul style="list-style-type: none">Brain and cognition, methods of cognitive neuroscienceAttention, learning and memoryEmotional and social behaviourLanguage, executive functions <p>Part 2: Neurocognitive development (seminar)</p> <ul style="list-style-type: none">Brain development and cortical plasticityEffects of early-life stress on brain developmentDevelopment of object recognition, social cognition, memory, and executive functions
Reader's advisory	<ul style="list-style-type: none">Ward (2015) The Student's Guide to Cognitive Neuroscience, Psychology PressNelson, Haan & Thomas (2006) Neuroscience of Cognitive Development: The Role of Experience and the Developing Brain, Wiley & SonsJohnson (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. Bonus for a presentation and participation in discussions on other presentations in the seminar.

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	<ul style="list-style-type: none">Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility <ul style="list-style-type: none">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	<p>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.</p> <p>Competencies: ++ neuropsychological / neurophysiological knowledge + interdisciplinary knowledge & thinking ++ data presentation & discussion ++ scientific literature + critical & analytical thinking ++ scientific communication skills + group work + project & time management</p>
Module contents	<p>Part 1: Introduction to the study of sex differences (lecture)</p> <ul style="list-style-type: none">The measurement of sex differencesSex differences in emotionSex differences in aggressionSex differences in cognitive abilitiesHormones, sexual differentiation, and gender identitySex hormones and play preferencesSex differences in hemispheric organizationBrain size and intelligence <p>Part 2: Sex, brain, and behaviour (seminar)</p> <ul style="list-style-type: none">Sex differences in empathyThe extreme male brain theory of autism (S. Baron-Cohen)Sex differences in neuropsychiatric disordersSex differences in stress responseSocial 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		The module requires an oral presentation that will be evaluated.	
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

psy200 - Neuropsychology

Module label	Neuropsychology
Module code	psy200
Credit points	9.0 KP
Workload	270 h
Used in course of study	<ul style="list-style-type: none">Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility <ul style="list-style-type: none">Stefan Debener
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>Goals of module:</p> <p>Students will learn to understand changes in thinking and behaviour that may arise from brain dysfunctions (part 1, 4), 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, 4).</p> <p>Competencies:</p> <ul style="list-style-type: none">++ neuropsychological / neurophysiological knowledge+ interdisciplinary knowledge & thinking++ experimental methods+ data presentation & discussion++ scientific literature+ critical & analytical thinking+ scientific communication skills
Module contents	<p>Part 1: Introduction to Clinical Neuropsychology (lecture)</p> <ul style="list-style-type: none">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) <p>Part 2: Cognitive Neurorehabilitation (seminar)</p> <ul style="list-style-type: none">Behavioural and neuropsychological approachesneurofeedback in neurorehabilitation and ADHDmemory rehabilitationeffects of physical activity on cognitionmotor recovery <p>Part 3: Research Colloquium Clinical and Experimental Neuropsychology (colloquium)</p> <ul style="list-style-type: none">Presentations covering recent advances in the field of Experimental and Clinical Neuropsychology <p>Part 4: Topics in Clinical Neuropsychology (seminar; taught partly in German)</p> <ul style="list-style-type: none">Clinical neuroanatomyNeurodegenerative diseasesDementia

Reader's advisory				
Links				
Languages of instruction		English , German		
Duration (semesters)		2-3 Semester		
Module frequency		The module will be offered every winter term.		
Module capacity		30 (Part 4 is not restricted.)		
Reference text		3 CP for each module part, choose 3 out of 4 parts! Part 1 (lecture) is mandatory. If you want to earn the bonus, you need to use the official bonus sheet to prove your attendance which will be handed to you in the beginning of the winter term.		
Modullevel		MM (Mastermodul / Master module)		
Modulart		Wahlpflicht / Elective		
Lern-/Lehrform / Type of program		Part 1: lecture; Part 2: seminar; Part 3: colloquium; Part 4: 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. Bonus for a presentation and participation in discussions on other presentations and attendance of at least 70% in part 2 and 3.	
Course type	Comment	SWS	Frequency	Workload attendance
Lecture		2.00	WiSe	28 h
Seminar		4.00	SuSe and WiSe	56 h
Colloquium		2.00	SuSe	28 h
Total time of attendance for the module				112 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	<ul style="list-style-type: none"> Master's Programme Neurocognitive Psychology > Master module
Contact person	<p>Module responsibility</p> <ul style="list-style-type: none"> 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	<p>Goals of the module:</p> <p>The module aims to provide an overview of theories of (Neuro)Cognitive Psychology with potential for application. It 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. Parts 1 (lecture) and 2 (seminar) will run in parallel. The lecture provides the theoretical basis. In the seminar the material is consolidated by examples from the literature will be presented and critically analyzed and discussed.</p> <p>Competencies:</p> <p>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.</p> <ul style="list-style-type: none"> ++ Neuropsychological / neurophysiological knowledge + interdisciplinary knowledge & thinking + experimental methods + scientific literature + ethics / good scientific practice / professional behavior + critical & analytical thinking + scientific communication skills + knowledge transfer
Module contents	<p>Part 1: (Neuro)Cognitive Psychology in the wild I (lecture)</p> <ul style="list-style-type: none"> 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 <p>Part 2: (Neuro)Cognitive Psychology in the wild II (seminar)</p> <ul style="list-style-type: none"> 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		<ul style="list-style-type: none"> • The module will be evaluated with a written exam of 2 h duration. • bonus for a presentation and participation in discussions on other presentations in the seminar

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	<ul style="list-style-type: none"> Master's Programme Neurocognitive Psychology > Master module
Contact person	<p>Module responsibility</p> <ul style="list-style-type: none"> Jochem Rieger
Entry requirements	
Skills to be acquired in this module	<p>Goals of module:</p> <p>The goal of the module is to provide students with basic skills required to plan, implement and evaluate devices for human computer interaction. As a specific goal the module works toward the implementation of a brain computer interface (BCI). BCIs are ideal showcases as they fully span the interdisciplinary field of HCI design, implementation and evaluation.</p> <p>Competencies:</p> <ul style="list-style-type: none"> ++ Neuropsychological / neurophysiological knowledge ++ interdisciplinary knowledge & thinking + experimental methods ++ statistics & scientific programming + critical & analytical thinking + scientific communication skills + knowledge transfer + group work + project & time management
Module contents	<p>In this module we will address human computer interaction (HCI) in its interdisciplinary requirements focusing on the perspective from neurocognitive psychology. The students learn core concepts in Human Computer Interaction plus data recording and analysis techniques related to Brain Machine Interfacing.</p> <p>Part 1: Foundations of HCI and BCI (lecture)</p> <ul style="list-style-type: none"> Human information processing and models of human cognition (Perception, attention, memory, emotion and individual differences) Computer interfaces for interaction Data analysis techniques for brain machine interfacing (time series analysis, feature selection, classification) Evaluation techniques <p>Part 2: HCI and BCI in practice (practical course)</p> <p>The second part of the module builds upon the theoretical concepts elaborated in the first. We will work through recent applications published in the literature and, where applicable, implement parts of a BCI-system and conduct experiments.</p>
Reader's advisory	<ul style="list-style-type: none"> Dix et al. (2004) Human Computer Interaction. 3rd edition, Pearson Dornhege et al. (2007) Toward Brain Machine Interfacing, The MIT-Press Additional literature and material will be provided on the course website.

Links

Language of instruction	English
Duration (semesters)	2 Semester
Module frequency	The module will be offered every summer term.
Module capacity	15
Reference text	We strongly recommend to take either psy170, psy270, psy275, 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 course
Vorkenntnisse / Previous knowledge	

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 (20 min). Bonus for a presentation and participation in discussions on other presentations in the seminar.

Course type	Comment	SWS	Frequency	Workload attendance
Lecture		2.00	SuSe	28 h
Theorie-Praxis-Seminare		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	<ul style="list-style-type: none">Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility <ul style="list-style-type: none">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	<p>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.</p> <p>Competencies: ++ Neuropsychological / neurophysiological knowledge + interdisciplinary knowledge & thinking ++ experimental methods + ethics / good scientific practice / professional behavior + critical & analytical thinking + scientific communication skills</p>
Module contents	<p>Students will be introduced to the concepts of neuromodulation and the application of theoretical knowledge of neurophysiology to the modulation of cognitive functions.</p> <p>Part 1: Neuromodulation of cognition (lecture)</p> <ul style="list-style-type: none">Neurotransmitter systems of cognitionNeuropharmacological interventionNeuroenhancementNeurofeedbackNeurostimulation <p>Part 2: Neurofeedback (seminar)</p> <ul style="list-style-type: none">Neurofeedback in control and therapyEEG-NeurofeedbackEMG-NeurofeedbackTranscranial magnetic stimulationDeep brain stimulationPatient safety
Reader's advisory	<ul style="list-style-type: none">Kaczmarek, L.K., Levitan, I.B. (1986) Neuromodulation: The Biochemical Control of Neuronal Excitability, Oxford University PressDemos J.N. (2005) Getting Started with Neurofeedback, Norton Professional BooksTarsy, 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	The module will be evaluated with an oral presentation in the seminar. Bonus for oral contribution.
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

psy241 - Computation in Neuroscience

Module label	Computation in Neuroscience
Module code	psy241
Credit points	6.0 KP
Workload	180 h
Used in course of study	<ul style="list-style-type: none"> Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility <ul style="list-style-type: none"> Johannes Voßkuhl
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>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.</p> <p>Competencies: + Neuropsychological / neurophysiological knowledge + experimental methods ++ statistics & scientific programming + critical & analytical thinking + knowledge transfer + group work</p>
Module contents	<p>Part 1: Introduction to scientific programming I (theoretical-practical seminar)</p> <ul style="list-style-type: none"> Basic data types and structures Flow control (conditions, loops, errors) Testing and debugging Functions <p>Part 2: Introduction to scientific programming II (theoretical-practical seminar)</p> <ul style="list-style-type: none"> Classes and objects Parallel processing Frequency analysis methods EEG processing <p>Part 3: Scientific programming I (exercise)</p> <ul style="list-style-type: none"> Implementation of examples from part 1 <p>Part 4: Scientific programming II (exercise)</p> <ul style="list-style-type: none"> Implementation of examples from part 2
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 be offered every winter term.
Module capacity	unlimited
Modullevel	MM (Mastermodul / Master module)
Modulart	Pflicht / Mandatory
Lern-/Lehrform / Type of program	Part 1: theoretical-practical seminar; Part 2: theoretical-practical seminar; Part 3: exercise; Part 4: exercise; 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. Bonus for regularly handing in a total of 12 programming exercises.

Course type	Comment	SWS	Frequency	Workload attendance
Theorie-Praxis-Seminare	2 semester hours per week for winter and summer term	4.00	SuSe and WiSe	56 h
Exercises	1 semester hour per week for winter and summer term.	2.00	SuSe and WiSe	28 h
Tutorial	2 semester hours per week in winter and summer term	0.00	SuSe and WiSe	0 h
Total time of attendance for the module				84 h

psy250 - Internship

Module label	Internship
Module code	psy250
Credit points	15.0 KP
Workload	450 h
Used in course of study	<ul style="list-style-type: none"> Master's Programme Neurocognitive Psychology > Master module
Contact person	<p>Module responsibility</p> <ul style="list-style-type: none"> Cornelia Kranczioch-Debener
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>Goals of module:</p> <p>Sstudents 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.</p> <p>Competencies:</p> <ul style="list-style-type: none"> ++ expert neuropsychological/neurophysiological knowledge + interdisciplinary knowledge & thinking + experimental methods ++ ethics / good scientific practice / professional behavior ++ knowledge transfer + project & time management
Module contents	The student 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
Languages of instruction	English , German
Duration (semesters)	1 Semester
Module frequency	irregular
Module capacity	unlimited
Reference text	<p>The internship lasts 450 hours (12 weeks). It can be performed at 2 different institutions with a minimum duration of 150 hours (4 weeks) for each part. Your supervisor must be a psychologist.</p> <p>Please note that details are regulated in the exam regulations. A blank internship certificate can be found on the programme website.</p>
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 and WiSe	
Workload attendance	0 h (450 h attendance at internship institution)	

psy260 - Practical project

Module label	Practical project
Module code	psy260
Credit points	9.0 KP
Workload	270 h
Used in course of study	<ul style="list-style-type: none"> Master's Programme Neurocognitive Psychology > Master module
Contact person	<p>Module responsibility</p> <ul style="list-style-type: none"> Jochem Rieger Christoph Siegfried Herrmann Stefan Debener Jalenur Özyurt Andrea Hildebrandt <p>Module counseling</p> <ul style="list-style-type: none"> Riklef Weerdena
Entry requirements	<p>Enrolment in Master's programme Neurocognitive Psychology.</p> <p>Students who start their practical projects in the summer term 2019 or later: You can only start the practical project if you have passed the exam of psy241 Computation in Neuroscience!</p> <p>Students who start their practical project in the winter term 2018/19: You will only receive credits for the practical project once you have passed your psy241 exam!</p> <p>Priority is given to students with experience in methods used in the respective lab or students who have taken the respective teaching modules.</p>
Skills to be acquired in this module	<p>Goals of module:</p> <p>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.</p> <p>Competencies:</p> <ul style="list-style-type: none"> ++ 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	<ul style="list-style-type: none"> 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	http://www.uni-oldenburg.de/en/psychology/study-programme/master/documents/			
Language of instruction	English			
Duration (semesters)	1 Semester			
Module frequency	The module will be offered every winter term.			
Module capacity	unlimited			
Reference text	<p>Topics for projects will be presented in a colloquium at the end of the summer term.</p> <p>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).</p>			
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	<p>PLEASE NOTE:</p> <p>Many projects require knowledge of either EEG, fMRI, TBS, or HCI analysis! We strongly recommend to take either psy170: Neurophysiology, psy270/275: fMRI Data Analysis, psy280: Transcranial Brain Stimulation, or psy220 Human Computer Interaction prior to the practical project.</p> <p>It is expected that students show basic knowledge of Matlab programming before starting the practical project.</p>			
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		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	<ul style="list-style-type: none"> Master's Programme Neurocognitive Psychology > Master module
Contact person	<p>Module responsibility</p> <ul style="list-style-type: none"> Carsten Gießing
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>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.</p> <p>Competencies: ++ experimental methods ++ statistics & scientific programming + data presentation & discussion ++ group work</p>
Module contents	<p>Part 1: Functional MRI data analysis (lecture)</p> <p>Part 2: Planning, performance and analysis of functional neuroimaging studies using MATLAB-based software (seminar)</p> <p>Part 3: Hands-on fMRI data analysis with SPM (practical course)</p>
Reader's advisory	<ul style="list-style-type: none"> 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	20 (

The remaining places are reserved for Biology and Neuroscience students.
)

Reference text	<p>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.</p> <p>PLEASE NOTE: We strongly recommend to take either psy170, psy270, psy275, psy280, or psy220 to gain methodological competencies (EEG, fMRI, TBS, HCI) that are needed for most practical projects and Master's theses!</p>			
Modullevel	MM (Mastermodul / Master module)			
Modulart	Wahlpflicht / Elective			
Lern-/Lehrform / Type of program	Part 1: lecture; Part 2: seminar; Part 3: practical course			
Vorkenntnisse / Previous knowledge				
Examination	Time of examination	Type of examination		
Final exam of module	end of summer term	Oral or written examination Bonus for active participation (e.g. presentations, creating study material for other participants, tandem learning or oral contributions)		
Course type	Comment	SWS	Frequency	Workload attendance
Lecture		2.00	SuSe	28 h
Seminar		1.00	SuSe	14 h
Practical		4.00	SuSe	56 h
Total time of attendance for the module				98 h

psy275 - Essentials of fMRI Data Analysis with SPM and FSL

Module label	Essentials of fMRI Data Analysis with SPM and FSL
Module code	psy275
Credit points	6.0 KP
Workload	180 h (Attendance: 56 h. (4 SWS), reading and practising: 124 h., total: 180 h.)
Used in course of study	<ul style="list-style-type: none"> Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility <ul style="list-style-type: none"> Riklef Weerda Peter Sörös
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology, 3rd semester or higher.
Skills to be acquired in this module	<p>+ 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</p> <p>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.</p>
Module contents	<ol style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	40

Reference text	<p>PLEASE NOTE: We strongly recommend to take either psy170, psy270, psy275, psy280, or psy220 to gain methodological competencies (EEG, fMRI, TBS, HCI) that are needed for most practical projects and Master's theses!</p>			
Modullevel	MM (Mastermodul / Master module)			
Modulart	Wahlpflicht / Elective			
Lern-/Lehrform / Type of program	<p>Part 1: 1 seminar (1 SWS) Part 2: 1 supervised exercise (3 SWS)</p>			
Vorkenntnisse / Previous knowledge				
Examination	Time of examination	Type of examination		
Final exam of module	end of winter term	written exam		
Course type	Comment	SWS	Frequency	Workload attendance
Seminar		1.00	WiSe	14 h
Exercises		3.00	WiSe	42 h
Total time of attendance for the module				56 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	<ul style="list-style-type: none">Master's Programme Neurocognitive Psychology > Master module
Contact person	Module responsibility <ul style="list-style-type: none">Christoph Siegfried Herrmann
Entry requirements	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>Goals of module: Students will gain theoretical and practical knowledge on various non-invasive brain stimulation techniques.</p> <p>Competencies: ++ Neuropsychological / neurophysiological knowledge ++ experimental methods + statistics & scientific programming + scientific literature + ethics / good scientific practice / professional behaviour</p>
Module contents	<p>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.</p> <p>Part 1: Introduction to transcranial brain stimulation (lecture)</p> <ul style="list-style-type: none">Historical overview of brain stimulationDifferent 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. tACSTechnical aspects (artefact correction, modelling current flow, etc.)Safety issuesEthical considerations of brain stimulation <p>Part 2: Effects of tACS on physiology and cognition (seminar)</p> <ul style="list-style-type: none">Physiology of tACS (on-line and after-effects)Modulating cognitive functions (e.g. memory, attention, and perception)Clinical applications of tACSHands-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, psy275, 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.		
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

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	<ul style="list-style-type: none"> Master's Programme Neurocognitive Psychology > Thesis module
Contact person	
Entry requirements	<p>Enrolment in Master's programme Neurocognitive Psychology. Completion of at least 60 credit points in other modules including module psy241. Assignment of a topic by thesis supervisor and official application with the examination office.</p>
Skills to be acquired in this module	<p>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.</p> <p>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</p>
Module contents	<p>Part 1: Master's thesis The students work on a given topic in cognitive neuroscience using literature research and the appropriate experimental methods.</p> <p>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.</p>
Reader's advisory	
Links	<p>Rules for external Master's theses are explained here: http://www.uni-oldenburg.de/en/psychology/study-programme/master/documents/</p>
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.		
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.)		