

Handbook of modules and study plan

for the

Master of Science programme

Neurocognitive Psychology

Date: February 20th, 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 ten modules (with a total of 69 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 three modules psy170: Neurophysiology, psy270: Functional Neuroimaging and psy280: Transcranial Brain Stimulation! Knowledge of either EEG, fMRI or TBS data analysis 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 4*6, or 2*9 + 1*6; taking psy170, psy270, 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 Neuroimaging	9 CP
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

Module structure Neurocognitive Psychology (updated January 2017)

Sem.	General part (mandatory) 96 CP						Specialized part (choose 24 CP)				CP	
1	Research methods 1, 3CP Research methods 2, 3CP Research methods 3, 3CP	Communication of scientific results 1, 3CP Communication of scientific results 2, 3CP ¹ Psychol. Assess. & Diagnostics 1, 3CP	Computation in Neuroscience 1,2 3CP	Clinical Psychology 1, 6CP	Neuro-psychology 1, 3CP	Neuro-physiology 1, 1CP Neuro-physiology 2, 2CP						21 12
2	Research methods 4, 3 CP	Psychol. Assess. & Diagnostics 2, 3CP Psychol. Assess. & Diagnostics 3, 3CP	Computation in Neuroscience 3,4 3CP	Clinical Psychology 2, 3CP Sex and Cognition 1, 3CP Sex and Cognition 2, 3CP	Neuro-psychology 2, 3CP Neuro-psychology 3, 3CP Human Computer Interaction 1, 3CP	Neuro-physiology 3, 3CP Applied Cognitive Psych. 1, 3CP Applied Cognitive Psych. 2, 3CP	Transcranial Brain Stimulation 1, 3CP Transcranial Brain Stimulation 2, 3CP	Functional Neuroimaging 9CP				12 42

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

Mobility window for internships (semester break between 2. and 3. semester)							
3	Practical Project, 9 CP	Minor, 9 CP		Neuro-modulation of Cognition 1, 3CP Neuro-modulation of Cognition 2, 3CP	Human Computer Interaction 2, 3CP	Neurocognition 1, 3CP Neurocognition 2, 3CP	18 15
Mobility window to study abroad (January until June) *							
4	Master thesis and colloquium 30CP						30
Courses that can be taken in any semester							
Any time	Internship, 15 CP			Neuropsychology 4, 3CP This additional module part is most times taught in German			15 3

* For the Research Master Neurocognitive Psychology we recommend to perform research internships abroad rather than to study abroad. If you want to study abroad, please contact the study coordinator as early as possible to discuss your individual study plan.

Study plan (summer term 2017)

Time	Monday	Tuesday	Wednesday	Thursday	Friday
08-10		<p>psy120 (Psychological Assessment and Diagnostics, part 3) Title: Assessment in Clinical Neuropsychology – group 1 Person: A.K. Bauer Room: A07 0-031 6.02.032</p>	<p>psy210 (Applied Cognitive Psychology, part 1) Title: (Neuro)Cognitive Psychology in the wild I Person: J. Rieger Room: A07 0-025 6.02.014</p>	<p>psy170 (Neurophysiology, part 3) Title: EEG analysis with Matlab Person: St. Debener Room: A07 0-031 6.02.023</p>	<p>psy120 (Psychological Assessment and Diagnostics, part 2) Title: Psychological Testing Person: A. Hellmann Room: A07 0-031 6.02.026</p>
10-12	<p>nam (Master's thesis, part 2) Title: Master's colloquium Room: A07 0-025 (H. Colonius) 6.02.001 Room: A07 0-031 (C. Thiel) 6.02.002 Room: A07 0-056 (S. Debener) 6.02.003 Room: A07 Herrmann Lab. (C. Herrmann) 6.02.004 Room: to be announced (J. Rieger) 6.02.005</p>	<p>psy190 (Sex and Cognition, part 1) Title: Introduction to the study of sex differences Person: D. Stricker Room: A07 0-025 Please note: You have to register for both parts of the module (Tue, 10-12 and Thu, 10-12). 6.02.010</p>	<p>psy220 (Human Computer Interaction, part 1) Title: Foundations of HCI and BCI Person: J. Rieger Room: A07 0-025 6.02.015</p>	<p>psy190 (Sex and Cognition, part 2) Title: Sex, brain, and behavior Person: D. Stricker Room: A07 0-025 Please note: You have to register for both parts of the module (Tue, 10-12 and Thu, 10-12). 6.02.021</p>	<p>psy270 (Functional Neuroimaging, part 3) Title: Hands-on fMRI data analysis with SPM Person: C. Gießing Room: A07 0-031 Start: 29.05.2017 6.02.027</p>
12-14	<p>psy270 (Functional Neuroimaging, part 1) Title: Functional MRI data analysis Person: C. Gießing Room: A07 0-031 Start: 29.05.2017 6.02.006</p>	<p>psy200 (Neuropsychology, part 2) Title: Topics in Experimental Neuropsychology Person: J. Thorne Room: A07 0-031 6.02.011</p>	<p>psy120 (Psychological Assessment and Diagnostics, part 3) Title: Assessment in Clinical Neuropsychology – group 2 Person: St. Debener Room: A07 0-031 6.02.016</p>	<p>psy110 (Research Methods, part 4) Title: Multivariate Statistics II Person: H. Colonius Room: A07 0-031 6.02.022</p>	<p>psy150 (Clinical Psychology, part 2) * Title: Part 2: Psychological interventions within the framework of evidence-based medicine Person: A. Lam Room: A07 0-031 Date & Time: 5.5. and 12.5. 10-12.30h; 19.5. 10-14h 6.02.029 Please note: You should attend both parts of the course, 6.02.025 and 6.02.029</p>

<p>14-16</p>	<p>psy280 (Transcranial Brain Stimulation) Persons: C. Herrmann / D. Strüber Room: A07 0-025 6.02.030</p>	<p>psy200 (Neuropsychology, part 3) Title: Research Colloquium Clinical and Experimental Neuropsychology Person: J. Thome Room: A07 0-031 6.02.012</p>	<p>psy270 (Functional Neuroimaging, part 2) Title: Planning, performance and analysis of functional neuroimaging studies using MATLAB-based software Person: C. Gießing Room: A07 0-031 Start: 29.05.2017 6.02.017</p>	<p>psy210 (Applied Cognitive Psychology, part 2) Title: (Neuro)Cognitive Psychology in the wild II Person: I. Schepers Room: A07 0-031 6.02.020</p>
<p>16-18</p>	<p>psy280 (Transcranial Brain Stimulation) Persons: D. Strüber / C. Herrmann Room: A07 0-025 6.02.031</p>	<p>psy170 (Research Methods, part 4) Title: Multivariate Statistics II Person: H. Colonius Room: A07 0-031 6.02.013</p>	<p>psy241 (Computation in Neuroscience, part 2) Title: Introduction to scientific programming II Person: J. Vosskuhl Room: A07 0-031 6.02.018</p>	<p>psy130 (Communication of Scientific Results, part 2) Title: Psychological colloquium Person: D. Strüber Room: A07 0-031 6.02.024</p>
<p>18-20</p>	<p>psy110 (Research Methods, part 4) Title: Multivariate Statistics II (Tutorial) Person: H. Colonius Room: A07 0-031 6.02.009</p>	<p>psy241 (Computation in Neuroscience, part 4) Title: Scientific Programming II Person: J. Vosskuhl Room: A07 0-031 6.02.019</p>	<p>psy150 (Clinical Psychology, part 2) * Title: Part 1: Einführung in die neuropsychologische Therapie(forschung) (taught partly in German) Person: H. Hildebrandt Room: A07 0-031 6.02.025 Please note: You should attend both parts of the course, 6.02.025 and 6.02.029</p>	

* After about 6 meetings the course “Psychological interventions within the framework of evidence-based medicine” (psy150, Clinical Psychology, part 2) is continued in two different parts: one on neuropsychological treatment programs and one on neuropsychiatric interventions. Participants should attend both parts.

Additional courses offered by R. Emkes:

Psychophysiological data acquisition and

Analysis of Psychophysiological data

Room: A07 0-063 (time by arrangement)

Learning outcomes and competencies in Neurocognitive Psychology

skills/competencies	modules														mam			
	110	120	130	140	150	170	181	190	200	210	220	230	241	250		260	270	280
1) 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) ethics / good scientific practice / professional behavior	+	+				++				+		+		++	+		+	+
10) critical & analytical thinking	++	+			+			+	+	+	+	+						+
11) scientific communication skills	+		++				+	++	+	+	+	+			+			+
12) knowledge transfer					+					+	+		+	++	+			+
13) group work	+		+			+	+	+			+		+		+	++		
14) project & time management						+		+			+			+	++			++

Module overview (Sommersemester 2017)

Stand: 20.02.2017 11:39

<p>Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017</p>	<p><i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master</p>
<p><i>Emphases:</i> -</p>	<p><i>Sections:</i> -</p>
<p><i>Module reference number/Title:</i> - psy110 - Research methods</p>	
<p><i>Duration:</i> 2 semester <i>Cycle:</i> once a year <i>Type of module:</i> mandatory <i>Level:</i> MM (master module) <i>This module should be taken in</i> 1st semester und/oder 2nd semester</p>	<p><i>Type of program:</i> V (2 semester hours), S (4 semester hours) Parts 1 and 4: lecture/lab (2 x 1/1 SWS) Parts 2 and 3: 2 seminars (2 x 2 SWS) <i>Language:</i> English <i>Attainable credit points:</i> 12,00 CP <i>Workload:</i> 360 hours <i>Required attendance:</i> 84 hours</p>
<p><i>Person responsible for the programme:</i> -</p>	<p><i>Person responsible for this module:</i> Prof. Dr. Hans Colonius Dipl.-Psych.</p>
<p><i>Alternative person(s) responsible for this module:</i> -</p>	<p><i>Examiner(s):</i> Prof. Dr. Hans Colonius Dipl.-Psych.</p>
<p><i>Objective of the module / skills:</i> 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 x statistics & scientific programming xx data presentation & discussion xx independent research x scientific literature x ethics / good scientific practice / professional behavior x critical & analytical thinking xx scientific communication skills x group work x</p>	
<p><i>Content of the module:</i> Part 1: Multivariate Statistics I</p>	

- Basic concepts of probability, statistical inference, graphical representation of data
- Linear regression (simple and multiple) and analysis of variance
- Logistic regression, multivariate t-test

Part 2: Evaluation research

- Methods and paradigms of evaluation
- Multidimensional Scaling and cluster analysis
- Decision making, meta-analysis

Part 3: Computer-controlled experimentation

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

Part 4: Multivariate Statistics II

- Principal component analysis and factor analysis
- Classification and discrimination
- Survival analysis
- Advanced methods (e.g., Bayesian estimation, ICA, machine learning)

Suggested reading:

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Comments:

The module will be offered every winter term and lasts two semesters.

Weblink:

-

Prerequisites for admission:

Enrolment in Master's programme Neurocognitive Psychology.

Helpful previous knowledge:

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Associated with the module(s):

-

Maximum number of students / selection criteria:

unrestrained

Types of examinations:

- 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

Examination periods:

-

Registration procedure:

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<p>Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017</p>	<p><i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master</p>
<p><i>Emphases:</i> -</p>	<p><i>Sections:</i> -</p>
<p><i>Module reference number/Title:</i> - psy120 - Psychological diagnostics</p>	
<p><i>Duration:</i> 2 semester <i>Cycle:</i> once a year <i>Type of module:</i> mandatory <i>Level:</i> MM (master module) <i>This module should be taken in</i> 1st semester und/oder 2nd semester</p>	<p><i>Type of program:</i> V (2 semester hours), S (4 semester hours) Part 1: 1 lecture (2 SWS) Part 2: 1 seminar (2 SWS) Part 3: 1 seminar (2 SWS) <i>Language:</i> English <i>Attainable credit points:</i> 9,00 CP <i>Workload:</i> 270 hours <i>Required attendance:</i> 84 hours</p>
<p><i>Person responsible for the programme:</i> -</p>	<p><i>Person responsible for this module:</i> Dr. Andreas Hellmann</p>
<p><i>Alternative person(s) responsible for this module:</i> Prof. Dr. Stefan Debener Dipl.-Psych.</p>	<p><i>Examiner(s):</i> Dr. Andreas Hellmann</p>
<p><i>Objective of the module / skills:</i> 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 x interdisciplinary knowledge & thinking x ethics / good scientific practice / professional behavior x critical & analytical thinking x</p>	
<p><i>Content of the module:</i> Part 1: Introduction to Psychological Assessment - models and approaches - methods, processes, guidelines - theory of testing, approaches to test construction</p>	

Part 2: Psychological Testing

- types of tests
- exercises in testing / practising tests

Part 3: Assessment in Clinical Neuropsychology

- specific knowledge
- exercises in testing / practising tests

Suggested reading:

- 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.

Comments:

The module will be offered every winter term and lasts two semesters.

Weblink:

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Prerequisites for admission:

Enrolment in Master's programme
Neurocognitive Psychology.

Helpful previous knowledge:

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Associated with the module(s):

-

Maximum number of students / selection criteria:

unrestrained

Types of examinations:

- 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

Examination periods:

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Registration procedure:

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Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017	<i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master
<i>Emphases:</i> -	<i>Sections:</i> -
<i>Module reference number/Title:</i> - psy130 - Communication of scientific results	
<i>Duration:</i> 2 semester <i>Cycle:</i> once a year <i>Type of module:</i> mandatory <i>Level:</i> MM (master module) <i>This module should be taken in</i> 1st semester und/oder 2nd semester	<i>Type of program:</i> S (2 semester hours), K (2 semester hours) Communication of scientific results: 1 seminar (2 SWS) Psychological colloquium: 1 colloquium (2 SWS) <i>Language:</i> English <i>Attainable credit points:</i> 6,00 CP <i>Workload:</i> 180 hours <i>Required attendance:</i> 56 hours
<i>Person responsible for the programme:</i> -	<i>Person responsible for this module:</i> Prof. Dr. Christoph Siegfried Herrmann
<i>Alternative person(s) responsible for this module:</i> apl. Prof. Dr. phil. Daniel Strüber Dipl.-Psych.	<i>Examiner(s):</i> -
<i>Objective of the module / skills:</i> Goals of module: Students will acquire specific knowledge about the presentation of scientific results both orally and in writing. Students will learn modern techniques for presentation, literature research and writing skills. They will also be taught about arguing scientifically. Competencies: data presentation & discussion xx scientific literature xx scientific English / writing xx scientific communication skills xx group work x	
<i>Content of the module:</i> Part 1: Communication of scientific results - Literature search - Presentation skills - Writing skills Part 2: Psychological colloquium	

- Experienced scientists from various psychological disciplines will be giving talks about their experimental results. Speakers will be invited also from other universities. Students are encouraged to discuss the results with the experts.

Suggested reading:

- Sternberg, Robert (2000) Guide to Publishing in Psychology Journals, Cambridge University Press

Comments:

Module Part 1 will be offered every winter term.
Module Part 2 will be offered every semester.

Weblink:

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Prerequisites for admission:

Enrolment in Master's programme
Neurocognitive Psychology.

Helpful previous knowledge:

-

Associated with the module(s):

-

Maximum number of students / selection criteria:

unrestrained

Types of examinations:

- 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.

Examination periods:

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Registration procedure:

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Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017	<i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master
<i>Emphases:</i> -	<i>Sections:</i> -
<i>Module reference number/Title:</i> - psy140 - Minor	
<i>Duration:</i> 1 semester <i>Cycle:</i> irregularly <i>Type of module:</i> mandatory <i>Level:</i> MM (master module) <i>This module should be taken in</i> 3rd semester	<i>Type of program:</i> - Lectures and seminars (depends on the chosen modules) <i>Language:</i> - <i>Attainable credit points:</i> 9,00 CP <i>Workload:</i> 270 hours <i>Required attendance:</i> 14 hours
<i>Person responsible for the programme:</i> -	<i>Person responsible for this module:</i> -
<i>Alternative person(s) responsible for this module:</i> -	<i>Examiner(s):</i> -
<i>Objective of the module / skills:</i> 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. Upon approval German speaking students can attend a career-relevant language course (maximum of 6 CP for this module). Possible modules are listed below. Competencies: interdisciplinary knowledge & thinking xx	
<i>Content of the module:</i> - Cellular and molecular biology - Behavioural neurobiology - Psychophysics and Audiology - Artificial intelligence and knowledge representation - Man machine interaction (not in combination with 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)	

Suggested reading:

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Comments:

PLEASE NOTE:

- 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

Weblink:

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Prerequisites for admission:

Enrolment in Master's programme
Neurocognitive Psychology.

Helpful previous knowledge:

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Associated with the module(s):

-

Maximum number of students / selection criteria:

-

Types of examinations:

- If grades are earned in the minor, those are counted as pass/fail. Certificates for grades can be separately requested from the examination office.

Examination periods:

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Registration procedure:

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Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017	<i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master
<i>Emphases:</i> -	<i>Sections:</i> -
<i>Module reference number/Title:</i> - psy150 - Clinical Psychology	
<i>Duration:</i> 2 semester <i>Cycle:</i> once a year <i>Type of module:</i> compulsory elective <i>Level:</i> MM (master module) <i>This module should be taken in</i> 1st semester und/oder 2nd semester	<i>Type of program:</i> V (2 semester hours), S (4 semester hours) <i>Language:</i> English <i>Attainable credit points:</i> 9,00 CP <i>Workload:</i> 270 hours <i>Required attendance:</i> 84 hours
<i>Person responsible for the programme:</i> -	<i>Person responsible for this module:</i> Prof. Dr. Christiane Margarete Thiel
<i>Alternative person(s) responsible for this module:</i> -	<i>Examiner(s):</i> -
<i>Objective of the module / skills:</i> Goals of the Module: 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. 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. Competencies: Neuropsychological / neurophysiological knowledge xx experimental methods x data presentation & discussion x scientific literature x critical & analytical thinking x knowledge transfer x	
<i>Content of the module:</i> Part 1: Lecture: Neurobiological basis of psychiatric disorders and pharmacological intervention - Basics of neurotransmitter systems and psychopharmacology - Substance Abuse (e.g. psychostimulants, hallucinogenics) - Depression - Anxiety Disorders	

- Alzheimer's Disease
- Schizophrenia

Part 1: Seminar: Psychotherapeutic intervention of selected psychiatric disorders

Part 2: Psychological interventions within the framework of evidence-based medicine

- Seminar (partly in German): Concepts of evidence based treatment and treatment of acquired dysfunctions of the brain
- Seminar: Treatment of ADHD

Suggested reading:

- 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)

Comments:

Part 1 will be offered every winter term, part 2 every summer term.

Weblink:

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Prerequisites for admission:

Enrolment in Master's programme
Neurocognitive Psychology.

Helpful previous knowledge:

Prior knowledge of aetiology and assessment of psychological disorders is expected.

Associated with the module(s):

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Maximum number of students / selection criteria:

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Types of examinations:

- The module will be tested with a written exam (2 h) on the content 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)

Examination periods:

in the term holiday (usually March)

Registration procedure:

Stud.IP

<p>Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017</p>	<p><i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master</p>
<p><i>Emphases:</i> -</p>	<p><i>Sections:</i> -</p>
<p><i>Module reference number/Title:</i> - psy170 - Neurophysiology</p>	
<p><i>Duration:</i> 2 semester <i>Cycle:</i> once a year <i>Type of module:</i> compulsory elective <i>Level:</i> MM (master module) <i>This module should be taken in</i> 1st semester und/oder 2nd semester</p>	<p><i>Type of program:</i> V (1 semester hours), TPS (3 semester hours) <i>Language:</i> English <i>Attainable credit points:</i> 6,00 CP <i>Workload:</i> 180 hours <i>Required attendance:</i> 56 hours</p>
<p><i>Person responsible for the programme:</i> -</p>	<p><i>Person responsible for this module:</i> Prof. Dr. Stefan Debener Dipl.-Psych.</p>
<p><i>Alternative person(s) responsible for this module:</i> -</p>	<p><i>Examiner(s):</i> -</p>
<p><i>Objective of the module / skills:</i> Goals of module: 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. 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 xx experimental methods xx statistics & scientific programming xx ethics / good scientific practice / professional behavior xx group work x project & time management x</p>	
<p><i>Content of the module:</i> Part 1: Neurophysiology and neuroanatomy - Neurophysiology, EEG, EMG, ECG - Neuroanatomy - Time-domain and frequency-domain analysis methods</p>	

Part 2: EEG recording and analysis

- Recording and analysis of biomedical signals
- Averaging, filtering, signal-to-noise
- Topographical EEG analysis

Part 3: EEG analysis with Matlab

- 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

Suggested reading:

- 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

Comments:

The module will be offered every winter term and lasts two semesters.

PLEASE NOTE:

We strongly recommend to take either psy170, psy270 or psy280 to gain methodological competencies (EEG, fMRI, TBS) that are needed for most practical projects and Master's theses!

Weblink:

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Prerequisites for admission:

Enrolment in Master's programme
Neurocognitive Psychology.

Helpful previous knowledge:

Participation in 'Introduction to scientific programming, part 1' is recommended.

Associated with the module(s):

-

Maximum number of students / selection criteria:

20 (students who have not/will not take psy270 are given priority; rest places will be distributed at the start of the lecture period to students who have already taken psy270)

Types of examinations:

- The module will be tested with a written exam of 2 h duration.
- Bonus for recording electroencephalographic data

Examination periods:

-

Registration procedure:

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Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017	<i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master
<i>Emphases:</i> -	<i>Sections:</i> -
<i>Module reference number/Title:</i> - psy181 - Neurocognition	
<i>Duration:</i> 1 semester <i>Cycle:</i> once a year <i>Type of module:</i> compulsory elective <i>Level:</i> MM (master module) <i>This module should be taken in</i> 3rd semester	<i>Type of program:</i> V (1 semester hours), S (3 semester hours) Part 1: 1 lecture (1 SWS) and 1 seminar (1 SWS) Part 2: 1 seminar (2 SWS) <i>Language:</i> English <i>Attainable credit points:</i> 6,00 CP <i>Workload:</i> 180 hours <i>Required attendance:</i> 56 hours
<i>Person responsible for the programme:</i> -	<i>Person responsible for this module:</i> Prof. Dr. Christiane Margarete Thiel
<i>Alternative person(s) responsible for this module:</i> -	<i>Examiner(s):</i> -
<i>Objective of the module / skills:</i> Goals of module: 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). Students should be able to recognize and critically evaluate the value of considering neuroscience in the study of psychological topics. Competencies: neuropsychological / neurophysiological knowledge xx interdisciplinary knowledge & thinking xx data presentation & discussion xx scientific literature xx scientific communication skills x group work x	
<i>Content of the module:</i> Part 1: Introduction to cognitive neuroscience - Brain and cognition, methods of cognitive neuroscience - Attention, learning and memory	

- Emotional and social behaviour
- Language, executive functions

Part 2: Neurocognitive development

- Brain development and cortical plasticity
- Effects of early-life stress on brain development
- Development of object recognition, social cognition, memory, and executive functions

Suggested reading:

- 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.

Comments:

The module will be offered every winter term.

Weblink:

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Prerequisites for admission:

Enrolment in Master's programme
Neurocognitive Psychology.

Helpful previous knowledge:

-

Associated with the module(s):

-

Maximum number of students / selection criteria:

-

Types of examinations:

- The module will be tested with a written exam of 2 h duration on the content of part 1.
- Bonus for a presentation and participation in discussions on other presentations in the seminar

Examination periods:

in the term holidays (usually March)

Registration procedure:

Stud.IP

<p>Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017</p>	<p><i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master</p>
<p><i>Emphases:</i> -</p>	<p><i>Sections:</i> -</p>
<p><i>Module reference number/Title:</i> - psy190 - Sex and Cognition</p>	
<p><i>Duration:</i> 1 semester <i>Cycle:</i> once a year <i>Type of module:</i> compulsory elective <i>Level:</i> MM (master module) <i>This module should be taken in</i> 2nd semester</p>	<p><i>Type of program:</i> V (2 semester hours), S (2 semester hours) Part 1: 1 lecture (2 SWS) Part 2: 1 seminar (2 SWS) <i>Language:</i> English <i>Attainable credit points:</i> 6,00 CP <i>Workload:</i> 180 hours <i>Required attendance:</i> 56 hours</p>
<p><i>Person responsible for the programme:</i> -</p>	<p><i>Person responsible for this module:</i> apl. Prof. Dr. phil. Daniel Strüber Dipl.-Psych.</p>
<p><i>Alternative person(s) responsible for this module:</i> -</p>	<p><i>Examiner(s):</i> -</p>
<p><i>Objective of the module / skills:</i> 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 xx interdisciplinary knowledge & thinking x data presentation & discussion xx scientific literature xx critical & analytical thinking x scientific communication skills xx group work x project & time management x</p>	
<p><i>Content of the module:</i> Part 1: Introduction to the study of sex differences - The measurement of sex differences - Sex differences in emotion</p>	

- Sex differences in aggression
- Sex differences in cognitive abilities
- Hormones, sexual differentiation, and gender identity
- Sex hormones and play preferences
- Sex differences in hemispheric organization
- Brain size and intelligence

Part 2: Sex, brain, and behaviour

- 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

Suggested reading:

- 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

Comments:

The module will be offered every summer term and lasts one semester.

Weblink:

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Prerequisites for admission:

Enrolment in Master's programme Neurocognitive Psychology.
Neuroscience students can take part on request.

Helpful previous knowledge:

-

Associated with the module(s):

-

Maximum number of students / selection criteria:

-

Types of examinations:

- The module requires an oral presentation that will be evaluated.

Examination periods:

-

Registration procedure:

-

<p>Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017</p>	<p><i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master</p>
<p><i>Emphases:</i> -</p>	<p><i>Sections:</i> -</p>
<p><i>Module reference number/Title:</i> - psy200 - Neuropsychology</p>	
<p><i>Duration:</i> 2 semester <i>Cycle:</i> once a year <i>Type of module:</i> compulsory elective <i>Level:</i> MM (master module) <i>This module should be taken in</i> 1st semester und/oder 2nd semester</p>	<p><i>Type of program:</i> V (2 semester hours), S (4 semester hours), K (2 semester hours) Part 1: 1 lecture (2 SWS) Part 2: 1 seminar (2 SWS) Part 3: 1 colloquium (2 SWS) Part 4: 1 seminar (2 SWS) <i>Language:</i> German, English <i>Attainable credit points:</i> 9,00 CP <i>Workload:</i> 270 hours <i>Required attendance:</i> 112 hours</p>
<p><i>Person responsible for the programme:</i> -</p>	<p><i>Person responsible for this module:</i> Prof. Dr. Stefan Debener Dipl.-Psych.</p>
<p><i>Alternative person(s) responsible for this module:</i> -</p>	<p><i>Examiner(s):</i> -</p>
<p><i>Objective of the module / skills:</i> 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 xx interdisciplinary knowledge & thinking x experimental methods xx data presentation & discussion x scientific literature xx critical & analytical thinking x scientific communication skills x</p>	
<p><i>Content of the module:</i> Part 1: Introduction to Clinical Neuropsychology - Cortical lobes (anatomy, functions, lesion symptoms, neuropsychological tests) - Higher functions (learning & memory, language, emotion, spatial behavior attention)</p>	

- Plasticity and disorders (development, learning and reading disabilities, recovery)

Part 2: Topics in Experimental Neuropsychology

- Neural properties of sensory processing in a multiple sensory systems framework
- Human brain studies of multisensory processes
- Cross-modal plasticity

Part 3: Research Colloquium Clinical and Experimental Neuropsychology

- Presentations covering recent advances in the field of Experimental and Clinical Neuropsychology

Part 4: Topics in Clinical Neuropsychology (most times in German)

- Clinical neuroanatomy
- Neurodegenerative diseases
- Dementia
- Neurorehabilitation

Suggested reading:

-

Comments:

3 CP for each module part, choose 3 of 4 parts!
The module will be offered every winter term and lasts two semesters.

Weblink:

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Prerequisites for admission:

Enrolment in Master's programme
Neurocognitive Psychology.

Helpful previous knowledge:

-

Associated with the module(s):

-

Maximum number of students / selection criteria:

-

Types of examinations:

- 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 the seminar and colloquium.

Examination periods:

-

Registration procedure:

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Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017	<i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master
<i>Emphases:</i> -	<i>Sections:</i> -
<i>Module reference number/Title:</i> - psy210 - Applied Cognitive Psychology	
<i>Duration:</i> 1 semester <i>Cycle:</i> once a year <i>Type of module:</i> compulsory elective <i>Level:</i> MM (master module) <i>This module should be taken in</i> 2nd semester	<i>Type of program:</i> V (2 semester hours), S (2 semester hours) Part 1: 1 lecture (2 SWS), Part 2: 1 seminar (2 SWS). <i>Language:</i> English <i>Attainable credit points:</i> 6,00 CP <i>Workload:</i> 180 hours <i>Required attendance:</i> 56 hours
<i>Person responsible for the programme:</i> -	<i>Person responsible for this module:</i> Prof. Dr. Jochem Rieger
<i>Alternative person(s) responsible for this module:</i> -	<i>Examiner(s):</i> -
<i>Objective of the module / skills:</i> 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. 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. Neuropsychological / neurophysiological knowledge xx interdisciplinary knowledge & thinking x experimental methods x scientific literature x ethics / good scientific practice / professional behavior x	

critical & analytical thinking x
scientific communication skills x
knowledge transfer x

Content of the module:

Part 1: (Neuro)Cognitive Psychology in the wild I (lecture)

- Neurocognitive Psychology with emphasis in real world context
- Methodological considerations: Generalization, validity of theories and research methods
- Information uptake and representation: Sensation, perception, categorization
- Selection of information and capacity: Attention and memory enhancement and failure
- Generation and communication: Language, reading, dyslexia
- Pursuing goals: Thinking, problem solving and acting

Part 2: (Neuro)Cognitive Psychology in the wild II (seminar)

- 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.

Suggested reading:

- 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

Comments:

The module will be offered in summer terms and should be completed within one semester. Both parts will run in parallel.

Weblink:

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Prerequisites for admission:

Enrolment in Master's programme
Neurocognitive Psychology.
Neuroscience students can take part on request.

Helpful previous knowledge:

-

Associated with the module(s):

-

Maximum number of students / selection criteria:

-

Types of examinations:

- 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

Examination periods:

-

Registration procedure:

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<p>Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017</p>	<p><i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master</p>
<p><i>Emphases:</i> -</p>	<p><i>Sections:</i> -</p>
<p><i>Module reference number/Title:</i> - psy220 - Human Computer Interaction</p>	
<p><i>Duration:</i> 2 semester <i>Cycle:</i> once a year <i>Type of module:</i> compulsory elective <i>Level:</i> MM (master module) <i>This module should be taken in</i> 2nd semester und/oder 3rd semester</p>	<p><i>Type of program:</i> V (2 semester hours), TPS (2 semester hours) Part 1: 1 lecture (2 SWS) Part 2: 1 practical course (2 SWS) <i>Language:</i> English <i>Attainable credit points:</i> 6,00 CP <i>Workload:</i> 180 hours <i>Required attendance:</i> 56 hours</p>
<p><i>Person responsible for the programme:</i> -</p>	<p><i>Person responsible for this module:</i> Prof. Dr. Jochem Rieger</p>
<p><i>Alternative person(s) responsible for this module:</i> -</p>	<p><i>Examiner(s):</i> -</p>
<p><i>Objective of the module / skills:</i> Goals of module: In this module we will address human computer interaction (HCI) in its interdisciplinary requirements focusing on the perspective from neurocognitive psychology. 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. The students learn core concepts in Human Computer Interaction plus data recording and analysis techniques related to Brain Machine Interfacing.</p> <p>Competencies: Neuropsychological / neurophysiological knowledge xx interdisciplinary knowledge & thinking xx experimental methods x statistics & scientific programming xx critical & analytical thinking x scientific communication skills x knowledge transfer x group work x project & time management x</p>	

Content of the module:

Part 1: Foundations of HCI and BCI

- 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.

- 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.

Suggested 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.

Comments:

The module will start every summer term with part 1. Part 2 will be offered in the winter term.

Weblink:

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Prerequisites for admission:

Enrolment in Master's programme
Neurocognitive Psychology or other programs related to the field (e.g. neuroscience, computer science, physics etc.).

Helpful previous knowledge:

Knowledge in statistical data analysis techniques and/or programming (e.g. Module N) is desirable

Associated with the module(s):

-

Maximum number of students / selection criteria:

-

Types of examinations:

- 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

Examination periods:

-

Registration procedure:

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<p>Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017</p>	<p><i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master</p>
<p><i>Emphases:</i> -</p>	<p><i>Sections:</i> -</p>
<p><i>Module reference number/Title:</i> - psy230 - Neuromodulation of Cognition</p>	
<p><i>Duration:</i> 1 semester <i>Cycle:</i> once a year <i>Type of module:</i> compulsory elective <i>Level:</i> MM (master module) <i>This module should be taken in</i> 3rd semester</p>	<p><i>Type of program:</i> V (2 semester hours), S (2 semester hours) Part 1: 1 lecture (2 SWS) Part 2: 1 seminar (2 SWS) <i>Language:</i> English <i>Attainable credit points:</i> 6,00 CP <i>Workload:</i> 180 hours <i>Required attendance:</i> 56 hours</p>
<p><i>Person responsible for the programme:</i> -</p>	<p><i>Person responsible for this module:</i> Prof. Dr. Jochem Rieger</p>
<p><i>Alternative person(s) responsible for this module:</i> -</p>	<p><i>Examiner(s):</i> -</p>
<p><i>Objective of the module / skills:</i> 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. 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>Competencies: Neuropsychological / neurophysiological knowledge xx interdisciplinary knowledge & thinking x experimental methods xx ethics / good scientific practice / professional behavior x critical & analytical thinking x scientific communication skills x</p>	
<p><i>Content of the module:</i> Part 1: Neuromodulation of cognition - Neurotransmitter systems of cognition - Neuropharmacological intervention - Neuroenhancement - Neurofeedback - Neurostimulation</p>	

Part 2: Neurofeedback

- Neurofeedback in control and therapy
- EEG-Neurofeedback
- EMG-Neurofeedback
- Transcranial magnetic stimulation
- Deep brain stimulation
- Patient safety

Suggested reading:

- 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

Comments:

The module will be offered every winter term and lasts one semester.

Weblink:

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Prerequisites for admission:

Enrolment in Master's programme Neurocognitive Psychology.
Neuroscience students can take part on request.

Helpful previous knowledge:

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Associated with the module(s):

-

Maximum number of students / selection criteria:

-

Types of examinations:

- The module will be evaluated with an oral presentation in the seminar.
- Bonus for oral contribution

Examination periods:

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Registration procedure:

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<p>Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017</p>	<p><i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master</p>
<p><i>Emphases:</i> -</p>	<p><i>Sections:</i> -</p>
<p><i>Module reference number/Title:</i> - psy241 - Computation in Neuroscience</p>	
<p><i>Duration:</i> 2 semester <i>Cycle:</i> once a year <i>Type of module:</i> mandatory <i>Level:</i> MM (master module) <i>This module should be taken in</i> 1st semester und/oder 2nd semester</p>	<p><i>Type of program:</i> S (4 semester hours), TPS (2 semester hours) Part 1: 1 Seminar (2 SWS) Part 2: 1 Seminar (2 SWS) Part 3: 1 Lab (1 SWS) Part 4: 1 Lab (1 SWS) <i>Language:</i> English <i>Attainable credit points:</i> 6,00 CP <i>Workload:</i> 180 hours <i>Required attendance:</i> 84 hours</p>
<p><i>Person responsible for the programme:</i> -</p>	<p><i>Person responsible for this module:</i> Johannes Voßkuhl</p>
<p><i>Alternative person(s) responsible for this module:</i> -</p>	<p><i>Examiner(s):</i> -</p>
<p><i>Objective of the module / skills:</i> 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 x experimental methods x statistics & scientific programming xx critical & analytical thinking x knowledge transfer x group work x</p>	
<p><i>Content of the module:</i> Part 1: Introduction to scientific programming I - Basic data types and structures - Flow control (conditions, loops, errors) - Testing and debugging - Functions</p>	

Part 2: Introduction to scientific programming II

- Classes and objects
- Parallel processing
- Frequency analysis methods
- EEG processing

Part 3: Scientific programming I

- Implementation of examples from part 1

Part 4: Scientific programming II

- Implementation of examples from part 2

Suggested reading:

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

Comments:

The module will be offered every winter term and lasts two semesters.

Weblink:

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Prerequisites for admission:

Enrolment in Master's programme
Neurocognitive Psychology.

Helpful previous knowledge:

-

Associated with the module(s):

-

Maximum number of students / selection criteria:

-

Types of examinations:

- 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

Examination periods:

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Registration procedure:

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<p>Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017</p>	<p><i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master</p>
<p><i>Emphases:</i> -</p>	<p><i>Sections:</i> -</p>
<p><i>Module reference number/Title:</i> - psy250 - Internship</p>	
<p><i>Duration:</i> 1 semester <i>Cycle:</i> irregularly <i>Type of module:</i> mandatory <i>Level:</i> MM (master module) <i>This module should be taken in</i> -</p>	<p><i>Type of program:</i> - Internship <i>Language:</i> - <i>Attainable credit points:</i> 15,00 CP <i>Workload:</i> 450 hours <i>Required attendance:</i> 450 hours</p>
<p><i>Person responsible for the programme:</i> -</p>	<p><i>Person responsible for this module:</i> Prof. Dr. Hans Colonius Dipl.-Psych.</p>
<p><i>Alternative person(s) responsible for this module:</i> -</p>	<p><i>Examiner(s):</i> -</p>
<p><i>Objective of the module / skills:</i> 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:</p> <p>experimental methods x ethics / good scientific practice / professional behavior xx knowledge transfer xx project & time management x</p>	
<p><i>Content of the module:</i> The students will work in a field of psychology and get to know the daily work routines of a psychologist.</p>	
<p><i>Suggested reading:</i> -</p>	
<p><i>Comments:</i> The internship lasts 450 hours (12 weeks). It can be split into two parts, with a minimum duration of 150 hours (4 weeks) for each part.</p>	<p><i>Helpful previous knowledge:</i> - <i>Associated with the module(s):</i> -</p>

Please note that details are regulated in the exam regulations.
A blank internship certificate can be found on the programme website.

Weblink:

<https://www.uni-oldenburg.de/psychologie/studium-lehre/master/internships/>

Prerequisites for admission:

Enrolment in Master's programme
Neurocognitive Psychology.

Maximum number of students / selection criteria:

-

Types of examinations:

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.

Examination periods:

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Registration procedure:

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<p>Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017</p>	<p><i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master</p>
<p><i>Emphases:</i> -</p>	<p><i>Sections:</i> -</p>
<p><i>Module reference number/Title:</i> - psy260 - Practical project</p>	
<p><i>Duration:</i> 1 semester <i>Cycle:</i> once a year <i>Type of module:</i> mandatory <i>Level:</i> MM (master module) <i>This module should be taken in</i> 3rd semester</p>	<p><i>Type of program:</i> PR (4 semester hours) practical work (4 SWS) <i>Language:</i> English <i>Attainable credit points:</i> 9,00 CP <i>Workload:</i> 270 hours <i>Required attendance:</i> 56 hours</p>
<p><i>Person responsible for the programme:</i> -</p>	<p><i>Person responsible for this module:</i> Prof. Dr. Hans Colonius Dipl.-Psych., Prof. Dr. Jochem Rieger, Prof. Dr. Christoph Siegfried Herrmann, Prof. Dr. Stefan Debener Dipl.-Psych., Dr. Jalenur Özyurt Dipl.-Psych.</p>
<p><i>Alternative person(s) responsible for this module:</i> Dipl.-Psych. Riklef Weerda</p>	<p><i>Examiner(s):</i> -</p>
<p><i>Objective of the module / skills:</i> 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 xx statistics & scientific programming x data presentation & discussion xx independent research x scientific literature x ethics / good scientific practice / professional behavior x scientific communication skills x knowledge transfer x group work x project & time management xx</p>	
<p><i>Content of the module:</i></p>	

- 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!

Suggested reading:

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Comments:

Students can chose to perform the practical work in either of the research groups of the Department of Psychology.
For the practical project in Cognitive Psychology and Psychophysics: partly offered as a blocked course.

Weblink:

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Prerequisites for admission:

Enrolment in Master's programme
Neurocognitive Psychology.

Priority is given to students with experience in methods used in the respective lab or students who have taken the respective teaching modules.

PLEASE NOTE:

Many projects require knowledge of either EEG, fMRI, or TBS analysis!

We strongly recommend to take either psy170: Neurophysiology, psy270: Functional Neuroimaging or psy280: Transcranial Brain Stimulation prior to the practical project.

Helpful previous knowledge:

For a practical project in Biological Psychology: Prior enrolment in the module 'Neurocognition' or 'Neuropsychology' is recommended.

Associated with the module(s):

-

Maximum number of students / selection criteria:

There is a maximum number of places available per group.
Selection of students will be based on the completion of modules in which relevant methods and contents were taught.

Types of examinations:

Poster presentation in a student symposium (30% of the grade) and daily project work (70% of the grade)

Examination periods:

usually end of April

Registration procedure:

An overview of project topics will be presented in the colloquium at the end of the second semester.

Please contact the group which offers the project of your choice directly.

<p>Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017</p>	<p><i>Kategorie:</i> - Mastermodule <i>Degree award:</i> - Master</p>
<p><i>Emphases:</i> -</p>	<p><i>Sections:</i> -</p>
<p><i>Module reference number/Title:</i> - psy270 - Functional Neuroimaging</p>	
<p><i>Duration:</i> 1 semester <i>Cycle:</i> once a year <i>Type of module:</i> compulsory elective <i>Level:</i> MM (master module) <i>This module should be taken in</i> 2nd semester</p>	<p><i>Type of program:</i> V (2 semester hours), S (1 semester hours), PR (4 semester hours) Part 1: 1 lecture (2 SWS) Part 2: 1 seminar (1 SWS) Part 3: 1 Practical work (4 SWS) <i>Language:</i> English <i>Attainable credit points:</i> 9,00 CP <i>Workload:</i> 270 hours <i>Required attendance:</i> 98 hours</p>
<p><i>Person responsible for the programme:</i> -</p>	<p><i>Person responsible for this module:</i> Carsten Gießing</p>
<p><i>Alternative person(s) responsible for this module:</i> -</p>	<p><i>Examiner(s):</i> -</p>
<p><i>Objective of the module / skills:</i> 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 xx statistics & scientific programming xx data presentation & discussion x group work xx</p>	
<p><i>Content of the module:</i> Part 1: Functional MRI data analysis</p> <p>Part 2: Planning, performance and analysis of functional neuroimaging studies using MATLAB-based software</p> <p>Part 3: Hands-on fMRI data analysis with SPM</p>	
<p><i>Suggested reading:</i></p>	

- 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.

Comments:

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 or psy280 to gain methodological competencies (EEG, fMRI, TBS) that are needed for most practical projects and Master's theses!

Weblink:

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Prerequisites for admission:

Enrolment in Master's programme Neurocognitive Psychology.

Helpful previous knowledge:

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Associated with the module(s):

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Maximum number of students / selection criteria:

30 (students who have not/will not take psy170 are given priority; rest places will be distributed at the start of the lecture period to students who have already taken psy170)

Types of examinations:

- Oral or written examination
- Bonus for active participation (e.g. presentations, creating study material for other participants, tandem learning or oral contributions)

Examination periods:

-

Registration procedure:

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<p>Degree: Master of Science in Psychology and Cognitive Neuroscience</p>
<p>Module PSY280: Transcranial Brain Stimulation</p>
<p>Goals of module: In this module, we will introduce to 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>Competencies: Neuropsychological / neurophysiological knowledge xx experimental methods xx statistics & scientific programming x scientific literature x ethics / good scientific practice / professional behaviour x</p>
<p>Contents: Part 1: Introduction to transcranial brain stimulation</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</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 <p>Literature:</p> <ul style="list-style-type: none"> • Miniussi et al. Transcranial brain stimulation, CRC Press, 2013. • Kadosh. The stimulated brain, Academic Press, 2014.
<p>Teaching methods: Part 1: 1 lecture (2 SWS) Part 2: 1 seminar (2 SWS)</p>
<p>Requirements for participation: Enrolment in Master's programme.</p>
<p>Comments: The module will be offered every summer term and lasts one semester.</p>

We strongly recommend to take either psy170, psy270 or psy280 to gain methodological competencies (EEG, fMRI, TBS) that are needed for most practical projects and Master's theses!

Effort:

Attendance: 56 h. (4 SWS), learning: 124 h., total: 180 h.

Credit points:

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

Assessment:

- Oral presentation in the seminar

Person responsible:

Prof. Dr. Christoph Herrmann

Module overview (Sommersemester 2017)

Stand: 20.02.2017 11:12

<p>Fakultät 6: Medizin und Gesundheitswissenschaften Department für Psychologie <i>Subject:</i> Neurocognitive Psychology Sommersemester 2017</p>	<p><i>Kategorie:</i> - Abschlussmodul <i>Degree award:</i> - Master</p>
<p><i>Emphases:</i> -</p>	<p><i>Sections:</i> -</p>
<p><i>Module reference number/Title:</i> - mam - Masterarbeitsmodul</p>	
<p><i>Duration:</i> 1 semester <i>Cycle:</i> irregularly <i>Type of module:</i> mandatory <i>Level:</i> TM (thesis module) <i>This module should be taken in</i> 4th semester</p>	<p><i>Type of program:</i> - Supervision of thesis preparation. <i>Attendance:</i> 28 h. (2 SWS), thesis work: 872 h., total: 900 h. <i>Language:</i> English <i>Attainable credit points:</i> 30,00 CP <i>Workload:</i> 900 hours <i>Required attendance:</i> 28 hours</p>
<p><i>Person responsible for the programme:</i> -</p>	<p><i>Person responsible for this module:</i> -</p>
<p><i>Alternative person(s) responsible for this module:</i> -</p>	<p><i>Examiner(s):</i> -</p>
<p><i>Objective of the module / skills:</i> 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 xx statistics & scientific programming x data presentation & discussion x independent research xx scientific literature x scientific English / writing xx ethics / good scientific practice / professional behavior x critical & analytical thinking x scientific communication skills x knowledge transfer x project & time management xx</p>	

Content of the module:

Part 1: Master's thesis

- The students work on a given topic in cognitive neuroscience using literature research and the appropriate experimental methods.

Part 2: Master's colloquium

- The preparation of the thesis is accompanied by a colloquium in which 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 students.

Suggested reading:

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Comments:

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Weblink:

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Prerequisites for admission:

Enrolment in Master's programme

Neurocognitive Psychology.

Assignment of a topic by thesis supervisor.

Helpful previous knowledge:

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Associated with the module(s):

-

Maximum number of students / selection criteria:

-

Types of examinations:

- The thesis will be evaluated by the supervisor and an additional reviewer

- The oral presentation of the thesis results will be evaluated

Examination periods:

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Registration procedure:

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