



Announcements of Justus Liebig University Giessen

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Special Regulation for the Master's program
"Mind, Brain, and Behavior"

**[Please note that only the German version of the regulation is official and legally binding.
This English translation is for informative purposes only.]**

Special Regulation for the Master's program „Mind, Brain, and Behavior“ of the Faculty 06 – Psychology and Sports Science – of the Justus Liebig University Giessen

November 4, 2020

This regulation takes effect on the day after it is officially announced and applies from the summer semester of 2026. Until then, the previous regulations continue to apply.

Previous versions:

	Faculty Council	Senate	President's Office	Proclamation
Original version	04.11.2020	16.12.2020	19.01.2021	04.02.2021
1st amended version	17.01.2023	22.03.2023	04.04.2023	05.05.2023
2nd amended version	17.04.2024	05.06.2024	11.06.2024	26.06.2024
3rd amended version	21.05.2025	16.07.2025	22.07.2025	01.08.2025
4th amended version	27.10.2025	19.11.2025	09.12.2025	09.03.2026

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§ 1 Aim of the study program and start of studies (on §§ 2(1), 5 General Regulations)

(1) The Master's program Mind, Brain, and Behavior leads to a further professional qualification and comprises 4 semesters.

(2) The program can only be started in the winter semester.

§ 2 Master's degree (on § 3 General Regulations)

After successful completion of the study program, Faculty 06 "Psychology and Sports Science" of Justus Liebig University Giessen awards the degree of "Master of Science: Mind, Brain, and Behavior".

§ 3 Admission to the Master's program (on § 5(1) General Regulations)

(1) Admission to the Master's program Mind, Brain, and Behavior is only possible for applicants who can prove that they have completed a relevant course of study with a standard period of at least 6 semesters (180 CP in total), successfully completed with a Bachelor of Science (B.Sc.) in one of the following areas:

1. Movement Science,
2. Biology,
3. Computer Science/Data Science,
4. Cognitive Science,
5. Linguistics,
6. Neuroscience,
7. Physics,
8. Psychology,
9. Behavioral Science.

Other Bachelor's degrees may be accepted if the application documents show that the necessary foundations for the study program Mind, Brain, and Behavior have been covered during the applicant's previous studies.

(2) For admission to the Master's program, the following three-stage selection procedure must be successfully completed:

1. Stage 1: First, applicants must meet specific criteria in order to proceed to Stage 2 of the selection procedure:
 - Proof of English proficiency at level B2 of the Council of Europe's Common European Framework of Reference for Languages by one of the following means: school certificate (proof of English as a foreign language

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for at least 6 years up to the qualification entitling the holder to university entrance); language test IELTS: minimum grade 5.5; language test TOEFL (iBT, 0-120 points): minimum 72 points; language test TOEFL (ITP Level 1, 310-677 points): minimum 543 points; language test TOEFL (pBT, 310-677 points): minimum 543 points; language test PTE Academic (10-90 points): minimum 75 points; language test TOEIC (10-990 points): minimum 784 points; language test telc: B2 certificate; language test UNicert II certificate; language test Cambridge IGCSE: B2 certificate; proof of obtaining a higher education entrance qualification in one of the following countries: Australia, Ireland, Canada, New Zealand, USA, United Kingdom, South Africa; proof of a Bachelor's degree in one of the following countries: Australia, Ireland, Canada, New Zealand, USA, United Kingdom, South Africa;

- Submission of a letter of motivation (max. 500 words);
- Submission of the completed questionnaire on subject-specific prior knowledge (covering the following knowledge and skills): theoretical experience with neuroscientific methods; practical experience with empirical, experimental and statistical methods; programming experience;
- Achievement of at least 3 qualification points, resulting from the average grade (grade 0.7-1.9 or 15.0-11.3 grade points: 3 points; grade 2.0-2.5 or 11.2-9.5 grade points: 2 points) and any additional qualification (max. 1 point: professional experience in neuroscience or behavioral science (training or employment certificate), or internship in neuroscience or behavioral science (minimum duration 8 weeks; only achievements completed in addition to the degree program are counted), or a specialized or advanced module with a focus on behavioral science or neuroscience in the completed study program (minimum of 9 credit points according to ECTS));
- Proof of a Bachelor's thesis or research paper;
- Submission of a summary of the Bachelor's thesis or research paper (max. 500 words and max. 1 figure) and
- Submission of a signed declaration in which the applicant confirms that they have completed the thesis or research paper independently, have cited all sources and aids used, and are aware that the work may be checked electronically for plagiarism.

The examination committee appoints a person affiliated with the faculty to review the criteria in Stage 1 of the selection procedure.

2. Stage 2: All applicants who meet the above criteria are evaluated by a selection committee. In the evaluation, 0-15 points can be achieved:

- maximum of 3 points for the letter of motivation (criteria: Demonstrable interest in the Master's program „Mind, Brain, and Behavior“),
- maximum of 3 points for the previous knowledge and skills (criteria: Experience with topics in the behavioral sciences and cognitive neuroscience; experience with empirical, experimental, and statistical methods; programming experience),
- maximum of 9 points for the summary of their bachelor thesis (criteria: Clarity and coherence of the presentation; relevance of the topic to the academic focus of the degree program.).

Applicants scoring more than 9 points are invited to a selection interview. The examination committee appoints at least two professionally qualified persons affiliated with Justus Liebig University Giessen (selection committee; including at least one professor) to review the criteria in Stage 2 of the selection procedure.

3. Stage 3: All applicants who have successfully completed Stage 2 are invited to a selection interview, in which they are interviewed about their motivation, subject-specific prior knowledge and their Bachelor's thesis or research paper. In the selection interview, 0-15 points can be achieved:

- maximum of 3 points for motivation (criteria: Demonstrable interest in the Master's program „Mind, Brain, and Behavior“),

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- maximum of 3 points for subject-specific prior knowledge (criteria: Experience with content from behavioral science and cognitive neuroscience; experience with empirical and experimental methods; programming experience),
- and a maximum of 9 points for the presentation of their Bachelor's thesis or research paper (criteria: Clarity and rigor of the presentation; classification within the current state of knowledge; open questions and possible further development of the topic; answers to content-related questions about the work).

Applicants scoring more than 12 points are admitted to the program. The selection interviews in Stage 3 of the selection procedure are conducted in each case by at least two professionally qualified persons affiliated with Justus Liebig University Giessen (including at least one professor) from among the members of the selection committee (see Stage 2).

(3) Minutes must be taken of the selection interview.

(4) The decisions on admission to the Master's program as well as on exceptions to paragraph 1 are made by the previously appointed selection committee.

(5) Applicants whose application was submitted no more than 2 years previously and who have already been admitted to the Master's program Mind, Brain, and Behavior may, by decision of the previously appointed selection committee, be admitted without undergoing the selection procedure again.

(6) The selection procedure is supervised by the examination committee of the Master's program Mind, Brain, and Behavior.

§ 4 Program structure (on § 7 General Regulations)

(1) The Master's program Mind, Brain, and Behavior comprises 13 modules:

- 2 core modules as compulsory modules,
- 4 theory modules as compulsory modules,
- 4 application modules as compulsory modules,
- 2 elective modules as elective compulsory modules and
- 1 Master thesis module as compulsory module.

(2) A course of study is attached in Supplement 1.

§ 5 Modules (on § 8 General Regulations)

(1) The modules are described in Supplement 2. The language of instruction is English.

(2) Elective modules that have not been passed may be changed after the first examination attempt.

§ 6 Registration for the thesis module (on § 8(3) General Regulations)

(1) Prerequisite for admission to the Master thesis module (MBB-MA-TM) is proof of registration for 1 core module, 4 theory modules and 3 application modules.

(2) As a rule, registration for the Master thesis module is possible at the earliest after the end of the lecture period of the 3rd semester (according to the course of study). Exceptions can be made by the examination committee.

§ 7 Practical training (on § 10 General Regulations)

(1) Students must participate in practical training in a professional or occupational field. Suggestions for practical training sites may be made both by students and by professors in cooperation with non-university employers.

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(2) Students should acquire exemplary practice-oriented knowledge and skills in companies and other institutions in future professional fields specific to the study program. Through the practical activities, students should acquire knowledge of work and organization in applied or research fields of behavioral science or cognitive neuroscience.

(3) Experience with practice-related problems of an economic, technical, organizational and social nature should promote understanding of research and teaching in the study program and illustrate the connection between study and practice. In particular, students should become familiar with company contexts, leadership and management. Professional practical training abroad that corresponds to the objectives and content stated above is recommended and may be approved in accordance with § 10.

§ 8 Carrying out the practical training

(1) The practical training in a professional or occupational field is part of the core module "Practical Training". It comprises 360 hours.

(2) Practical training in professional and occupational fields may be completed in all companies and other institutions in future professional fields of the Master's program Mind, Brain, and Behavior that deal with applied and research areas in the following fields: movement science, biology, data science/computer science, cognitive science, linguistics, neuroscience, physics, psychology or behavioral science. As a rule, activities are approved in

1. technology companies, e.g. from the fields of autonomous driving, data science, software and hardware development, ergonomics, internet services, artificial intelligence/machine learning, medical technology, human-machine interaction, robotics or virtual reality;
2. companies in the fields of product or industrial design;
3. market research institutes;
4. management consultancies;
5. art, science or technology museums with a substantive connection to the study program;
6. universities and other research institutions;
7. Other companies or institutions are suitable if useful for the students' professional orientation, as a result of changes in the professional field of the study program Mind, Brain, and Behavior, as identified either through graduate surveys, generally available career information or other suitable sources. The practical training site must be approved by the module supervisor before the practical training begins.

(3) Relevant previous internships and vocational training may be recognized as an exception upon application.

§ 9 Verification, approval, confirmation and evaluation

(1) For approval of the practical training in a professional or occupational field, the student submits to the module supervisor an original certificate from the practical training site documenting the duration and content of the completed sections of the practical training. In addition, the student writes a practical training report in the faculty's central internet-based practical training database.

(2) On the basis of the submitted documents and work, the chairperson carries out the confirmation and evaluation (pass/fail) of the module.

(3) If the activities carried out are not sufficient for confirmation of the module, the module supervisor may decide on additional requirements.

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§ 10 Prerequisites for examination (on § 17(3) General Regulations)

Attendance is mandatory for all courses. Regular attendance means not missing more than 3 hours, or, for courses with 2 SWS, no more than 2 sessions. Further attendance regulations for the course will be determined at the first meeting of the course. Sentences 1 to 3 do not apply to lectures.

§ 11 Examinations (on §§ 17, 18, 22, 23, 24 General Regulations)

(1) Types of examination are:

1. Term papers (§ 22 General Regulations),
2. Written exams (§ 23 General Regulations),
3. Oral exams (§ 24 General Regulations),
4. Oral presentations (presentation of the key aspects of a specific topic in a concise, clear and comprehensible form, including presentation design and visualization),
5. Group work with up to 5 examinees (preparation and guidance of group work on a specific topic, including identification of questions; it must be possible to clearly delimit and assess the share of each examinee in the work),
6. Practical training report (tasks of the practical training site, practical training activities, acquired knowledge and skills, reflection)
7. Project report (research question, current state of research, project description, discussion)
8. Individual or group project work (completion of one or several specific tasks (e.g. solving selected programming tasks, designing a VR experiment, training and testing a mathematical model, collecting and analyzing imaging data, or collecting and analyzing behavioral data) using the specified means, e.g. with a specific programming language; a group may comprise up to 5 examinees; it must be possible to clearly delimit and assess the share of each examinee in the work).

(2) The form of examinations and the calculation of grades are specified in the respective module descriptions (Supplement 2).

§ 12 Registration deadlines (on § 18(3), § 19(2) and § 25(5) General Regulations)

(1) Registration for examinations in the first attempt of a module takes place automatically upon registration for this module.

(2) Registration for the repeat examination does not have to take place at the next possible date.

(3) Deregistration from a module examination without stating reasons must happen no later than at the end of the fourth week of teaching of that semester. Only for lectures deregistration from a module examination without stating reasons may happen no later than two weeks before the module examination.

(4) In the thesis module, deregistration from the examination without stating reasons is not possible. The possibility of withdrawing for a valid reason pursuant to § 29 General Regulations remains unaffected.

§ 13 Thesis (on § 21 General Regulations)

(1) The final thesis is generally written in English.

(2) The time to complete the thesis is 150 days. The topic must be such that it can be completed within that period.

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§ 14 Master's examination (on § 20 General Regulations)

- (1) The study program has been passed if all compulsory modules have been passed.
- (2) The overall grade (rounded up to one decimal place) is calculated by dividing the sum of the weighted module grades (grade points of each module multiplied by the CP assigned to the module) by the total number of CP of the graded modules of the study program.
- (3) A maximum of one module (with a maximum of 8 CP in total) from the theory, elective or application modules can be removed from the calculation of the overall grade at the student's discretion.
- (4) The core modules "Practical Training" (13 CP) and "Research Practice" (9 CP) and the compulsory module "Current Topics in Cognition and Development" (6 CP) are evaluated as pass or fail and are not graded. The corresponding CP are not included in the calculation of the overall grade.

§ 15 Access to examination files (on § 33(1) General Regulations)

After each examination, the examinee will be granted access to the examination files upon request. The request must be submitted to the lecturer within six weeks after the grade has been entered into the examination administration system.

§ 16 Coming into effect

This regulation, as amended by the 4th amendment resolution, comes into effect on the day after its proclamation and applies from the summer semester 2026, except for § 3, which applies only from the summer semester 2027. Until then, the previous provisions or the previous provision shall continue to apply.

Supplements

Supplement 1: Course of study

Supplement 2: Module descriptions

Supplement 3: Elective module descriptions

Supplement 1: Course of study

1st Semester	2nd Semester	3rd Semester	4th Semester
Visual Perception of Color and Materials (Theory module) MBB-MA-THM-1 6 CP	Imaging and Recording Brain Activity (Application module) MBB-MA-AM-4 8 CP	Practical Training (Core module) MBB-MA-KM-1 13 CP External	Master Thesis Module (Thesis module) MBB-MA-TM 30 CP
Perception and Action (Theory module) MBB-MA-THM-2 3 CP	Perception and Action (Theory module) MBB-MA-THM-2 3 CP	Measuring and Modeling Human Behavior and Neural Processing (Application module) MBB-MA-AM-3 8 CP	
Programming (Application module) MBB-MA-AM-1 4 CP	Programming (Application module) MBB-MA-AM-1 4 CP		
Visual Cognition and Object Perception (Theory module) MBB-MA-THM-3 6 CP		Research Practice (Core module) MBB-MA-KM-2 9 CP	
Current Topics in Cognition and Development (Theory module) MBB-MA-THM-4 3 CP	Current Topics in Cognition and Development (Theory module) MBB-MA-THM-4 3 CP		
Capturing and Emulating the World (Application module) MBB-MA-AM-2 4 CP	Capturing and Emulating the World (Application module) MBB-MA-AM-2 4 CP		
Elective Module I (Elective module) MBB-MA-REF-1 6 CP External	Elective Module II (Elective module) MBB-MA-REF-2 6 CP External		
32 CP	28 CP	30 CP	30 CP
			120 CP

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Supplement 2: Module descriptions

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Perception and Action	13
Visual Cognition and Object Perception	15
Current Topics in Cognition and Development	16
Programming	17
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Measuring and Modeling Human Behavior and Neural Processing	19
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MBB-MA-KM-1	Practical Training	13 CP
	Berufsfeldpraktikum	
Core module	FB 06 / Psychology / Office of the Dean of Studies	3rd semester
	first offered in WS 2023/24	
Learning Outcomes: The students – familiarize themselves with professional activities in fields related to Behavioral Science and Cognitive Neuroscience – gain experience and practical training in fields related to Behavioral Science and Cognitive Neuroscience – combine the knowledge from their studies with practical professional tasks and skills – receive guidance for their personal career planning		
Content: Practical experience in selected professional fields related to Behavioral Science and Cognitive Neuroscience		
Frequency and Duration: every semester		
Module Coordinator: Office of the Dean of Studies		
Applies to the Study Programs: M.Sc. Mind, Brain, and Behavior		
Prerequisites for Participation: None		
Forms of Instruction:	Contact hours	Preparation and follow-up work
Practical training	360	30
Total:	390	
Prerequisites for Examination: None		
Module final examinations: – Practical training report (5 pages) – The module is not graded but evaluated with pass/fail		
Language of instruction and examination: English		
Notes: Module information and literature: see semester notice / Dates: see course catalog		

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MBB-MA-KM-2	Research Practice	9 CP	
	Lehrforschungsprojekt		
Core module	FB 06 / Psychology / Office of the Dean of Studies	3rd semester	
	first offered in WS 2023/24		
Learning Outcomes: The students – gain practical competences in empirical data collection and scientific research through participation in on-going research projects within the departments – gain knowledge and skills related to the various stages of the scientific research process – learn to apply a topic-specific set of methodological procedures – can analyze and document collected data – can present, interpret and discuss scientific findings – can choose a topic for the Master’s thesis			
Content: Research projects in – Experimental Psychology (Prof. of General Psychology, Kurt Koffka Professorship of Experimental Psychology) – Perception and Action (Prof. of General Psychology with a focus on Perception and Action) – Visual Neuroscience (Prof. of General Psychology and Visual Neuroscience) – Developmental Psychology (Prof. of Developmental Psychology) – other related fields (e.g. sports science, data science)			
Frequency and Duration: annually, Advanced seminar WS or SS			
Module Coordinator: Office of the Dean of Studies			
Applies to the Study Programs: M.Sc. Mind, Brain, and Behavior			
Prerequisites for Participation: None			
Forms of Instruction	Contact hours	Preparation and follow-up work	Project
Advanced seminar	30	60	0
Project work	0	0	180
Total:	270		
Prerequisites for Examination: None.			
Module final examinations: – Project report (5 pages) or presentation (20-40 minutes) about 1 research project at the teacher’s discretion, to be determined at the beginning of the course – The module is not graded but evaluated with pass/fail			
Language of instruction and examination: English			
Notes: Module information and literature: see semester notice / Dates: see course catalog			

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MBB-MA-THM-1	Visual Perception of Color and Materials	6 CP
	Visuelle Wahrnehmung von Farben und Materialien	
Theory module	FB 06 / Psychology / Dept. General Psychology	1st semester
	first offered in WS 2022/23	
Learning Outcomes: The students – deepen their knowledge of human perception – gain fundamental knowledge about research questions and topics in color and material perception – gain an overview of methods used to measure and study color and material perception – can critically discuss past and current research on color and material perception		
Content: – fundamentals of color and material perception – various methods used to study color and material perception (e.g. psychophysics, neuroimaging, modeling, machine learning) – current developments in the fields of color and material perception		
Frequency and Duration: annually, S1 WS or SS, S2 WS or SS		
Module Coordinator: Prof. of General Psychology / Prof. of General Psychology and Visual Neuroscience		
Applies to the Study Programs: M.Sc. Mind, Brain, and Behavior		
Prerequisites for Participation: None		
Forms of Instruction:	Contact hours	Preparation and follow-up work
Seminar S1	30	60
Seminar S2	30	60
Total:	180	
Prerequisites for Examination: – Regular attendance, see § 10, and a combination of a maximum of 2 of the following examination types, to be determined by the teacher at the beginning of each seminar: presentation (20-40 minutes), group work (30-40 minutes), term paper (5 pages)		
Module final examinations: – Written exam (90-120 minutes), oral exam (20-40 minutes) or term paper (10-16 pages, 6 weeks turn-around time)		
Language of instruction and examination: English		
Notes: Module information and literature: see semester notice / Dates: see course catalog. The capacity of the courses in this module is 30 students. If student demand exceeds this capacity, places will be allocated by lottery.		

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MBB-MA-THM-2	Perception and Action	6 CP
	Wahrnehmung und Handlung	
Theory module	FB 06 / Psychology / Dept. General Psychology and Dept. Developmental Psychology	1st semester
	first offered in WS 2022/23	

Learning Outcomes: The students

- gain knowledge about the theoretical basis of the interplay of perception and action
- understand spatial perception in relation to action
- acquire knowledge of common experimental paradigms and methods used to study the interplay between perception and action
- gain knowledge about theories and current debates on the development of perception and action
- acquire knowledge of experimental paradigms and methods of infant research
- gain knowledge about theories of action planning
- learn the importance of motor development for children's object perception
- acquire knowledge of theories of perception-action coupling in children with motor impairments

Content:

- models of perception and action
- prediction in perception and action
- spatial reference frames
- eye movements
- reaching and grasping in children and adults
- acting in real and virtual environments
- predictive abilities in early childhood
- visual-spatial abilities during childhood
- changes in action planning during childhood
- motor development

Frequency and Duration: annually, S1 WS or SS, S2 WS or SS

Module Coordinator: Prof. of General Psychology with a focus on Perception and Action / Prof. of Developmental Psychology

Applies to the Study Programs: M.Sc. Mind, Brain, and Behavior

Prerequisites for Participation: None

Forms of Instruction:	Contact hours	Preparation and follow-up work
Seminar S1	30	60
Seminar S2	30	60
Total:	180	

Prerequisites for Examination:

- Regular attendance, see § 10, and a combination of a maximum of 2 of the following examination types, to be determined by the teacher at the beginning of each seminar: presentation (20-40 minutes), term paper (5 pages)

Module final examinations:

- Written exam (90-120 minutes), oral exam (20-40 minutes), or term paper (10-16 pages, 6 weeks turn-around time)

Language of instruction and examination: English

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Notes: Module information and literature: see semester notice / **Dates:** see course catalog. The capacity of the courses in this module is 30 students. If student demand exceeds this capacity, places will be allocated by lottery.

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MBB-MA-THM-3	Visual Cognition and Object Perception	6 CP
	Visuelle Kognition und Objektwahrnehmung	
Theory module	FB 06 / Psychology / Dept. General Psychology	1st semester
	first offered in WS 2022/23	

Learning Outcomes: The students

- gain knowledge about the interplay between perceptual processes and cognition, with a focus on objects and their properties
- learn to dissect behavioral tasks in order to identify computational challenges and their associated processes in the human perceptual and cognitive system
- understand the historical context of current debates in object perception and cognition
- gain knowledge about the key methods used to study attention, working memory and perceptual processes in relation to objects
- understand how computational models can formalize psychological theories of object-related perceptual and cognitive processes

Content:

- pre-attentive perceptual processes involved in identifying and tracking objects and their properties
- visual search, attentional selection and salience
- processing capacity limitations and their impact on human task performance
- visual working memory: theory and experiments
- objects as a psychological construct: historical and current perspectives in children and adults
- theories and computational models of object perception
- grouping, occlusion and object permanence
- implicit and explicit physical reasoning
- numerosity, number sense and statistical representations

Frequency and Duration: annually, S1 WS or SS, S2 WS or SS

Module Coordinator: Kurt Koffka Prof. of Experimental Psychology

Applies to the Study Programs: M.Sc. Mind, Brain, and Behavior

Prerequisites for Participation: None

Forms of Instruction:	Contact hours	Preparation and follow-up work
Seminar S1	30	60
Seminar S2	30	60
Total:	180	

Prerequisites for Examination:

- Regular attendance, see § 10, and a combination of a maximum of 2 of the following examination types, to be determined by the teacher at the beginning of each seminar: presentation (20-40 minutes), term paper (5 pages)

Module final examinations:

- Written exam (90-120 minutes), oral exam (20-40 minutes) or term paper (10-16 pages, 6 weeks turnaround time)

Language of instruction and examination: English

Notes: Module information and literature: see semester notice / Dates: see course catalog. The capacity of the courses in this module is 30 students. If student demand exceeds this capacity, places will be allocated by lottery.

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MBB-MA-THM-4	Current Topics in Cognition and Development	6 CP
	Aktuelle Themen der Kognition und Entwicklung	
Theory module	FB 06 / Psychology / Dept. General Psychology and Dept. Developmental Psychology	1st-2nd semester
	first offered in WS 2022/23	
Learning Outcomes: The students – gain insight into current research topics in experimental and developmental psychology (e.g. color and material perception, perception and action, development of face processing, motor cognition, music perception) – deepen their knowledge of theories and current debates in perception and cognition as well as the development of perception, cognition and action – deepen their knowledge of experimental paradigms and methods to study perception and cognition as well as the development of perception, cognition and action		
Content: – recent developments in the fields of perception, action and developmental psychology – various research topics from the fields of perception, action and developmental psychology with a focus on new findings and current debates (e.g. color and material perception, perception and action, development of face processing, motor cognition, music perception)		
Frequency and Duration: annually, C1 WS or SS, C2 WS or SS		
Module Coordinator: Prof. of General Psychology / Prof. of Developmental Psychology		
Applies to the Study Programs: M.Sc. Mind, Brain, and Behavior		
Prerequisites for Participation: None		
Forms of Instruction:	Contact hours	Preparation and follow-up work
Colloquium C1	30	60
Colloquium C2	30	60
Total:	180	
Prerequisites for Examination: – Regular attendance, see § 10		
Module examinations: – No module examination; the module is not graded		
Language of instruction and examination: English		
Notes: Module information and literature: see semester notice / Dates: see course catalog. The capacity of the courses in this module is 30 students. If student demand exceeds this capacity, places will be allocated by lottery.		

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MBB-MA-AM-1	Programming	8 CP	
	Programmierung		
Application module	FB 06 / Psychology / Dept. General Psychology	1st-2nd semester	
	first offered in WS 2022/23		
Learning Outcomes: The students – gain knowledge about basic concepts of programming with Matlab – learn to work with arrays and matrices – learn to work with external data files and how to plot data – gain experience using basic logical operations, control flow and debugging – learn to program experiments			
Content: – basic concepts of programming – introduction to the Matlab programming environment – introduction to basic Matlab functions – transformation of experimental designs into programming code – hands-on practice of the theoretical concepts (see above) – introduction to Matlab Psychtoolbox			
Frequency and Duration: annually, S1 WS or SS, S2 WS or SS			
Module Coordinator: Prof. of General Psychology with a focus on Perception and Action			
Applies to the Study Programs: M.Sc. Mind, Brain, and Behavior			
Prerequisites for Participation: None			
Forms of Instruction:	Contact hours	Preparation and follow-up work	Project
Seminar S1	30	60	30
Seminar S2	30	60	30
Total:	240		
Prerequisites for Examination: – Regular attendance and a combination of a maximum of 2 of the following examination types, to be determined by the teacher at the beginning of each seminar: presentation (20-40 minutes), term paper (5 pages)			
Module final examinations: – Written exam (90-120 minutes), term paper (10-16 pages, 6 weeks turnaround time), or individual/group project work (60 hours; e.g. solving programming tasks)			
Language of instruction and examination: English			
Notes: Module information and literature: see semester notice / Dates: see course catalog. The capacity of the courses in this module is 30 students. If student demand exceeds this capacity, places will be allocated by lottery.			

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MBB-MA-AM-2	Capturing and Emulating the World	8 CP	
	Messung und Nachbildung unserer Umwelt		
Application module	FB 06 / Psychology / Dept. General Psychology	2nd-3rd semester	
	first offered in WS 2024/25		
Learning Outcomes: The students – learn about recent developments in computer graphics (CG) and virtual reality (VR) research – understand how problems can be expressed in programming code – learn about motion capture and VR as tools in psychological research – acquire practical knowledge of stimulus generation using CG software – understand the core concepts of 3D modeling, lighting design, material editing and rendering – learn to use stimuli and program a first VR experiment			
Content: – fundamental knowledge about psychological research in the fields of CG and VR – basic programming – 3D modeling and stimulus generation – conceptualization of scenes in real and virtual environments – real and virtual photography, videography and content editing workflows – design and programming of a first VR experiment			
Frequency and Duration: annually, S1 WS or SS, S2 WS or SS			
Module Coordinator: Kurt Koffka Prof. of Experimental Psychology / Prof. of General Psychology with a focus on Perception and Action			
Applies to the Study Programs: M.Sc. Mind, Brain, and Behavior			
Prerequisites for Participation: None			
Forms of Instruction:	Contact hours	Preparation and follow-up work	Project
Seminar S1	30	60	30
Seminar S2	30	60	30
Total:	240		
Prerequisites for Examination: – Regular attendance and a combination of a maximum of 2 of the following examination types, to be determined by the teacher at the beginning of each seminar: presentation (20-40 minutes), term paper (5 pages)			
Module final examinations: – Written exam (90-120 minutes), term paper (10-16 pages, 6 weeks turnaround time) or individual/group project work (60 hours; e.g. designing a VR experiment)			
Language of instruction and examination: English			
Notes: Module information and literature: see semester notice / Dates: see course catalog. The capacity of the courses in this module is 30 students. If student demand exceeds this capacity, places will be allocated by lottery.			

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MBB-MA-AM-3	Measuring and Modeling Human Behavior and Neural Processing	8 CP
	Messung und Modellierung menschlichen Verhaltens und neuronaler Verarbeitung	
Application module	FB 06 / Psychology / Dept. General Psychology	2nd-3rd semester
	first offered in SS 2023	

Learning Outcomes: The students

- learn about recent developments in research in the field of measuring human behavior
- familiarize themselves with different techniques for recording human behavior (e.g. eye or body movements)
- learn to use recording equipment and record behavior
- use relevant programs to analyze and visualize human behavioral data and interpret the results
- learn to create and use experimental paradigms and stimuli for behavioral experiments
- understand the importance of specific human behavior (e.g. eye or body movements) for human performance, perception and disorders, as well as associated practical implications
- gain fundamental knowledge about how computational modeling can contribute to our understanding of mind, brain and behavior
- gain practical experience in developing and testing computational models of behavioral data
- learn a variety of modeling approaches and their relative strengths and weaknesses
- learn to program computational models in software environments also used in research

Content:

- basic concepts of movement recording
- introduction to the basic principles of kinematics
- implications of recording and analyzing human behavioral data (e.g. eye or body movements) for human performance, perception and disorders (e.g. training, rehabilitation, video games)
- creation of stimuli and experimental paradigms for behavioral experiments
- introduction to systems for recording human behavior (e.g. eye or body movements)
- hands-on practice of the theoretical concepts (see above)
- design and conduct experiments to record human behavior (e.g. eye or body movements such as grasping, standing, walking...)
- analysis and graphical representation of the collected data using relevant analysis programs
- studies illustrating different modeling approaches in the literature
- application of computational modeling to real data
- supervised and unsupervised machine learning methods
- Bayesian approaches
- training and testing of deep neural networks
- methods for visualizing models and data

Frequency and Duration: annually, S1 WS or SS, S2 WS or SS

Module Coordinator: Kurt Koffka Prof. of Experimental Psychology / Prof. of General Psychology

Applies to the Study Programs: M.Sc. Mind, Brain, and Behavior

Prerequisites for Participation: For participation, students must have passed module AM-1 or provide evidence of programming experience (e.g. course(s) amounting to at least 3 CP). Experience with the Python programming environment is recommended.

Forms of Instruction:	Contact hours	Preparation and follow-up work	Project
Seminar S1	30	60	30
Seminar S2	30	60	30

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Total:	240
Prerequisites for Examination: – Regular attendance, see § 10, and a combination of a maximum of 2 of the following examination types, to be determined by the teacher at the beginning of each seminar: presentation (20-40 minutes), term paper (5 pages)	
Module final examinations: – Written exam (90-120 minutes), term paper (10-16 pages, 6 weeks turnaround time) or individual/group project work (60 hours; e.g. collecting and analyzing behavioral data, training and testing a mathematical model)	
Language of instruction and examination: English	
Notes: Module information and literature: see semester notice / Dates: see course catalog. The capacity of the courses in this module is 30 students. If student demand exceeds this capacity, places will be allocated by lottery.	

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MBB-MA-AM-4	Imaging and Recording Brain Activity	8 CP
	Messung und Bildgebung neuronaler Aktivität	
Application module	FB 06 / Psychology / Dept. General Psychology	2nd-3rd semester
	first offered in WS 2022/23	
Learning Outcomes: The students – know the advantages and disadvantages of different imaging methods – acquire knowledge of the theoretical foundations of electroencephalography (EEG) in humans – acquire knowledge of the theoretical foundations of functional magnetic resonance imaging (fMRI) – learn to design an fMRI experiment – learn to measure brain activity in the EEG laboratory – learn to conduct brain scans using an MR scanner – gain knowledge about different types of artifacts – learn to analyze and interpret EEG and fMRI data		
Content: – foundations of EEG and fMRI – event-related potentials in perception, action and cognition – hands-on exercises in EEG recording and fMRI data collection – data pre-processing (e.g. artifact reduction, data cleaning, data filtering) – statistical data analyses (e.g. ERP amplitude and latency, GLM, ROI analyses, MVPA) – plotting data and interpreting spatial maps		
Frequency and Duration: annually, S1 WS or SS, S2 WS or SS		
Module Coordinator: Prof. of General Psychology with a focus on Perception and Action / Prof. of General Psychology and Visual Neuroscience		
Applies to the Study Programs: M.Sc. Mind, Brain, and Behavior		
Prerequisites for Participation: None		
Forms of Instruction:	Contact hours	Preparation and follow-up work
Seminar S1	30	60
Seminar S2	30	60
Total:	240	
Prerequisites for Examination: – Regular attendance, see § 10, and a combination of a maximum of 2 of the following examination types, to be determined by the teacher at the beginning of each seminar: presentation (20-40 minutes), term paper (5 pages)		
Module final examinations: – Written exam (90-120 minutes), term paper (10-16 pages, 6 weeks turnaround time) or individual/group project work (60 hours; e.g. collecting and analyzing imaging data)		
Language of instruction and examination: English		
Notes: Module information and literature: see semester notice / Dates: see course catalog. The capacity of the courses in this module is 30 students. If student demand exceeds this capacity, places will be allocated by lottery.		

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MBB-MA-TM	Master Thesis Module	30 CP
	Master-Thesis-Modul	
Thesis module	FB 06 / Psychology / All departments	4th semester
	first offered in WS 2023/24	
Learning Outcomes: The students – gain profound knowledge of empirical data collection and scientific work – develop the ability for scientific argumentation – develop the ability to reflect on the contents of the Master’s program – acquire skills in conducting, analyzing and writing a scientific work		
Content: – Independent work on a research project – Collection and analysis of empirical data within the specified period of 150 days – Completion of a written thesis on the topic addressed		
Frequency and Duration: annually, SS		
Module Coordinator: All departments		
Applies to the Study Programs: M.Sc. Mind, Brain, and Behavior		
Prerequisites for Participation: Registration for 1 core module, 4 theory modules and 3 application modules		
Forms of Instruction:	Contact hours	Preparation and follow-up work
Master thesis	100	800
Total:	900	
Prerequisites for Examination: None		
Module final examinations: – Completion and submission of the Master’s thesis in due time (50-80 pages)		
Language of instruction and examination: English		
Notes: Module information and literature: see semester notice / Dates: see course catalog.		

Supplement 3: Elective module descriptions

Code	Name
BSc Economics and Business Studies¹	
02-BWL:BSc-B1-1	Marketing
02-BWL:BSc-B1-3	Customer Management
02-BWL:BSc-B1-4	Sales Strategy and Execution
02-BWL:BSc-B8-3	Leadership
02-BWL:BSc-B10-2	Technology and Innovation Management
MSc Economics and Business Studies²	
02-BWL:MSc-B1-1	Product Management
02-BWL:MSc-B10-3	Entrepreneurial Mindset in different Contexts
02-BWL:MSc-B10-Extra2	Data-Driven Innovation
02-BWL:MSc-B10-2	Creativity and Entrepreneurship
02-BWL:MSc-B11-1	Text Mining
BSc Data Science³	
07-BDS-18	Advanced Data Analytics
07-BDS-WPF6	Neuroinformatics I
07-BDS-WPF7	Neuroinformatics II
MSc Data Science⁴	
07-MDS-01	Quantitative Foundations of Artificial Intelligence
MSc Human Movement Analytics: Biomechanics, Motor Control and Learning⁵	
06-MA-HMA-01	Applied Mathematics
06-MA-HMA-02	Biomechanics I
06-MA-HMA-03	Computational Principles of Motor Control
06-MA-HMA-06	Specific Data Analysis
06-MA-HMA-08	Cognitive Neuroscience of Action

¹ The module descriptions can be found in Annex 2 of the Special Regulations for the Bachelor's degree program "Business and Economics" of Faculty 02 ([MUG 7.35.02 Nr. 2](#)), as amended.

² The module descriptions can be found in Annex 2 of the Special Regulations for the Master's degree program "Business Administration and Economics" of Faculty 02 ([MUG 7.36.02 Nr. 2](#)), as amended.

³ The module descriptions can be found in Annex 2 of the Special Regulations for the Bachelor's degree program "Data Science" of Faculty 07 ([MUG 7.35.07 Nr. 6](#)), as amended.

⁴ The module descriptions can be found in Annex 2 of the Special Regulations for the Master's degree program "Data Science" of Faculty 07 ([MUG 7.36.07 Nr. 2](#)), as amended.

⁵ The module descriptions can be found in Annex 2 of the Special Regulations for the Master's degree program "Human Movement Analytics: Biomechanics, Motor Control and Learning" of Faculty 06 ([MUG 7.36.06 Nr. 1](#)), as amended.

The elective modules are governed by the respective Special Regulation in its currently applicable version. In addition to these elective modules, students may take courses offered by other faculties amounting to 6 CP. Enrolment in such courses is subject to prior consultation with the respective lecturers.