

Module Catalogue: Master of Science – Human Performance in Socio-Technical Systems

Mandatory Subjects:

Module code	MA-HPSTS-1
Module name	Organization- and Work Psychology
Responsible for Module	Prof. Dr. Jürgen Wegge
ECTS credits	9 ECTS points
Workload	270 h
Teaching and learning activities	Lecture: 2 x 45min. / week Seminar: 4 x 45 min. / week Selfstudy
Content	This module covers recent psychological findings about work systems and organizations. After completing this module, students should be able to introduce, evaluate, and optimize measurements for job analyses and design work structures in socio-technical systems.
Methods of assessment	Prerequisite: presentation and term paper Module examination: oral examination (30 minutes)
Language	English
Frequency	Annually; starting in the winter term
Duration	2 semesters

Module code	MA-HPSTS-2
Module name	Personnel Psychology
Responsible for Module	Prof. Dr. Jürgen Wegge
ECTS credits	6 ECTS points
Workload	180 h
Teaching and learning activities	Lecture: 2 x 45min. / week Seminar: 2 x 45min. / week Selfstudy
Content	This module covers recent psychological findings regarding requirements, analyses, and occupational aptitude. After completing this module, students should be able to introduce, evaluate, and optimize aptitude diagnostics, requirements analysis, personnel selection, and expertise development.
Methods of assessment	Prerequisite: presentation or term paper Module examination: oral examination (30 minutes)
Language	English
Frequency	Annually; starting in the summer term
Duration	1 semester

Module code	MA-HPSTS-3
Module name	Competence Acquisition in / with Socio-Technical Systems
Responsible for Module	Prof. Dr. Susanne Narciss
ECTS credits	6 ECTS points
Workload	180 h
Teaching and learning activities	Lecture: 2 x 45min. / week Seminar: 2 x 45min. / week Selfstudy
Content	This module covers key psychological concepts, theories and findings regarding situational and individual conditions and effects of competency acquisition within socio-technical systems. After completing this module,

	students should be able (a) to demonstrate their knowledge and understanding of the key concepts, theoretical approaches, methods, and findings of psychological research on learning, instruction, and training, (b) to apply their knowledge and understanding to instructional design tasks, and (c) to discuss implications for instructional design and research.
Methods of assessment	Prerequisite: presentation Module examination: oral examination (30 minutes)
Language	To be discussed (German/English)
Frequency	Annually; starting in the winter term
Duration	1 semester

Module code	MA-HPSTS-4
Module name	Traffic and Transportation Psychology
Responsible for Module	Prof. Dr. Tibor Petzoldt
ECTS credits	6 ECTS points
Workload	180 h
Teaching and learning activities	Lecture: 2 x 45min. / week Seminar: 2 x 45min. / week Selfstudy
Content	This module covers key fields of research and application of traffic and transportation psychology: theories of traffic and transportation psychology, specific research methods and practical intervention strategies.
Methods of assessment	Prerequisite: presentation or term paper Module examination: oral examination (30 minutes)
Language	German
Frequency	Annually; starting in the winter term
Duration	1 semester

Module code	MA-HPSTS-5
Module name	Applied Cognitive Research
Responsible for Module	Prof. Dr. Sebastian Pannasch
ECTS credits	6 ECTS points
Workload	180 h
Teaching and learning activities	Lecture: 2 x 45min. / week Seminar: 2 x 45min. / week Selfstudy
Content	This module covers professional terminology and developments of interdisciplinary applied cognitive research. After completing this module, students should be able to apply methodology, principles, and measuring methods of cognitive ergonomics to the development of human-machine interfaces and to increase human performance.
Methods of assessment	Prerequisite: presentation or term paper Module examination: oral examination (30 minutes)
Language	To be discussed (German/English)
Frequency	Annually; starting in the winter term
Duration	1 semester

Module code	MA-HPSTS-6
Module name	Social Interaction and Performance
Responsible for Module	Prof. Dr. Veronika Job
ECTS credits	6 ECTS points
Workload	180 h
Teaching and learning activities	Lecture: 2 x 45min. / week Seminar: 2 x 45min. / week

	Selfstudy
Content	This module covers theories, research methods, and key empirical findings of social psychology with a focus on how psychological theories can be used to address real world problems (e.g., in working contexts, romantic relationships, ecological decisions, health). After completing this module, students should be able to apply basic knowledge of social psychology to analysis and solutions for practical problems.
Methods of assessment	Prerequisite: presentation Module examination: oral examination (30 minutes)
Language	English
Frequency	Annually; starting in the summer term
Duration	1 semester

Module code	MA-HPSTS-7
Module name	Advanced Multivariate Statistics
Responsible for Module	Dr. Matthias Rudolf
ECTS credits	6 ECTS points
Workload	180 h
Teaching and learning activities	Seminar: 4 x 45min. / week Selfstudy
Content	This module covers advanced multivariate statistical methods, including assumptions, procedures, and interpretation of results, as well as possibilities and limits within practical application situations. After completing this module, students will have gained experience with data analysis using complex multivariate methods and corresponding statistical software.
Methods of assessment	Module examination: written examination (90 minutes)
Language	German
Frequency	Annually; starting in the winter term
Duration	2 semesters

Module code	MA-HPSTS-8
Module name	Internship
Responsible for Module	Prof. Dr. Petra Kemter-Hofmann
ECTS credits	15 ECTS points
Workload	450 h
Teaching and learning activities	240 working hours, distributed over 6 to 12 weeks + 50h for writing the report + 160h selfstudy
Content	Gain knowledge and experience with analysis, design, and evaluation of socio-technical systems in a working environment related to the field of study. Advanced knowledge and skills to apply practical competencies acquired during studies.
Methods of assessment	Module examination: internship report (not graded)
Language	German
Frequency	In the winter or summer term
Duration	6 weeks á 40 working hours (+time for preparing the internship report + selfstudy)

Module code	MA-HPSTS-9
Module name	Master Thesis Seminar
Responsible for Module	Dean
ECTS credits	6 ECTS points
Workload	180 h

Teaching and learning activities	Seminar: 4 x 45min. / week
Content	In this seminar students are supported in the process of planning and executing their own scientific work, i.e. their master thesis (MT). The seminar offers a continuous platform for discussion of all related problems. While MTS1 focuses on planning and preparing as well as giving early feedback on students MT proposal, the aim of MTS2 is to support the MT writing process and to give feedback on the final draft of their thesis via discussion of a poster presentation.
Methods of assessment	Two presentations: presentation of approach and presentation of results (both graded)
Language	Each semester one seminar (either MTS1 or MTS2) is offered in English, one in German
Frequency	Annually; starting in the winter term
Duration	2 semesters

Required Elective:

to be chosen:

- one of the four modules MA-HPSTS-WP1, MA-HPSTS-WP2, MA-HPSTS-WP3 and MA-HPSTS-WP4
- 15 ECTS in total to be chosen from the modules WP5, WP6, WP7, WP8, WP9, WP10, WP11, WP12, WP13 and WP14

Module code	MA-HPSTS-WP1
Module name	Work-, Organization-, and Personnel Psychology (WOP) - Research & Intervention
Responsible for Module	Prof. Dr. Jürgen Wegge
ECTS credits	9 ECTS points
Workload	270 h
Teaching and learning activities	Extended Seminar: 6 x 45min. / week Selfstudy
Content	This module covers key skills in psychology for analysis, (re)designing, and evaluating work systems. Testing of these skills within a practical project, and reporting the results to the involved organisations.
Methods of assessment	Module examination: presentation (graded) + project work (graded)
Language	German
Frequency	Annually; starting in the summer term
Duration	2 semesters

Module code	MA-HPSTS-WP2
Module name	Learning & Instruction (L&I) - Research & Intervention
Responsible for Module	Prof. Dr. Susanne Narciss
ECTS credits	9 ECTS points
Workload	270 h
Teaching and learning activities	Extended Seminar: 6 x 45min. / week Selfstudy
Content	This module covers key psychological findings regarding the design of training and learning environments, and research approaches for investigating the conditions and effects of innovative training and instructional strategies in socio-technical systems. After completing this module, students should be able to autonomously develop research questions for instructional design projects as well as to plan, conduct, and present studies addressing the research questions.
Methods of assessment	Module examination: presentation (graded) + project work (graded)

Language	To be discussed (German/English)
Frequency	Annually; starting in the summer term
Duration	2 semesters

Module code	MA-HPSTS-WP3
Module name	Traffic and Transportation Psychology(TT) - Research & Intervention
Responsible for Module	Prof. Dr. Tibor Petzoldt
ECTS credits	9 ECTS points
Workload	270 h
Teaching and learning activities	Extended Seminar: 6 x 45min. / week Selfstudy
Content	In this module, students should acquire fundamental skills in the methods of scientific work. After completing this module, students should be able to apply theoretical and methodological knowledge of traffic and transportation psychology to address research- and intervention issues.
Methods of assessment	Module examination: presentation (graded) + project report (graded)
Language	German
Frequency	Annually; starting in the summer term
Duration	2 semesters

Module code	MA-HPSTS-WP4
Module name	Cognitive Ergonomics (CE) - Research & Intervention
Responsible for Module	Prof. Dr. Sebastian Pannasch
ECTS credits	9 ECTS points
Workload	
Teaching and learning activities	Extended Seminar: 6 x 45min. / week Selfstudy
Content	This module covers theoretical and methodological knowledge in engineering psychology with a focus on research- and intervention issues in engineering psychology and cognitive ergonomics.
Methods of assessment	Module examination: presentation (graded) + project report (graded)
Language	German
Frequency	Annually; starting in the summer term
Duration	2 semesters

Module code	MA-HPSTS-WP5
Module name	Occupational Health Psychology
Responsible for Module	Prof. Dr. Jürgen Wegge
ECTS credits	6 ECTS points
Workload	180 h
Teaching and learning activities	Lecture: 2 x 45min. / week Seminar: 2 x 45min. / week Selfstudy
Content	This module focuses on recent psychological findings in occupational health psychology. After completing this module, students should be able to apply techniques of load and strain diagnostics, and to develop recommendations for health promotion.
Methods of assessment	Prerequisite: presentation or term paper Module examination: oral examination (30 minutes)
Language	German
Frequency	Annually; starting in the summer term

Duration	1 semester
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Module code	MA-HPSTS-WP6
Module name	Public Health
Responsible for Module	Jun.-Prof. Dr. rer. med. Sophie Baumann
ECTS credits	9 ECTS points
Workload	270 h
Teaching and learning activities	Lecture: 4 x 45min. / week Seminar: 2 x 45min. / week Selfstudy
Content	This module covers basic theories and important approaches in occupational medicine, social medicine, and clinical environmental medicine, as well as the approach for evidence-based health care. After completing this module, students should be able to critically reflect upon current aspects of relevant basic and applied research.
Methods of assessment	Prerequisite: presentation or term paper Module examination: written examination (90 minutes)
Language	German
Frequency	Annually; starting in the winter term
Duration	2 semesters

Module code	MA-HPSTS-WP7
Module name	Clinical Psychology
Responsible for Module	Dean
ECTS credits	9 ECTS points
Workload	270 h
Teaching and learning activities	Lecture: 6 x 45min. / week Selfstudy
Content	This module covers basic models of psychopathology, important therapeutic approaches, and the process from diagnosis to intervention. After completing this module, students should be able to critically reflect upon mechanisms of action and current aspects of basic and applied research in the field of clinical psychology and psychotherapy.
Methods of assessment	Module examination: written examination (90 minutes)
Language	German
Frequency	Annually; starting in the winter term
Duration	2 semesters

Module code	MA-HPSTS-WP8
Module name	Behavioral Epidemiology and Intervention
Responsible for Module	Prof. Dr. Katja Beesdo-Baum
ECTS credits	9 ECTS points
Workload	270 h
Teaching and learning activities	Lecture: 2 x 45min. / week Seminar: 4 x 45min. / week Selfstudy
Content	This module covers basic knowledge about epidemiology, especially behavioural epidemiology, including concepts, study designs, methods, and recent findings. After completing this module, students should be able to critically assess epidemiological literature and to draw appropriate conclusions.
Methods of assessment	Module examination: written examination (90 minutes)
Language	German

Frequency	Annually; starting in the winter term
Duration	1 semester

Module code	MA-HPSTS-WP9
Module name	Cognitive-Affective Neuroscience
Responsible for Module	Prof. Dr. Thomas Goschke
ECTS credits	9 ECTS points
Workload	270 h
Teaching and learning activities	Lecture: 6 x 45min. / week Selfstudy
Content	This module covers approaches, research methods, and central empirical findings from the fields of cognitive-affective neuroscience. Topics include neural correlates of cognitive, emotional and volitional processes, the influences of stress on cognitive functions, the neurobiological basis of individual differences, and an introduction into functional neuroimaging methods. After completing this course, students should have a basic knowledge of cognitive neuroscience and be able to derive implications for application-related problems.
Methods of assessment	Module examination: three written examinations (90 minutes each)
Language	German
Frequency	Annually; starting in the winter term
Duration	2 semesters

Module code	MA-HPSTS-WP10
Module name	Developmental Neuroscience
Responsible for Module	Prof. Dr. Shu-Chen Li
ECTS credits	6 ECTS points
Workload	180 h
Teaching and learning activities	Lecture: 2 x 45min. / week Seminar: 2 x 45min. / week Selfstudy
Content	This module covers theories, research methods, and findings of developmental neuroscience with a focus on topics such as brain development, neuroplasticity, developmental neuropsychology, cognitive-, socio-emotional-, and motivational development. After completing this module, students should be able to derive implications for application-oriented problems in the respective fields.
Methods of assessment	Module examination: written examination (90 minutes) + presentation (graded)
Language	English
Frequency	Annually; starting in the winter term
Duration	1 semester

Module code	MA-HPSTS-WP11
Module name	Industrial Design Process and Methods
Responsible for Module	Jun.-Prof. Jens Krzywinski
ECTS credits	6 ECTS points
Workload	180 h
Teaching and learning activities	Lecture: 2 x 45min. / week Seminar: 2 x 45min. / week Selfstudy
Content	This module introduces to the nature, tasks, methods, and objectives of the process of industrial design and human-centered product development. It includes lectures about industrial design, industrial design engineering and

	human-technology interaction as well as practical parts on methods and methodology in early stages of human-centered product development.
Methods of assessment	Module examination: written examination (90 minutes)
Language	German
Frequency	Annually; starting in the summer term
Duration	1 semester

Module code	MA-HPSTS-WP12
Module name	Advanced User Interfaces [AUI]
Responsible for Module	Prof. Dr.-Ing. Raimund Dachsel
ECTS credits	6 ECTS points
Workload	180 h
Teaching and learning activities	Lecture: 2 x 45min. / week Seminar: 2 x 45min. / week Selfstudy
Content	This module covers the principles and methods for design and developing natural user interfaces (UI) for interactive surfaces with a focus on new technologies. After completing this module, students should be able to choose appropriate forms of interaction and technologies in order to undertake scientific work within the field of human-computer interaction.
Methods of assessment	Module examination: written examination (90 minutes)
Language	English
Frequency	Annually; starting in the summer term
Duration	1 semester

Module code	MA-HPSTS-WP13
Module name	User Interface Engineering [UIE]
Responsible for Module	Prof. Dr.-Ing. Raimund Dachsel
ECTS credits	6 ECTS points
Workload	180 h
Teaching and learning activities	Lecture: 2 x 45min. / week Seminar: 2 x 45min. / week Selfstudy
Content	This module covers the procedures of design methods and development processes in the field of human-computer interaction with a focus on scenario-based design and user experience, including requirements analysis, iterative design and evaluation. After completing this module, students should be able to design user interfaces and apply techniques of creative interaction design.
Methods of assessment	Module examination: written examination (90 minutes) + project work (graded)
Language	English
Frequency	Annually; starting in the winter term
Duration	1 semester

Module code	MA-HPSTS-WP14
Module name	Interactive Information Visualization [INFOVIS]
Responsible for Module	Prof. Dr.-Ing. Raimund Dachsel
ECTS credits	6 ECTS points
Workload	180 h
Teaching and learning activities	Lecture: 2 x 45min. / week Seminar: 2 x 45min. / week

	Selfstudy
Content	<p>This module covers techniques for the interactive visualisation of abstract data, as well as effective exploration of large amounts of information. This module also covers key aspects in the psychology of perception, data types, visualization tasks, and evaluation criteria.</p> <p>After completing this module, students should be able to choose and develop suitable techniques of visualisation and interaction appropriate for different types of tasks and users.</p>
Methods of assessment	Module examination: written examination (90 minutes) + project work (graded)
Language	To be discussed (German/English)
Frequency	Annually; starting in the summer term
Duration	1 semester