

Handbook of modules and study plan

for the

Research Master programme

Neurocognitive Psychology

Date: July 3rd, 2017

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: Functional Neuroimaging, 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.

Study plan Research Master Neurocognitive Psychology (valid from summer 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	<p>psy140 Minor, 9 CP</p>	<p>psy260 Practical Project, 9 CP</p>	<p><u>Choose from:</u> psy181 Neurocognition- 1 & 2, 6 CP psy230 Neuromodulation of Cognition- 1 & 2, 6 CP psy275 Essentials of fMRI Data Analysis⁴, 6 CP</p>	<p>Continue: psy210 Applied Cognitive Psych.- 2, 3 CP</p>	18 compulsory max. 21 elective
Mobility window for psy250 Internship, 15 CP (semester break between 2. and 3. semester) ⁴					
2	<p>psy110 Research methods- 4, 3 CP</p>	<p>psy120 Psychol. Assess. & Diagnostics- 2 & 3, 6 CP</p>	<p><u>Choose from:</u> psy190 Sex and Cognition- 1 & 2, 6 CP psy210 Applied Cognitive Psych.- 1, 3 CP psy220 Human Computer Interaction- 1 & 2, 6 CP psy270 Functional MRI Data Analysis⁴, 9 CP psy280 Transcranial Brain Stimulation- 1 & 2, 6 CP</p>	<p>Continue: psy150 Clinical Psychology- 2³, 3 CP psy170 Neuropsychology- 3, 3 CP psy200 Neuropsychology²- 2 & 3, 6 CP</p>	12 compulsory max. 42 elective
1	<p>psy110 Research methods- 1,2 & 3, 9 CP</p>	<p>psy120 Psychol. Assess. & Diagnostics- 1, 3 CP</p>	<p><u>Choose from:</u> psy150 Clinical Psychology- 1, 6 CP psy170 Neuropsychology- 1 & 2, 3 CP psy200 Neuropsychology²-1 & 4³, 6 CP</p>		21 compulsory max. 15 elective
	<p>General part compulsory modules 57 CP in total</p>	<p>Research Modules - compulsory 39 CP in total</p>	<p>Specialized part elective modules choose 24 CP in total</p>		

Students should aim to study 30 +/- 3 credits per semester. The program comprises 120 credits for 4 semesters.

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

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

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

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

⁵The internship can also be performed any other semester.

⁶For 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.

Modules for Neurocognitive Psychology

Date 03/07/17

Mastermodule

psy110 - Research methods

Version of 1. Decision from 20.02.2017. / Version 1

Module label	Research methods
Module code	psy110
Credit points	12.0 KP
Workload	360
Used in study courses	<ul style="list-style-type: none"> Master Neurocognitive Psychology > Mastermodule
Contact person	
Prerequisites	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>Goals of module: Students will acquire basic knowledge about the planning of an empirical investigation, setting up computer-controlled experiments, multivariate statistical data analysis, and the interpretation, evaluation and synthesis of empirical results.</p> <p>Competencies: + 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</p>
Module contents	<p>Part 1: Multivariate Statistics I (lecture)</p> <ul style="list-style-type: none"> Basic concepts of probability, statistical inference, graphical representation of data Linear regression (simple and multiple) and analysis of variance Logistic regression, multivariate t-test <p>Part 2: Evaluation research (seminar)</p> <ul style="list-style-type: none"> Methods and paradigms of evaluation Multidimensional Scaling and cluster analysis Decision making, meta-analysis <p>Part 3: 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 4: Multivariate Statistics II (lecture)</p> <ul style="list-style-type: none"> Principal component analysis and factor analysis Classification and discrimination Survival analysis Advanced methods (e.g., Bayesian estimation, ICA, machine learning)
Recommended reading	
Links	
Language of instruction	English
Duration (semesters)	2 semester
Module frequency	
Module capacity	unlimited
Modullevel	MM (Mastermodul / Master module)

Version of 1. Decision from 20.02.2017. / Version 1

Modulart	Pflicht / Mandatory		
Lern-/Lehrform / Type of program	Parts 1 and 4: lectures; Parts 2 and 3: seminars; additional tutorials are offered.		
Vorkenntnisse / Previous knowledge	basic statistics; otherwise please attend Introductory Course Statistics		
Examination	examination periods	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 3.		
Course type	SWS	Offer rhythm	Workload attendance in hours
Lecture	6	SumSem and WinSem	84
Seminar	4	WinSem	56
Tutorial		SumSem and WinSem	0
Total attendance time of module			140

psy120 - Psychological diagnostics

Version of 1. Decision from 20.02.2017. / Version 1

Module label	Psychological diagnostics
Module code	psy120
Credit points	9.0 KP
Workload	270
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule
Contact person	<p>module responsibility</p> <ul style="list-style-type: none"> ◦ Andreas Hellmann <p>authorized examiners</p> <ul style="list-style-type: none"> ◦ Andreas Hellmann <p>Module counseling</p> <ul style="list-style-type: none"> ◦ Stefan Debener
Prerequisites	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>Goals of module: Students will acquire specific knowledge about psychological assessment and shall be able to utilize the knowledge both within a research context and within an applied context. They will learn to analyse a psychological question in terms of psychological assessment, design and plan the assessment process, select appropriate means, techniques and instruments, apply methods and conduct measurements, analyse and combine gathered information, draw conclusions, write reports and deliver expert opinion, reflect on the assessment process, follow ethical and professional rules.</p> <p>Competencies: + Neuropsychological / neurophysiological knowledge + interdisciplinary knowledge & thinking + ethics / good scientific practice / professional behavior + critical & analytical thinking</p>
Module contents	<p>Part 1: Introduction to Psychological Assessment (lecture)</p> <ul style="list-style-type: none"> • models and approaches • methods, processes, guidelines • theory of testing, approaches to test construction <p>Part 2: Psychological Testing (seminar)</p> <ul style="list-style-type: none"> • types of tests • exercises in testing / practising tests <p>Part 3: Assessment in Clinical Neuropsychology (seminar)</p> <ul style="list-style-type: none"> • specific knowledge • exercises in testing / practising tests
Recommended reading	<ul style="list-style-type: none"> • Coaley, K. (2009) An introduction to psychological assessment and psychometrics. London: Sage. • Kaplan, R. & Saccuzzo, D. P. (2009) Psychological Testing: Principles, Applications, and Issues. Belmont: Wadsworth. • Fernández-Ballesteros, R. (ed., 2003) Encyclopedia of psychological assessment. London: SAGE. Vol. 1 & 2.
Links	
Language of instruction	English
Duration (semesters)	2 semester
Module frequency	
Module capacity	unlimited
Modullevel	MM (Mastermodul / Master module)

Version of 1. Decision from 20.02.2017. / Version 1

Modulart	Pflicht / Mandatory		
Lern-/Lehrform / Type of program	Part 1: 1 lecture ; Part 2: 1 seminar; Part 3: 1 seminar		
Vorkenntnisse / Previous knowledge			
Examination	examination periods	Type of examination	
Final exam of module	summer term	The module will be tested by a practical exercise (test application and protocol). Bonus for a presentation including test and attendance of at least 70% in the seminars.	
Course type	SWS	Offer rhythm	Workload attendance in hours
Lecture	2	WinSem	28
Seminar	4	SumSem	56
Total attendance time of module			84

psy130 - Communication of scientific results

Version of 1. Decision from 20.02.2017. / Version 1

Module label	Communication of scientific results	
Module code	psy130	
Credit points	6.0 KP	
Workload	180	
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule 	
Contact person	module responsibility <ul style="list-style-type: none"> ◦ Christoph Siegfried Herrmann Module counseling <ul style="list-style-type: none"> ◦ Daniel Strüber 	
Prerequisites	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>	
Recommended reading	<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		
Module capacity	unlimited	
General information	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		
Examination	examination periods	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	SWS	Offer rhythm Workload attendance in hours
Seminar	2	WinSem 28
Colloquium	2	SumSem and WinSem 28

Course type	SWS	Offer rhythm	Workload attendance in hours
Total attendance time of module			56

psy140 - Minor

Version of 1. Decision from 14.02.2017. / Version 1

Module label	Minor	
Module code	psy140	
Credit points	9.0 KP	
Workload	270	
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule 	
Contact person		
Prerequisites	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. This is intended to enable students to see how psychological theories apply in other fields. Possible modules are listed below. Upon approval German speaking students can attend a career-relevant language course (maximum of 6 CP for this module). Students who's first language is not German, may take German classes.</p> <p>Competencies ++ interdisciplinary knowledge & thinking</p>	
Module contents	<p>Modules from the following fields can be taken without prior approval:</p> <ul style="list-style-type: none"> • Cellular and molecular biology • Behavioural neurobiology • Psychophysics and Audiology • Artificial intelligence and knowledge representation • Man machine interaction (not in combination with module psy220 Human Computer Interaction) • Computational neuroscience • Evolutionary biology • Rehabilitation pedagogics (taught in German) • Linear models • General linear models and semiparametric models • Philosophy (taught in German) • German as a foreign language (for non-German students) 	
Recommended reading		
Links		
Languages of instruction	English , German	
Duration (semesters)	1 semester	
Module frequency		
Module capacity	unlimited	
General information	<p>PLEASE NOTE:</p> <ul style="list-style-type: none"> • If a course is not listed here, please request approval BEFORE you start the course • Courses must be at Master's level (except language courses) • Course descriptions need to state clear pass/fail criteria • Language courses other than 'German as a foreign language' need to be career-relevant (i.e. necessary for internship, practical project or Master's thesis) and require approval • Content of the Minor courses need to be clearly different from other taken courses of the study program 	
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	examination periods	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	
	Please refer to the module description for information on the courses you can have counted towards psy140	

Minor.

SWS

Workload attendance

0 (
Depends on the chosen course, but at least 14 hours attendance.
)

psy150 - Clinical Psychology

Version of 1. Decision from 20.02.2017. / Version 1

Module label	Clinical Psychology
Module code	psy150
Credit points	9.0 KP
Workload	270
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule
Contact person	<p>module responsibility</p> <ul style="list-style-type: none"> ◦ Christiane Margarete Thiel
Prerequisites	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 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 and psychotherapeutic interventions. 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)</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 <p>Part 1: Psychotherapeutic intervention of selected psychiatric disorders (seminar)</p> <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
Recommended reading	<ul style="list-style-type: none"> • 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	
Module capacity	unlimited
Modullevel	MM (Mastermodul / Master module)
Modulart	Wahlpflicht / Elective
Lern-/Lehrform / Type of program	Part 1: lecture and seminar: part 2: seminar

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Vorkenntnisse / Previous knowledge

Examination	examination periods	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	SWS	Offer rhythm	Workload attendance in hours
Lecture	2	WinSem	28
Seminar	4	SumSem and WinSem	56
Total attendance time of module			84

psy170 - Neurophysiology

Version of 1. Decision from 20.02.2017. / Version 1

Module label	Neurophysiology
Module code	psy170
Credit points	6.0 KP
Workload	180
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule
Contact person	<p>module responsibility</p> <ul style="list-style-type: none"> ◦ Stefan Debener
Prerequisites	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>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.</p> <p>Competencies: ++ Neuropsychological / neurophysiological knowledge ++ experimental methods ++ statistics & scientific programming ++ ethics / good scientific practice / professional behavior + group work + project & time management</p>
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
Recommended reading	<ul style="list-style-type: none"> • Kandel et al. (2000). Principles of Neural Science, McGraw-Hill • Luck, S.J. (2005). An Introduction to the ERP Technique, The MIT Press • Van Dongen, W. (2006). Signal Processing for Neuroscientists, Academic Press
Links	
Language of instruction	English
Duration (semesters)	2 semester
Module frequency	
Module capacity	24 (The lecture is not restricted.)

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General information	PLEASE NOTE: We strongly recommend to take either psy170, psy270, 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	examination periods	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	SWS	Offer rhythm	Workload attendance in hours
Lecture	1	WinSem	14
theory and practice seminar	3	SumSem and WinSem	42
Tutorial		SumSem	0
Total attendance time of module			56

psy181 - Neurocognition

Version of 1. Decision from 20.02.2017. / Version 1

Module label	Neurocognition	
Module code	psy181	
Credit points	6.0 KP	
Workload	180	
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule 	
Contact person	module responsibility <ul style="list-style-type: none"> ◦ Christiane Margarete Thiel 	
Prerequisites	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 neuroscience • Attention, learning and memory • Emotional and social behaviour • Language, executive functions <p>Part 2: Neurocognitive development (seminar)</p> <ul style="list-style-type: none"> • Brain development and cortical plasticity • Effects of early-life stress on brain development • Development of object recognition, social cognition, memory, and executive functions 	
Recommended reading	<ul style="list-style-type: none"> • 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		
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	examination periods	Type of examination

Examination	examination periods	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	SWS	Offer rhythm	Workload attendance in hours
Lecture	1	WinSem	14
Seminar	3	WinSem	42
Total attendance time of module			56

psy190 - Sex and Cognition

Version of 1. Decision from 20.02.2017. / Version 1

Module label	Sex and Cognition
Module code	psy190
Credit points	6.0 KP
Workload	180
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule
Contact person	<p>module responsibility</p> <ul style="list-style-type: none"> ◦ Daniel Strüber
Prerequisites	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 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 <p>Part 2: Sex, brain, and behaviour (seminar)</p> <ul style="list-style-type: none"> • 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
Recommended reading	<ul style="list-style-type: none"> • 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	
Module capacity	30
Modullevel	MM (Mastermodul / Master module)
Modulart	Wahlpflicht / Elective
Lern-/Lehrform / Type of program	Part 1: lecture; Part 2: seminar

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Vorkenntnisse / Previous knowledge

Examination	examination periods	Type of examination	
Final exam of module	during summer term	The module requires an oral presentation that will be evaluated.	
Course type	SWS	Offer rhythm	Workload attendance in hours
Lecture	2	SumSem	28
Seminar	2	SumSem	28
Total attendance time of module			56

psy200 - Neuropsychology

Version of 1. Decision from 20.02.2017. / Version 1

Module label	Neuropsychology
Module code	psy200
Credit points	9.0 KP
Workload	270
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule
Contact person	<p>module responsibility</p> <ul style="list-style-type: none"> ◦ Stefan Debener
Prerequisites	Enrolment in Master's programme Neurocognitive Psychology.
Skills to be acquired in this module	<p>Goals of module: Students will learn to understand changes in thinking and behaviour that may arise from brain dysfunctions (part 1, 4), acquire specific knowledge on multisensory processes (part 2), and learn to understand, communicate and evaluate progress in clinical practice and experimental research in neuropsychology (part 3, 4).</p> <p>Competencies: ++ neuropsychological / neurophysiological knowledge + interdisciplinary knowledge & thinking ++ experimental methods + data presentation & discussion ++ scientific literature + critical & analytical thinking + scientific communication skills</p>
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: Topics in Experimental Neuropsychology (seminar)</p> <ul style="list-style-type: none"> • Neural properties of sensory processing in a multiple sensory systems framework • Human brain studies of multisensory processes • Cross-modal plasticity <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 (taught partly in German)</p> <ul style="list-style-type: none"> • Clinical neuroanatomy • Neurodegenerative diseases • Dementia
Recommended reading	
Links	
Languages of instruction	English , German
Duration (semesters)	2-3 semester
Module frequency	
Module capacity	30 (Part 4 is not restricted.)
General information	3 CP for each module part, choose 3 out of 4 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: colloquium; Part 4: seminar

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Vorkenntnisse / Previous knowledge

Examination	examination periods	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	SWS	Offer rhythm	Workload attendance in hours
Lecture	2	WinSem	28
Seminar	4	SumSem and WinSem	56
Colloquium	2	SumSem	28
Total attendance time of module			112

psy210 - Applied Cognitive Psychology

Version of 1. Decision from 14.02.2017. / Version 1

Module label	Applied Cognitive Psychology
Module code	psy210
Credit points	6.0 KP
Workload	180
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule
Contact person	<p>module responsibility</p> <ul style="list-style-type: none"> ◦ Jochem Rieger
Prerequisites	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: 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: 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.
Recommended reading	<ul style="list-style-type: none"> • 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	
Module capacity	30
General information	The module will be offered in summer terms and should be completed within one semester. Both parts will run in parallel.

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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	examination periods	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. Bonus for a presentation (speech) and participation in discussions on other presentations in the seminar.	
Course type	SWS	Offer rhythm	Workload attendance in hours
Lecture	2	SumSem	28
Seminar	2	SumSem	28
Total attendance time of module			56

psy220 - Human Computer Interaction

Version of 1. Decision from 20.02.2017. / Version 1

Module label	Human Computer Interaction
Module code	psy220
Credit points	6.0 KP
Workload	180
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule
Contact person	<p>module responsibility</p> <ul style="list-style-type: none"> ◦ Jochem Rieger

Prerequisites

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 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.

Competencies:

- ++ 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

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.

Part 1: Foundations of HCI and BCI (lecture)

- 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

Part 2: HCI and BCI in practice (practical course)

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.

Recommended reading

- 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	
Module capacity	15
General information	We strongly recommend to take either psy170, psy270, 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	examination periods	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	SWS	Offer rhythm	Workload attendance in hours
Lecture	2	SumSem	28
theory and practice seminar	2	WinSem	28
Total attendance time of module			56

psy230 - Neuromodulation of Cognition

Version of 1. Decision from 20.02.2017. / Version 1

Module label	Neuromodulation of Cognition
Module code	psy230
Credit points	6.0 KP
Workload	180
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule
Contact person	<p>module responsibility</p> <ul style="list-style-type: none"> ◦ Jochem Rieger
Prerequisites	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 cognition • Neuropharmacological intervention • Neuroenhancement • Neurofeedback • Neurostimulation <p>Part 2: Neurofeedback (seminar)</p> <ul style="list-style-type: none"> • Neurofeedback in control and therapy • EEG-Neurofeedback • EMG-Neurofeedback • Transcranial magnetic stimulation • Deep brain stimulation • Patient safety
Recommended reading	<ul style="list-style-type: none"> • 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	
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	examination periods	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	SWS	Offer rhythm	Workload attendance in hours
Lecture	2	WinSem	28
Seminar	2	WinSem	28
Total attendance time of module			56

psy241 - Computation in Neuroscience

Version of 1. Decision from 20.02.2017. / Version 1

Module label	Computation in Neuroscience
Module code	psy241
Credit points	6.0 KP
Workload	180
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule
Contact person	<p>module responsibility</p> <ul style="list-style-type: none"> ◦ Johannes Voßkuhl
Prerequisites	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
Recommended reading	<ul style="list-style-type: none"> • 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	
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;

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additional tutorials

Vorkenntnisse / Previous knowledge

Examination	examination periods	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	SWS	Offer rhythm Workload attendance in hours
theory and practice seminar	4	SumSem and WinSem 56
Exercises	2	SumSem and WinSem 28
Tutorial		SumSem and WinSem 0
Total attendance time of module		84

psy250 - Internship

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Module label	Internship	
Module code	psy250	
Credit points	15.0 KP	
Workload	450	
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule 	
Contact person	module responsibility <ul style="list-style-type: none"> ◦ Hans Colonius Module counseling <ul style="list-style-type: none"> ◦ Cornelia Kranczioch-Debener 	
Prerequisites	Enrolment in Master's programme Neurocognitive Psychology.	
Skills to be acquired in this module	<p>Goals of module: The goal of the internship is to provide students with the opportunity to participate in the daily work of professional psychologists in their job. Students will be able to make informed, career-specific decisions.</p> <p>Competencies: + experimental methods ++ ethics / good scientific practice / professional behavior ++ knowledge transfer + project & time management</p>	
Module contents	The students will work in a field of psychology and get to know the daily work routines of a psychologist.	
Recommended reading		
Links	http://www.uni-oldenburg.de/en/psychology/study-programme/master/internships/ http://www.uni-oldenburg.de/en/psychology/study-programme/master/documents/	
Languages of instruction	English , German	
Duration (semesters)	1 semester	
Module frequency		
Module capacity	unlimited	
General information	<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	examination periods	Type of examination
Final exam of module	individual	The students have to hand in a written report (5-8 pages) about their internship and show a certificate from the institution at which they performed the internship. The internship is evaluated as pass/fail.
Course type	Practical	
SWS		
Workload attendance	0 (450 h attendance at internship institution)	

psy260 - Practical project

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Module label	Practical project
Module code	psy260
Credit points	9.0 KP
Workload	270
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule
Contact person	<p>module responsibility</p> <ul style="list-style-type: none"> ◦ Hans Colonius ◦ Jochem Rieger ◦ Christoph Siegfried Herrmann ◦ Stefan Debener ◦ Jalenur Özyurt <p>Module counseling</p> <ul style="list-style-type: none"> ◦ Riklef Weerda
Prerequisites	<p>Enrolment in Master's programme Neurocognitive Psychology.</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: 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: ++ 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</p>
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!
Recommended reading	
Links	http://www.uni-oldenburg.de/en/psychology/study-programme/master/documents/
Language of instruction	English
Duration (semesters)	1 semester
Module frequency	
Module capacity	unlimited
General information	<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	PLEASE NOTE: Many projects require knowledge of either EEG, fMRI, TBS, or HCI analysis! We strongly recommend to take either psy170: Neurophysiology, psy270: Functional Neuroimaging, psy280: Transcranial

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Brain Stimulation, or psy220 Human Computer Interaction prior to the practical project.			
Examination	examination periods	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	SWS	Offer rhythm	Workload attendance in hours
Seminar	2	WinSem	28
Practical	2	WinSem	28
Total attendance time of module			56

psy270 - Functional Neuroimaging

Version of 1. Decision from 20.02.2017. / Version 1

Module label	Functional Neuroimaging	
Module code	psy270	
Credit points	9.0 KP	
Workload	270	
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule 	
Contact person	module responsibility <ul style="list-style-type: none"> ◦ Carsten Gießing 	
Prerequisites	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>	
Recommended reading	<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		
Module capacity	20 (The remaining places are reserved for Biology and Neuroscience students.)	
General information	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, 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: seminar; Part 3: practical course	
Vorkenntnisse / Previous knowledge		
Examination	examination periods	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	SWS	Offer rhythm Workload attendance in hours

Course type	SWS	Offer rhythm	Workload attendance in hours
Lecture	2	SumSem	28
Seminar	1	SumSem	14
Practical	4	SumSem	56
Total attendance time of module			98

Degree:

Master of Science in Neurocognitive Psychology

Module PSY275: Essentials of fMRI Data Analysis with SPM and FSL**Goals of module:**

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.

Competencies:

- + 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

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

Literature:

- 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.

Teaching methods:

Part 1: 1 seminar (1 SWS)

Part 2: 1 supervised exercise (Übung) (3 SWS)

Requirements for participation:

Enrolment in Master's programme, 3rd semester.

Comments:

The module will be offered in the winter term, blocked in the first half (seven weeks).

Effort:

Attendance: 56 h. (4 SWS), reading and practising: 124 h., total: 180 h.

Credit points:

- Total number of credit points for the module: 6.

Assessment:

- Written exam (multiple choice)

Persons responsible:

Riklef Weerda, Dr. Peter Sörös

psy280 - Transcranial Brain Stimulation

Version of 1. Decision from 25.03.2017. / Version 1

Module label	Transcranial Brain Stimulation
Module code	psy280
Credit points	6.0 KP
Workload	180
Used in study courses	<ul style="list-style-type: none"> • Master Neurocognitive Psychology > Mastermodule
Contact person	<p>module responsibility</p> <ul style="list-style-type: none"> ◦ Christoph Siegfried Herrmann
Prerequisites	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 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 <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 tACS • Hands-on experience in the lab
Recommended reading	<ul style="list-style-type: none"> • 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	
Module capacity	10
General information	We strongly recommend to take either psy170, psy270, 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

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Lern-/Lehrform / Type of program Part 1: lecture; Part 2: seminar

Vorkenntnisse / Previous knowledge

Examination	examination periods	Type of examination	
Final exam of module	during summer term	Oral presentation in the seminar.	
Course type	SWS	Offer rhythm	Workload attendance in hours
Lecture	2	SumSem	28
Seminar	2	SumSem	28
Total attendance time of module			56

Abschlussmodul

mam - Master's Degree Module

Version of 1. Decision from 23.01.2017. / Version 1

Module label	Master's Degree Module	
Module code	mam	
Credit points	30.0 KP	
Workload	900 (attendance in the lab meetings: 28h (2 SWS); thesis work: 872 hours)	
Used in study courses	<ul style="list-style-type: none"> Master Neurocognitive Psychology > Abschlussmodul 	
Contact person		
Prerequisites	Enrolment in Master's programme Neurocognitive Psychology. Completion of at least 60 credit points in other modules. Assignment of a topic by thesis supervisor and official application with the examination office.	
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>	
Recommended reading		
Links	Rules for external Master's theses are explained here: http://www.uni-oldenburg.de/en/psychology/study-programme/master/documents/	
Language of instruction	English	
Duration (semesters)	1 semester	
Module frequency		
Module capacity	unlimited	
General information	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	examination periods	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 and project	
SWS	2	

Workload attendance

28 (

Attendance as required for your project and 2 hours per week for participating in the lab meetings.

)

Study plan (winter term 2017/2018)

Time	Monday	Tuesday	Wednesday	Thursday	Friday
08-10	<p>3rd sem.: psy181 (Neurocognition, part 1) lecture Title: Introduction to cognitive neuroscience Person: C. Thiel Room: A07 0-031 Dates: starts 4.12.17 5.02.614</p>	<p>psy110 (Research Methods, part 1) Title: Introductory Course Statistics (Tutorial) Person: Ch. Müller Room: A07 0-031 Dates: 24.10.17-28.11.17 6.02.001_T</p> <p>psy110 (Research Methods, part 1) Title: Multivariate statistics I (Tutorial) Person: K. Dücker Room: A07 0-031 Dates: starts 12.12.17 6.02.110_IT</p>	<p>psy110 (Research Methods, part 1) Title: Introductory Course Statistics (Tutorial) Person: Ch. Müller Room: A07 0-031 Dates: 18.10.17-29.11.17 6.02.001_T</p> <p>psy110 (Research Methods, part 1) Title: Multivariate statistics I (Tutorial) Person: K. Dücker Room: A07 0-031 Dates: starts 6.12.17 6.02.110_IT</p>	<p>3rd sem.: psy181 (Neurocognition, part 1) seminar Title: Introduction to cognitive neuroscience Person: C. Thiel Room: A07 0-031 Dates: starts 07.12.17 5.02.614</p>	
10-12	<p>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 Laborbereich Cogn. Psych. (H. Colomius) 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</p>	<p>psy110 (Research Methods, part 3) seminar Title: Computer-controlled experimentation Person: J. Thorne Room: A07 0-031 Dates: 17.10.17-28.11.17 6.02.110_3</p>	<p>psy130 (Communication of Scientific Results, part 1) seminar Title: Communication of scientific results Person: C. Herrmann Room: A07 0-031 6.02.130_1</p>	<p>psy110 (Research Methods, part 2) seminar Title: Evaluation Research Person: M. Hecht Room: A07 0-031 6.02.110_2</p>	<p><i>Brückenmodul</i> Title: Introductory Course Statistics Person: M. Tahden Room: A07 0-025 Dates: 20.10.-1.12.17 6.02.001</p> <p>psy110 (Research Methods, part 1) lecture Title: Multivariate statistics I Person: M. Hecht Room: A07 0-025 Dates: starts 8.12.17 6.02.110_1L</p>

12-14	<p>psy120 (Psychological Assessment and Diagnosis, part 1) lecture Title: Introduction to psychological assessment Person: A. Hellmann Room: A07 0-031 6.02.120_1</p>	<p>psy150 (Clinical Psychology, part 1) lecture Title: Neurobiological basis of psychiatric disorders and psychopharmacological intervention Person: C. Thiel. Room: A6 0-001 Dates: starts 5.12.17 5.02.615</p>	<p>psy200 (Neuropsychology, part 1) lecture Title: Clinical Neuropsychology Person: St. Debener Room: A07 0-031 6.02.200_1</p>	<p>3rd sem.: psy181 (Neurocognition, part 2) seminar Title: Neurocognitive Development Person: D. Strüber Room: A07 0-025 6.02.181_2</p>	<p>psy150 (Clinical Psychology, part 1) seminar Title: Clinical case-based Seminar Person: K. Bachmann Room: : A1 0-004 Dates: starts 8.12.17 6.02.150_1S</p>
	<p>3rd sem.: psy260 (Practical Project) seminar Pbio: Person: J. Özyurt (A14 1-115) Pexp: Person: C. Herrmann (A07 0-025) Pneuro: Person: J. Thome Pappl: Person: J. Rieger 6.02.260pbio-6.02.260pappl</p>	<p><i>Brückenmodul</i> Title: Introductory Course Statistics Person: M. Tahden Room: A07 0-031 Dates: 17.10.17-28.11.17 6.02.001</p>	<p>psy241 (Computation in Neuroscience) Title: Introduction to scientific programming (Tutorial) Person: R. Franke, N. Tarielashvili Room: A07 0-036 6.02.241_T</p>		
	<p>psy110 (Research Methods, part 3) Title: Computer-controlled experimentation (Tutorial) Person: F. Klein Room: A07 0-036 6.02.110_3T</p>	<p>3rd sem.: psy220 (Human Computer Interaction, part 2) practical seminar Title: HCI and BCI in practice Person: A. Dreyer Room: A07 0-025 6.02.220_2</p>			

14-
16

psy170 (Neurophysiology, part 1) lecture
Title: Neurophysiology and Neuroanatomy
Person: C. Herrmann
Dates: 16.10.-27.11. (7x)
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 Klein, F Kasten, F Popp
Room: lab area Debener
Dates: starting 4.12.
6.02.170_2_Gr1

psy241 (Computation in Neuroscience, part 1) seminar
Title: Introduction to scientific programming I
Person: J. Vosskuhl
Room: A7 0-031
6.02.241_1

3rd sem.:
psy230 (Neuromodulation of Cognition, part 1) lecture
Title: Neuromodulation of cognition
Person: J. Rieger
Room: A07 0-025
6.02.230_1

psy170 (Neurophysiology, part 2) practical seminar EEG recording and analysis concepts (group 2)
Person: St. Debener, F Klein, F Kasten, F Popp
Room: Lab area Debener
Dates: starting 4.12.
6.02.170_2_Gr2

3rd sem.:
Psy275 (Essentials of fMRI data analysis with SPM and FSL) seminar
Person: R Weerda, P Sörös
Room: A07 0-031
Dates: first 7 weeks WS
6.02.275_15

psy110 (Research Methods, part 3) seminar
Title: Computer-controlled experimentation
Person: J. Thorne
Room: A07 0-031
Dates: 19.10.17-30.11.17
6.02.110_3

psy150 (Clinical Psychology, part 1) lecture
Title: Neurobiological basis of psychiatric disorders and psychopharmacological intervention
Person: C. Thiel
Room: S 2-206
Dates: starts 7.12.17
5.02.615

psy130 (Communication of Scientific Results, part 2) colloquium
Title: Psychological colloquium
Person: D. Strüber
Room: A07 0-031
6.02.130_2

3rd sem.:
Psy275 (Essentials of fMRI data analysis with SPM and FSL) exercise
Person: R Weerda, P Sörös
Room: A07 0-031
Dates: first 7 weeks WS
6.02.275_1E

3rd sem.:
Psy275 (Essentials of fMRI data analysis with SPM and FSL) exercise
Person: R Weerda, P Sörös
Room: A07 0-031
Dates: first 7 weeks WS
6.02.275_1E

3rd sem.:
Psy275 (Essentials of fMRI data analysis with SPM and FSL) exercise
Person: R Weerda, P Sörös
Room: A07 0-031
Dates: first 7 weeks WS
6.02.275_1E

16-
18

18-20				<p>psy200 (Neuropsychology, part 4) seminar Title: Funktionelle Neuroanatomie II: Die Gruppe der Demenzen Person: H. Hildebrandt Room: A07 0-031 6.02.200_4</p>	
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Mandatory modules

Additional courses which do not give credit points:

Psychophysiological data acquisition (6.02.007) and Analysis of Psychophysiological data (6.02.008); Dipl.-Psych. R. Emkes
Room: A07 0-063 (by arrangement).

PP-support in Data collection and Analysis (6.02.260supp); Dipl.-Psych Rikelf Weerda; Thursday 10-12h, room A7-0-055

Workshop Storytelling für WissenschaftlerInnen 2017(6.02.009; in German); Marie Lampert; 7.12.2017 10:30-18h and 8.12.2017 9:30-17h, room A7 0-036