Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

Subdivided Module Catalogue

for the Subject

Human-Computer-Interaction

as a Bachelor's with 1 major

with the degree "Bachelor of Science"

(180 ECTS credits)

Examination regulations version: 2024
Responsible: Faculty of Human Sciences
Responsible: Institute of Human Computer Media
Responsible: Faculty of Mathematics and Computer Science
Responsible: Institute of Computer Science

Course of Studies - Contents and Objectives

The bachelor's degree in Human-Computer-Interaction is offered by the Faculty of Human Sciences (Institute of Human Computer Media) together with the Faculty of Mathematics and Computer Science (Institute of Computer Science) at JMU as a basic-oriented cooperative course leading to the degree "Bachelor of Science" (B.Sc., 180 ECTS credits) as part of a consecutive Bachelor´s and Master's study program. The degree of Bachelor of Science represents a first professional qualification.
The aim of the Human-Computer Interaction course is to impart skills for the systematic analysis, development, testing and optimization of interfaces between computer systems and their human users. The course is interdisciplinary and combines concepts, methods, theories and techniques, particularly from psychology and computer science, with subject-specific skills in human-computer interaction.
A particular focus is on the development and testing of interactive and multimedia human-computer interfaces and their optimization with regard to usability and user experience.

Abbreviations used

Course types: **E** = field trip, **K** = colloquium, **O** = conversatorium, **P** = placement/lab course, **R** = project, **S** = seminar, **T** = tutorial, **Ü** = exercise, **V** = lecture

Term: **SS** = summer semester, **WS** = winter semester

Methods of grading: **NUM** = numerical grade, **B/NB** = (not) successfully completed

Regulations: **(L)ASPO** = general academic and examination regulations (for teaching-degree programmes), **FSB** = subject-specific provisions, **SFB** = list of modules

Other: **A** = thesis, **LV** = course(s), **PL** = assessment(s), **TN** = participants, **VL** = prerequisite(s)

Conventions

Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not creditable for bonus.

Notes

Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the method of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.

Should the module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.

Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.

In accordance with

the general regulations governing the degree subject described in this module catalogue:

ASPO2015

associated official publications (FSB (subject-specific provisions)/SFB (list of modules)):

16-May-2024 (2024-63)

This module handbook seeks to render, as accurately as possible, the data that is of statutory relevance according to the examination regulations of the degree subject. However, only the FSB (subject-specific provisions) and SFB (list of modules) in their officially published versions shall be legally binding. In the case of doubt, the provisions on, in particular, module assessments specified in the FSB/SFB shall prevail.

The subject is divided into

Abbreviation	Module title	ECTS credits	Method of grading	page
Compulsory Courses (138 ECTS credits)				
06-HCI-B-GLHCI-242-m01	Foundations of Human-Computer-Interaction	5	NUM	13
06-HCI-B-GLPE-242-m01	Foundations of Psychological Ergonomics	5	NUM	14
10-HCI-B-EinP-242-m01	Introduction to Programming (HCI)	5	NUM	35
06-HCI-B-STAT-1-242-m01	Statistics 1	5	NUM	24
10-HCI-B-GADS-242-m01	Foundations Algorithms and Data Structures (HCI)	10	NUM	37
06-HCI-B-STAT-2-242-m01	Statistics 2	5	NUM	25
10-HCI-B-ST-242-m01	Software Technology (HCI)	5	NUM	50
10-HCI-B-EPP-242-m01	Introductory Programming Course (HCI)	5	B/NB	36
06-HCI-B-SGP-242-m01	Selected Areas of Psychology	5	NUM	23
10-HCI-B-SPSE-242-m01	Development of Graphical User Interfaces	10	NUM	48
10-HCI-B-SQ-242-m01	Software Quality	5	NUM	49
06-HCI-B-Usab-242-m01	Usability and User Experience Evaluation	10	NUM	27
06-HCI-B-FM-242-m01	Research Methods	5	NUM	12
06-HCI-B-VPS-242-m01	Experience as a tester or subject in experiments	1	B/NB	31
10-HCI-B-ICGV-242-m01	Interactive Computer Graphics	5	NUM	40
10-HCI-B-ICGT-242-m01	Interactive Systems Hands-On	5	NUM	39
06-HCI-B-MBG-242-m01	Methods for Human-Centered Design	10	NUM	17
06-HCI-B-IDA-242-m01	Inclusive Design & Accessibility	5	NUM	16
10-HCI-B-Math-I-242-m01	Introduction to Higher Mathematics I	5	NUM	44
06-HCI-B-Prop-242-m01	Propaedeutic Course Bachelor's Thesis	7	B/NB	22
10-HCI-B-ML-242-m01	Machine Learning	5	NUM	47
10-HCI-B-HAI-242-m01	Human-AI Interaction	5	NUM	38
06-HCI-B-Proj-242-m01	HCI Bachelor Project	10	NUM	21
Compulsory Electives (10 ECTS credits)				
06-HCI-B-V1-242-m01	Specialization HCI Bachelor 1	5	NUM	28
06-HCI-B-V2-242-m01	Specialization HCI Bachelor 2	5	NUM	29
10-HCI-B-IS1-242-m01	Interactive Systems Bachelor 1	5	NUM	41
10-HCI-B-IS2-242-m01	Interactive Systems Bachelor 2	5	NUM	42
10-HCI-B-IS3-242-m01	Interactive Systems Bachelor 3	5	NUM	43
10-HCI-B-MI-242-m01	Media Informatics for HCI Bachelor	5	NUM	46
10-HCI-B-AK-242-m01	Selected topics of Computer Science Bachelor	5	NUM	34
10-HCI-B-Math-II-242-m01	Introduction to Higher Mathematics II	5	NUM	45
06-HCI-B-OMK-242-m01	Psychology of Online and Mobile Communication for HCI Bachelor	5	NUM	19
06-HCI-B-VUsab-242-m01	Specialisation Usability	5	NUM	32
06-HCI-B-VUsEx-242-m01	Specialisation User Experience	5	NUM	33
06-HCI-B-VHuFa-242-m01	Specialisation Human Factors	5	NUM	30
06-HCI-B-Design-242-m01	Interface & Interaction Design	5	NUM	10

06-HCI-B-PIA-242-m01	Persuasive Interaction	5	NUM	20
04-DH-A1-152-m01	Digital Humanities in Overview	5	B/NB	6
06-HCI-B-Med-Psy-242-m01	Media Psychology for HCI Bachelor	5	NUM	18
Key Skills Area (20 ECTS credits)				
General Key Skills (5 ECTS credits)				
General Key Skills (subject-specific) In addition to the modules listed below, students may also take modules offered by JMU as part of the pool of general transferable skills (ASQ).				
06-HCI-B-ASQ-242-m01	Work experience as a research and teaching assistant	5	B/NB	8
Subject-specific Key Skills (15 ECTS credits)				
06-HCI-B-Ex-hib-242-m01	Exhibition & Entrepreneurship	5	B/NB	11
06-HCI-B-AT-242-m01	HCI Bachelor Seminar Current Trends	5	NUM	9
06-HCI-B-IAPT-242-m01	Interaction Prototyping	5	NUM	15
Thesis (12 ECTS credits)				
06-HCI-B-Thesis-242-m01	Bachelor's Thesis Human-Computer Interaction	12	NUM	26

Module title			Abbreviation
Digital Humanities in Overview			04-DH-A1-152-m01
Module coordinator			**Module offered by**
holder of the Chair of Digital Humanities and German Literature of the Modern Period			Chair of Digital Humanities and German Literature of the Modern Period
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

Overview of the discipline of digital humanities with a focus on abstraction, formalisation and data modelling as well as text encoding, the digital library and applications in the humanities.

Intended learning outcomes

Students are familiar with the core principles of digital humanities and have gained an overview of the discipline.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + T (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (approx. 60 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every winter semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Media Communication (2015)
Bachelor's degree (1 major, 1 minor) Pre- and Protohistoric Archaeology (2015)
Bachelor's degree (1 major, 1 minor) Pre- and Protohistoric Archaeology (Minor, 2015)
Bachelor's degree (1 major, 1 minor) Digital Humanities (Minor, 2015)
Bachelor's degree (2 majors) Pre- and Protohistoric Archaeology (2015)
Bachelor's degree (2 majors) Digital Humanities (2015)
Master's degree (1 major) General and Applied Linguistics (2016)
Master's degree (1 major) Media Communication (2016)
Bachelor's degree (1 major, 1 minor) Digital Humanities (2016)
Master's degree (1 major) Media Communication (2018)
Bachelor's degree (2 majors) Classical Archaeology (2018)
Bachelor's degree (1 major, 1 minor) Classical Archaeology (2018)
Bachelor's degree (1 major, 1 minor) Digital Humanities (2018)
Bachelor's degree (1 major, 1 minor) Digital Humanities (Minor, 2018)

Bachelor's degree (2 majors) Digital Humanities (2018)
Master's degree (1 major) Media Communication (2019)
Bachelor's degree (1 major, 1 minor) European Ethnology (Minor, 2020)
Bachelor's degree (2 majors) European Ethnology (2020)
Bachelor's degree (1 major, 1 minor) Auxiliary Sciences of History (Minor, 2021)
Bachelor's degree (2 majors) Ancient Near Eastern Archaeology (2022)
Master's degree (1 major) Media Entertainment (2022)
Master's degree (1 major) Psychology of digital media (2022)
Master's degree (1 major) General and Applied Linguistics (2022)
Bachelor's degree (1 major) Franco-German studies: language, culture, digital competence (2022)
Bachelor's degree (2 majors) European Ethnology/Empiric Cultural Studies (2023)
Bachelor's degree (1 major, 1 minor) European Ethnology/Empiric Cultural Studies (Minor, 2023)
Bachelor's degree (1 major) Indology/South Asian Studies (2024)
Bachelor's degree (1 major, 1 minor) Indology/South Asian Studies (2024)
Bachelor's degree (2 majors) Digital Humanities (2024)
Bachelor's degree (1 major, 1 minor) Digital Humanities (2024)
Bachelor's degree (1 major, 1 minor) Digital Humanities (Minor, 2024)
Bachelor's degree (1 major) Human-Computer-Interaction (2024)
Bachelor's degree (1 major) Classics (2024)
Bachelor's degree (1 major, 1 minor) European Ethnology/Empiric Cultural Studies (2025)

Module title			Abbreviation
Work experience as a research and teaching assistant			06-HCI-B-ASQ-242-m01
Module coordinator		**Module offered by**	
chairperson of examination committee of the Bachelor's degree programme Human-Computer Interaction		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The students work as tutors (research and/or teaching assistants) in the context of the Bachelor's program Human-Computer Interaction (HCI) and/or the Master's program Human-Computer Interaction (HCI, German: Mensch-Computer-Interaktion). The work tasks are determined individually and include typical activities from the academic work environment.

Intended learning outcomes

After participating in this module, students will be able to moderate learning processes, lead discussions and conduct results-oriented conversations with students. They are able to recognize progress and stagnation of individual project groups or project participants and provide assistance or offer problem-solving strategies. Competencies are taught in two areas. In the course of working as a teacher, participants will learn to teach others in topics related to the field of HCI. They will gain a better understanding of the problems students encounter in learning. While working as a research assistant, participants will gain hands-on experience with the methods of scientific work.

Courses (type, number of weekly contact hours, language — if other than German)

P (0)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report (approx. 2 pages)

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
HCI Bachelor Seminar Current Trends			06-HCI-B-AT-242-m01
Module coordinator		**Module offered by**	
chairperson of examination committee of the Bachelor's degree programme Human-Computer Interaction		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module provides an introduction to typical scientific research work with a focus on human-computer systems topics. Content includes the use of scientific media (conference proceedings, journals, books, etc.) and the presentation of scientific content. Students search for and analyze scientific publications in relation to a specific research question. Analysis involves identifying relevant content, synthesizing it into coherent arguments, and critiquing it. Students present the results of their analysis to other participants with an oral presentation.

Intended learning outcomes

After participating in the module courses, students will be able to understand relevant information from scientific texts and identify and interpret the important key points. They will be able to summarize these and compare and evaluate them with other results and present the overall results to a specialized audience.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

presentation (approx. 20 minutes) with handout (approx. 5 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Interface & Interaction Design			06-HCI-B-Design-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Psychological Ergonomics		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

Visual design is not only fundamental for the appearance of interfaces and media, but also for their comprehensibility and usability. The module provides an overview of design topics such as color, fonts & typography, layout & grids, applied design theory, visual language & figurative signs as well as corporate design. In addition, students learn the practical use of a design program. Design tasks are used to try out and practice what has been learned.

Intended learning outcomes

After participating in the module courses, students will be able to describe and apply basic rules of visual design. They can justify their own design decisions and analyze and evaluate designs.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Unless otherwise specified, the following methods can be chosen from for assessment in the specialisations Human-Computer Systems:
a) written examination (approx. 90 minutes) or
b) presentation (approx. 20 minutes) and handout (approx. 5 pages) or
c) presentation of project results (approx. 30 minutes) or
d) presentation (approx. 45 minutes) or
e) oral examination of one candidate each (approx. 30 minutes) or
f) term paper (approx. 10 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: not regularly

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Exhibition & Entrepreneurship			06-HCI-B-Exhib-242-m01
Module coordinator		**Module offered by**	
chairperson of examination committee of the Bachelor's degree programme Human-Computer Interaction		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
	undergraduate	--	

Contents

Presentation and communication are important skills for application-oriented and practical aspects of various sciences. This is specifically true for Human-Computer Interaction (HCI). This course requires the participants to present the results of an associated thesis to a larger audience in a and exhibition-like setup.

Intended learning outcomes

The participants will learn how to present their own work to a larger audience, how to plan, design and set-up the different parts of an own exhibition booth, and how to react individually to questions from the audience.

Courses (type, number of weekly contact hours, language — if other than German)

S (1)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

presentation of results of HCI Bachelor's thesis (approx. 15 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Research Methods			06-HCI-B-FM-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Psychological Ergonomics		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module provides basic knowledge about methods of gaining knowledge in human-computer systems. These include scientific theoretical basics, identification of questions, formulation of hypotheses, securing suitable measurement methods, selection of research paradigms and data collection methods, as well as evaluation and interpretation of research results. In the exercise, the above points are practiced practically by means of tasks such as smaller experiments, data evaluation and the preparation of a research report.

Intended learning outcomes

After participating in the module courses, students are able to investigate empirical questions in human-computer systems using the appropriate scientific methods. The students are able to reproduce basic terms and methods, formulate and comprehend questions, and decide on and apply suitable survey and evaluation methods. The students are able to critically examine the methods of others and their own work and have knowledge of the structure and writing of scientific reports.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (approx. 90 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: only in winter semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Foundations of Human-Computer-Interaction			06-HCI-B-GLHCI-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

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Intended learning outcomes

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Courses (type, number of weekly contact hours, language — if other than German)

V (3) + Ü (1)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (approx. 120 minutes) or
b) presentation (30 to 60 minutes) or
c) oral examination of one candidate each (30 to 60 minutes)
If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: only in winter semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Foundations of Psychological Ergonomics			06-HCI-B-GLPE-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Psychological Ergonomics		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module conveys content from general psychology, cognitive and physical ergonomics for students of human-computer interaction. The content focuses on the cognitive abilities of humans from general psychology (perception and visual and auditory information processing, cognitive information processing, memory, attention, decision-making), cognitive ergonomics (design of displays and controls, automation, mental workload) and physical ergonomics (anthropometry, biomechanics). The basics are illustrated and deepened by carrying out demonstrations and small experiments and using practical examples from human-machine interaction. In addition, general design principles for human-machine interaction are derived from the findings of general psychology and cognitive and physical ergonomics.

Intended learning outcomes

After participating in the module courses, students have acquired basic specialist skills. They will be able to reproduce specific findings from general psychology and cognitive and physical ergonomics. They can apply this knowledge in relation to human-machine interaction and review and evaluate existing technical systems.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (1)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (approx. 90 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: only in winter semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Interaction Prototyping			06-HCI-B-IAPT-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Psychological Ergonomics		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This course teaches the relevance of interactive prototypes in different modalities. Students learn to quickly generate and sketch many ideas and select appropriate design solutions from them. Students will be able to implement prototyping techniques for web & apps, conversational interfaces, and tangible and embodied interaction as part of a semester-long project.

Intended learning outcomes

After taking the module courses, students will be able to develop designs of interactive prototypes in various formats, applying guidelines of design and documenting them for the next development steps.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) presentation (approx. 20 minutes) with handout (approx. 5 pages) or
b) presentation of project results (approx. 30 minutes) or
c) term paper (approx. 10 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: only in summer semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Inclusive Design & Accessibility			06-HCI-B-IDA-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Psychological Ergonomics		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

In this module, fundamentals of accessibility and inclusive design from a human-computer interaction perspective are covered and practiced. Central topics are design for important target groups (e.g. people with visual impairments, elderly people, people with dementia), methods for estimating exclusion, basic technologies for increasing accessibility, principles of universal design and approaches of inclusive design. The content will be taught interactively and applied in a small accompanying project.

Intended learning outcomes

After participating in the module events, students are able to characterize user groups with diverse abilities and limitations. The students are able to independently compile, summarize and evaluate relevant excerpts from the specialist literature. In the project they generate user-oriented design solutions. They develop their communicative competencies and their own values in relation to their fellow human beings with special needs.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) presentation (approx. 20 minutes) with handout (approx. 5 pages) or
b) term paper (approx. 10 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: only in winter semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Methods for Human-Centered Design			06-HCI-B-MBG-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Psychological Ergonomics		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module is about teaching methods of requirements analysis and the design of user interfaces of interactive products. The methods are introduced in the lecture part of the course. Selected methods are tested by the students on examples in the exercise part of the course. In a team, they develop a product concept and carry out the first phases of a user-centered design process from context of use and requirements analysis to the design of design solutions and a tested low-fidelity prototype.

Intended learning outcomes

After participating in the module courses, students are able to apply selected methods for context of use and requirements analysis as well as for the design of human-technology interaction. They will be able to contrast the methods and assess the usefulness of individual methods for specific goals and apply the methods to the design of an interactive system. Project work promotes independent planning, communication and cooperation in groups as well as the ability to resolve conflicts.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (4)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) project report (approx. 12 pages) or
b) oral examination of one candidate each (approx. 30 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

300 h

Teaching cycle

Teaching cycle: only in summer semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Media Psychology for HCI Bachelor			06-HCI-B-MedPsy-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Media Psychology		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

Media psychology deals with human experiences and behaviour while interacting with media. Media psychology develops theories and tests these in empirical studies. This introductory module aims to equip students with fundamental knowledge about the subject of media psychology (e. g. traditional media and mass media) as well as its theories, findings, and methods. The module focuses on the introduction to a) the subject itself, theories, and findings of media psychology b) research fields and current problems in media psychology c) methods in media psychology.

Intended learning outcomes

Students should be familiar with central concepts and methods of media psychology. They should have a basic knowledge of the subject-specific questions and should understand the relevance and importance of a psychological perspective as well as the relevance of questions in the field of the social sciences. Thus, a basis is provided for academic work as well as for acquiring practically relevant (vocationally oriented) media skills.

Courses (type, number of weekly contact hours, language — if other than German)

V (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (approx. 50 minutes) or
b) oral examination of one candidate each (approx. 20 minutes) or
c) oral examination in groups of up to 4 candidates (approx. 20 minutes per candidate)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: depending on the offer

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Psychology of Online and Mobile Communication for HCI Bachelor			06-HCI-B-OMK-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Psychology of Communication and New Media		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module is aimed at providing an introduction in the scientific psychological perspective on online and mobile media use. Basic theories and results on human experience and behavior in the context of online and mobile communication are introduced.

Intended learning outcomes

This module is aimed at providing an introduction in the scientific psychological perspective on online and mobile media use. Basic theories and results on human experience and behavior in the context of online and mobile communication are introduced.

Courses (type, number of weekly contact hours, language — if other than German)

V (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (approx. 50 minutes) or
b) oral examination of one candidate each (approx. 20 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

5 places.
Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters. Among applicants with the same number of subject semesters, places will be allocated by lot.

Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: depending on the offer

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Persuasive Interaction			06-HCI-B-PIA-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Psychological Ergonomics		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

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Intended learning outcomes

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Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Unless otherwise specified, the following methods can be chosen from for assessment in the specialisations Human-Computer Systems:
a) written examination (approx. 90 minutes) or
b) presentation (approx. 20 minutes) and handout (approx. 5 pages) or
c) presentation of project results (approx. 30 minutes) or
d) presentation (approx. 45 minutes) or
e) oral examination of one candidate each (approx. 30 minutes) or
f) term paper (approx. 10 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
HCI Bachelor Project			06-HCI-B-Proj-242-m01
Module coordinator			**Module offered by**
chairperson of examination committee of the Bachelor's degree programme Human-Computer Interaction			Institute of Human Computer Media
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

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Intended learning outcomes

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Courses (type, number of weekly contact hours, language — if other than German)

Ü (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report (approx. 10 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

300 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Propaedeutic Course Bachelor's Thesis			06-HCI-B-Prop-242-m01
Module coordinator			**Module offered by**
--			Institute of Human Computer Media
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
7	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

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Intended learning outcomes

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Courses (type, number of weekly contact hours, language — if other than German)

S (4)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

term paper (approx. 10 pages)
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

210 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Selected Areas of Psychology			06-HCI-B-SGP-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Psychological Ergonomics		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

In the lecture, the module for human-computer interaction studies teaches fundamentals of psychology in the sub-aspects: Emotional and Motivational Psychology, Social Psychology, Personality and Differential Psychology, and Organizational Psychology. In the exercise, examples are given of how this knowledge can be applied or researched in human-computer interaction.

Intended learning outcomes

After participating in the module courses, the students are able to reproduce the basics of the sub-aspects of psychology and to delineate the individual sub-aspects. Furthermore, the students are able to recognize and evaluate the relevance of the sub-aspects in the human-computer interaction. The exercise enables the students to present and discuss the contents.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (1)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (approx. 90 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: only in summer semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Statistics 1			06-HCI-B-STAT-1-242-m01
Module coordinator		**Module offered by**	
holder of the Professorship of Psychological Research Methods		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module provides advanced knowledge of inferential statistics (sampling, estimation principles, confidence intervals, theory of Null hypothesis testing, parametric and nonparametric methods for univariate and bivariate data sets, tests of equivalence, contingency table analysis, analysis of variance). After the principles of statistical data analysis are discussed, computational procedures using computer-based data analysis are trained with examples and tested in the final exam.

Intended learning outcomes

Students possess knowledge of various inferential procedures and their foundations as well as the ability to select adequate statistical methods for testing empirical questions e.g. from evaluation research, perform these correctly, display the results reasonably and interpret them correctly.

Courses (type, number of weekly contact hours, language — if other than German)

S (4) + Ü (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (approx. 120 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Statistics 2			06-HCI-B-STAT-2-242-m01
Module coordinator		**Module offered by**	
holder of the Professorship of Psychological Research Methods		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module provides advanced knowledge of inferential statistics (sampling, estimation principles, confidence intervals, theory of Null hypothesis testing, parametric and nonparametric methods for univariate and bivariate data sets, tests of equivalence, contingency table analysis, analysis of variance). After the principles of statistical data analysis are discussed, computational procedures using computer-based data analysis are trained with examples and tested in the final exam.

Intended learning outcomes

Students possess knowledge of various inferential procedures and their foundations as well as the ability to select adequate statistical methods for testing empirical questions e.g. from evaluation research, perform these correctly, display the results reasonably and interpret them correctly.

Courses (type, number of weekly contact hours, language — if other than German)

S (4) + Ü (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (approx. 120 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Bachelor's Thesis Human-Computer Interaction			06-HCI-B-Thesis-242-m01
Module coordinator		**Module offered by**	
chairperson of examination committee of the Bachelor's degree programme Human-Computer Interaction		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
12	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

Students work independently on an assigned problem from the research area of human-computer interaction (HCI) and document their results according to scientific standards.

Intended learning outcomes

After participation in the module, participants are able to independently apply scientific methods of human-computer interaction to a thematically defined problem. They recognize and interpret subject-specific questions of the problem. They compare, interpret and evaluate analogous problems and remember the necessary methods to answer them. They organize and implement a structured processing and solution process. They document and illustrate their solution process and interpret the results.

Courses (type, number of weekly contact hours, language — if other than German)

No courses assigned to module

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Bachelor's thesis (approx. 30 pages)
Language of assessment: German or English

Allocation of places

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Additional information

Time to complete: 12 weeks.

Workload

360 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Usability and User Experience Evaluation			06-HCI-B-Usab-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Psychological Ergonomics		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module is about teaching and applying analytical and empirical evaluation methods for usability and user experience of interactive products. The methods are introduced in the lecture part of the course. Selected methods are tested by the students on examples in the exercise part of the course. Furthermore, the students evaluate two interactive products independently in small groups. The task consists of planning, conducting, evaluating and presenting the results of a usability study and includes a critical comparison of methods.

Intended learning outcomes

After participating in the module courses, students will be able to apply analytical and empirical methods for evaluating interactive products, present them in writing and critically evaluate them. They will be able to plan, conduct and evaluate evaluation studies. From the analysis of the results, they develop suggestions for the revision of interactive products. Through project work in small groups, their general problem-solving ability, communicative competence, cooperation skills and self-competence to develop their own willingness to perform.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (4)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) project report (approx. 12 pages) or
b) oral examination of one candidate each (approx. 30 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

3 places. The indicated number of places will be allocated to students of the subject Digital Humanities (Master of Arts with 120 ECTS credits). Places will be allocated primarily according to the number of subject semesters; among applicants with the same number of subject semesters, places will be allocated by lot.

Additional information

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Workload

300 h

Teaching cycle

Teaching cycle: only in winter semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Specialization HCI Bachelor 1			06-HCI-B-V1-242-m01
Module coordinator		**Module offered by**	
chairperson of examination committee of the Bachelor's degree programme Human-Computer Interaction		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

In this module, the contents of the degree courses are deepened and references to neighboring sciences are made, which expand and deepen the skills already acquired, e.g. media communication, business informatics, interaction design, sociology of technology, psychology, computer science, museology, digital humanities, geography, etc.

Intended learning outcomes

After participating in this module, students will be able to name and explain typical problems and methods in their own subject as well as in related fields of science and application. They develop methodological competence, communicative competence, cooperation skills and the ability to deal with conflicts in interdisciplinary cooperation.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Unless otherwise specified, the following methods can be chosen from for assessment in the specialisations Human-Computer Systems:
a) written examination (approx. 90 minutes) or
b) presentation (approx. 20 minutes) and handout (approx. 5 pages) or
c) presentation of project results (approx. 30 minutes) or
d) presentation (approx. 45 minutes) or
e) oral examination of one candidate each (approx. 30 minutes) or
f) term paper (approx. 10 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Specialization HCI Bachelor 2			06-HCI-B-V2-242-m01
Module coordinator		**Module offered by**	
chairperson of examination committee of the Bachelor's degree programme Human-Computer Interaction		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

In this module, the contents of the degree courses are deepened and references to neighboring sciences are made, which expand and deepen the skills already acquired, e.g. media communication, business informatics, interaction design, sociology of technology, psychology, computer science, museology, digital humanities, geography, etc.

Intended learning outcomes

After participating in this module, students will be able to name and explain typical problems and methods in their own subject as well as in related fields of science and application. They develop methodological competence, communicative competence, cooperation skills and the ability to deal with conflicts in interdisciplinary cooperation.

Courses (type, number of weekly contact hours, language — if other than German)

V/S (2) + Ü/T (1)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Unless otherwise specified, the following methods can be chosen from for assessment in the specialisations Human-Computer Systems:
a) written examination (approx. 90 minutes) or
b) presentation (approx. 20 minutes) and handout (approx. 5 pages) or
c) presentation of project results (approx. 30 minutes) or
d) presentation (approx. 45 minutes) or
e) oral examination of one candidate each (approx. 30 minutes) or
f) term paper (approx. 10 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Specialisation Human Factors			06-HCI-B-VHuFa-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Psychological Ergonomics		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

In this module, students are introduced to safety-critical and complex work areas in which human factors play a major role (e.g. aviation, acute medicine, traffic). For this purpose, (1) a work area with its specific requirements for the design of the human-computer interaction is introduced, (2) current problems and research topics in this area are discussed and (3) possibilities and limits are discussed on applying HCI knowledge and research to solving problems in this domain. Excursions to safety-critical work places are also planned as part of the seminar.

Intended learning outcomes

After participating in this module, students will be able to assess how human-computer interaction must be designed in context through insight and contacts in safety-critical socio-technical work areas. Furthermore, students will be able to analyze these interfaces from a safety-critical point of view and taking into account work area-specific features, and to incorporate these results into designs of new interfaces. The excursions offer an insight into fields in which internships or project and thesis work are relevant and also represent a potential professional field.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Unless otherwise specified, the following methods can be chosen from for assessment in the specialisations Human-Computer Systems:
a) written examination (approx. 90 minutes) or
b) presentation (approx. 20 minutes) and handout (approx. 5 pages) or
c) presentation of project results (approx. 30 minutes) or
d) presentation (approx. 45 minutes) or
e) oral examination of one candidate each (approx. 30 minutes) or
f) term paper (approx. 10 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Experience as a tester or subject in experiments			06-HCI-B-VPS-242-m01
Module coordinator		**Module offered by**	
chairperson of examination committee of the Bachelor's degree programme Human-Computer Interaction		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
1	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

Empirical studies and controlled experiments are the central methods of scientific procedure. Typically, students learn to design and execute experiments from the perspective of the person conducting the experiment. In this module, students switch sides and participate in experiments, not as leaders, but as subjects. Detailed information on the distribution of subject hours among the various work areas of the Institute Human-Computer Media can be found on the degree program's website.

Intended learning outcomes

After participating in the module courses, students will be able to recognize how subjects perceive empirical studies. They can deduce which positive and negative aspects an empirical study can have from the perspective of a test subject.

Courses (type, number of weekly contact hours, language — if other than German)

P (0)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Acting as a participant in experiments (30 hours)

Allocation of places

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Additional information

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Workload

30 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Specialisation Usability			06-HCI-B-VUsab-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Psychological Ergonomics		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

In this module, the content, methods and applications of usability research are taught in depth, i.e. the design of human-computer interaction along the criteria of effectiveness, efficiency and satisfaction during use. Examples of application come from industrial use, public and private space.

Intended learning outcomes

After participating in this module, students will be able to name the principles of selected usability methods and domains and will be able to design user interfaces themselves as well as conduct studies to investigate issues in the field of human-computer interaction. Furthermore, they are able to explain the advantages and disadvantages of different usability methods, analyze and evaluate empirical studies as well as design solutions.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Unless otherwise specified, the following methods can be chosen from for assessment in the specialisations Human-Computer Systems:
a) written examination (approx. 90 minutes) or
b) presentation (approx. 20 minutes) and handout (approx. 5 pages) or
c) presentation of project results (approx. 30 minutes) or
d) presentation (approx. 45 minutes) or
e) oral examination of one candidate each (approx. 30 minutes) or
f) term paper (approx. 10 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Specialisation User Experience			06-HCI-B-VUsEx-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Psychological Ergonomics		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

This module provides in-depth content, methods and applications of user experience research, i.e. the design of human-computer interaction with regard to a good user experience. Examples of application come from the public and private spheres and include, for example, customer satisfaction, persuasive interfaces, aesthetic design and service design.

Intended learning outcomes

After participating in this module, students will be able to name the principles of selected user experience methods and domains and will be able to design user interfaces themselves as well as conduct studies to investigate corresponding questions from the field of human-computer interaction. Furthermore, they will be able to explain the advantages and disadvantages of different user experience methods, analyze and evaluate empirical studies as well as design solutions.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Unless otherwise specified, the following methods can be chosen from for assessment in the specialisations Human-Computer Systems:
a) written examination (approx. 90 minutes) or
b) presentation (approx. 20 minutes) and handout (approx. 5 pages) or
c) presentation of project results (approx. 30 minutes) or
d) presentation (approx. 45 minutes) or
e) oral examination of one candidate each (approx. 30 minutes) or
f) term paper (approx. 10 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Selected topics of Computer Science Bachelor			10-HCI-B-AK-242-m01
Module coordinator		**Module offered by**	
Dean of Studies Informatik (Computer Science)		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

Selected topics in computer science.

Intended learning outcomes

The students are able to understand the solutions to complex problems in computer science and to transfer them to related questions.

Courses (type, number of weekly contact hours, language — if other than German)

V/S (2) + Ü/T (1)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Unless otherwise specified, the following methods can be chosen from for assessment in the specialisations Human-Computer Systems:
a) written examination (approx. 90 minutes) or
b) presentation (approx. 20 minutes) and handout (approx. 5 pages) or
c) presentation of project results (approx. 30 minutes) or
d) presentation (approx. 45 minutes) or
e) oral examination of one candidate each (approx. 30 minutes) or
f) term paper (approx. 10 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Introduction to Programming (HCI)			10-HCI-B-EinP-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science II		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module teaches basic concepts of programming. This includes an introduction to object orientation, procedural programming, data types, and control structures. The lecture teaches the theory with practical examples in the programming languages Java, C, C++ as well as an excursus on scripting languages. In the exercise, students apply the theory practically and develop small to medium-sized, high-quality Java programs.

Intended learning outcomes

After participating in the module courses, students will be able to develop initial, small to medium-sized, high-quality Java programs. Students know basic concepts of programming and can apply them.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (60 to 120 minutes)
If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: only in winter semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Introductory Programming Course (HCI)			10-HCI-B-EPP-242-m01
Module coordinator		**Module offered by**	
Dean of Studies Informatik (Computer Science)		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module provides advanced knowledge about the development of small to medium sized, high quality Java programs. During the internship, students solve programming tasks independently. Regular tutorials support students in this.

Intended learning outcomes

After participating in the module courses, students will be able to independently develop small to medium sized, high quality Java programs.

Courses (type, number of weekly contact hours, language — if other than German)

P (3)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

practical examination (programming exercises, approx. 240 hours) and written examination (approx. 60 to 120 minutes)
If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Foundations Algorithms and Data Structures (HCI)			10-HCI-B-GADS-242-m01
Module coordinator		**Module offered by**	
Dean of Studies Informatik (Computer Science)		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

Design and analysis of algorithms, recursion vs. iteration, sort and search methods, data structures, abstract data types, lists, trees, graphs, basic graph algorithms, programming in Java.

Intended learning outcomes

The students master to independently design algorithms, to describe them precisely and to analyze them. The students know the basic paradigms of the design of algorithms and are able to apply them to practical programs. The students are able to estimate the run time behaviour of algorithms and to prove their correctness.

Courses (type, number of weekly contact hours, language — if other than German)

V (4) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (60 to 120 minutes)
If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).
creditable for bonus

Allocation of places

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Additional information

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Workload

300 h

Teaching cycle

Teaching cycle: only in winter semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Human-AI Interaction			10-HCI-B-HAI-242-m01
Module coordinator			**Module offered by**
holder of the Professorship of Psychology of Intelligent Interactive Systems			Institute of Human Computer Media
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

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Intended learning outcomes

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Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (60 to 120 minutes) or
b) project work (examination of one candidate each or in groups of up to 4 candidates, approx. 150 hours per candidate) with final presentation in groups of up to 4 candidates (approx. 15 minutes per candidate) or
c) term paper (10 to 15 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: only in summer semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Interactive Systems Hands-On			10-HCI-B-ICGT-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

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Intended learning outcomes

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Courses (type, number of weekly contact hours, language — if other than German)

Ü (1) + T (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (60 to 120 minutes) or
b) project work (examination of one candidate each or in groups of up to 3 candidates, approx. 150 hours per candidate) with final presentation in groups of up to 3 candidates (approx. 20 minutes per candidate)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: only in summer semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Interactive Computer Graphics			10-HCI-B-ICGV-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module provides fundamental knowledge of the development process of a rendering framework for digital synthesis and manipulation of visual content in the context of interactive 3D computer graphics. This includes light-matter interaction, illumination models, image formats, data representation, mathematical formulations of motion and projections, and texturing techniques. The required activities are performed independently in groups of 3 students. Accompanying exercises, software assignments, and discussions assist students in using typical graphics software packages and languages such as WebGL, OpenGL, GLSL, and/or DirectX, as well as organizing the project as a whole.

Intended learning outcomes

After participating in the module courses, students will be able to independently develop key components for digital synthesis and manipulation of visual content in the context of interactive 3D computer graphics. Students will have a sound understanding of the operation of modern software packages for digital synthesis and manipulation of visual content.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (60 to 120 minutes)
If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: only in summer semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Interactive Systems Bachelor 1			10-HCI-B-IS1-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module teaches basic requirements, concepts and practical solutions in the field of interactive systems. A special focus is on systems for the realization of human-computer interaction, in which user and computer form a common system in a closed input-output loop and requirements of different degrees of reactivity up to real-time are crucial. Possible examples include classical graphical interfaces, web-based solutions, and virtual and augmented reality systems.

Intended learning outcomes

After participating in the module courses, students are able to identify basic capabilities and properties of today's computer systems with regard to their interactivity and to derive technical measures for their realization. Students will be able to select and evaluate suitable solution approaches and tools for tasks in the field of interactive systems development. Furthermore, students are able to develop alternative approaches for future interactive systems.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (approx. 90 minutes) or
b) presentation (approx. 20 minutes) and handout (approx. 5 pages) or
c) presentation of project results (approx. 30 minutes) or
d) presentation (approx. 45 minutes) or
e) oral examination of one candidate each (approx. 30 minutes) or
f) term paper (approx. 10 pages)
Unless otherwise specified, the methods can be chosen from for assessment in the specialisations Human-Computer Systems.
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Interactive Systems Bachelor 2			10-HCI-B-IS2-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module teaches basic requirements, concepts and practical solutions in the field of interactive systems. A special focus is on systems for the realization of human-computer interaction, in which user and computer form a common system in a closed input-output loop and requirements of different degrees of reactivity up to real-time are crucial. Possible examples include classical graphical interfaces, web-based solutions, and virtual and augmented reality systems.

Intended learning outcomes

After participating in the module courses, students are able to identify basic capabilities and properties of today's computer systems with regard to their interactivity and to derive technical measures for their realization. Students will be able to select and evaluate suitable solution approaches and tools for tasks in the field of interactive systems development. Furthermore, students are able to develop alternative approaches for future interactive systems.

Courses (type, number of weekly contact hours, language — if other than German)

V/S (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Unless otherwise specified, the following methods can be chosen from for assessment in the specialisations Human-Computer Systems:
a) written examination (approx. 90 minutes) or
b) presentation (approx. 20 minutes) and handout (approx. 5 pages) or
c) presentation of project results (approx. 30 minutes) or
d) presentation (approx. 45 minutes) or
e) oral examination of one candidate each (approx. 30 minutes) or
f) term paper (approx. 10 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Interactive Systems Bachelor 3			10-HCI-B-IS3-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module teaches basic requirements, concepts and practical solutions in the field of interactive systems. A special focus is on systems for the realization of human-computer interaction, in which user and computer form a common system in a closed input-output loop and requirements of different degrees of reactivity up to real-time are crucial. Possible examples include classical graphical interfaces, web-based solutions, and virtual and augmented reality systems.

Intended learning outcomes

After participating in the module courses, students are able to identify basic capabilities and properties of today's computer systems with regard to their interactivity and to derive technical measures for their realization. Students will be able to select and evaluate suitable solution approaches and tools for tasks in the field of interactive systems development. Furthermore, students are able to develop alternative approaches for future interactive systems.

Courses (type, number of weekly contact hours, language — if other than German)

R (0)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

Unless otherwise specified, the following methods can be chosen from for assessment in the specialisations Human-Computer Systems:
a) written examination (approx. 90 minutes) or
b) presentation (approx. 20 minutes) and handout (approx. 5 pages) or
c) presentation of project results (approx. 30 minutes) or
d) presentation (approx. 45 minutes) or
e) oral examination of one candidate each (approx. 30 minutes) or
f) term paper (approx. 10 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: every semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Introduction to Higher Mathematics I			10-HCI-B-Math-I-242-m01
Module coordinator		**Module offered by**	
--		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

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Intended learning outcomes

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Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (1)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (60 to 120 minutes) or
b) oral examination of one candidate each or in groups of up to 2 candidates (15 to 30 minutes per candidate) or
c) project work (e. g. written solutions and corresponding explanations, 10 to 15 pages total)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: only in winter semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Introduction to Higher Mathematics II			10-HCI-B-Math-II-242-m01
Module coordinator			**Module offered by**
--			Institute of Human Computer Media
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

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Intended learning outcomes

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Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (1)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (60 to 120 minutes) or
b) oral examination of one candidate each or in groups of up to 2 candidates (15 to 30 minutes per candidate) or
c) project work (e. g. written solutions and corresponding explanations, 10 to 15 pages total)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Media Informatics for HCI Bachelor			10-HCI-B-MI-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

Practical experience is a necessary skill for application-oriented aspects of various sciences. This is specifically true for human-computer interaction (HCI) which incorporates engineering as well as empirical work skills. This course assigns a well-defined project or task to (teams of) students which they have to solve largely on their own. The topic will be in the area of human-computer interaction with a strong focus on the engineering, aka computer science, part of HCI.

Intended learning outcomes

At the end of the course, the participants will have gained a good understanding of how to solve a coherent problem, using typical HCI skills. They will have learned how to collaborate with colleagues and to define, distribute and execute individual work packages.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü/T (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (approx. 50 minutes) or
b) oral examination of one candidate each (approx. 20 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: only in winter semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Machine Learning			10-HCI-B-ML-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The lecture module provides a broad introduction to machine learning, data mining, gesture processing, and statistical pattern recognition. Topics include: (i) Supervised learning (parametric/non-parametric algorithms, support vector machines, kernels, neural networks). (ii) Unsupervised learning (clustering, dimensionality reduction, recommender systems, deep learning). (iii) Machine learning best practices (data preparation, bias/variance theory, hyperparameter search). To this end, numerous case studies and applications will be presented from gesture-based and multimodal interfaces, text and speech recognition (web search, anti-spam), intelligent robots (perception, control), machine vision, medical informatics, data mining, and other areas. In the exercise, students independently develop a machine learning algorithm from scratch in groups of 2-3 participants. They train and optimize their algorithm to recognize body gestures used to control a given application. Presentations, exercises and discussions help the student groups to familiarize themselves with the required technologies and activities and to organize the project as a whole.

Intended learning outcomes

After participating in the module courses, students are able to recognize basic application scenarios for machine learning methods. They remember subject-specific approaches and can apply them to different problems. They can summarize, compare and explain different approaches and evaluate their performance. They can apply available tools to typically occurring tasks and know their advantages and disadvantages. Furthermore, you can independently familiarize yourself with complex technical systems as well as independently develop problem-solving proposals, communicate these in a team and integrate them in a prototype.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) presentation of project results (approx. 30 minutes) or
b) oral examination of one candidate each (approx. 30 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: only in winter semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Development of Graphical User Interfaces			10-HCI-B-SPSE-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	numerical grade	10-HCI-B-EinP and 10-HCI-B-EPP	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	Intended learning outcomes of the following module are required: 10-HCI-B-GADS. It is therefore strongly recommended to complete this before.	

Contents

The development of software typically is a complex process that requires the collaboration of a group of people carrying out many different roles. The activities required for this process include requirements engineering, software architecture design, programming, testing and integration. These activities can be organised by following one of many software development methodologies, like Scrum, waterfall, iteration, V-shaped, spiral or Extreme programming. This course involves the development of a non-trivial application by a group of 4-5 students. The application's graphical user interface is of central importance. Along the way, presentations, exercises and discussions support the student groups in increasing their teamwork efficiency, familiarising themselves with required technologies and activities as well as organising the overall project. The technologies utilised are regularly adapted to current well-established approaches, e. g. git, HTML, CSS, JavaScript, and SQL.

Intended learning outcomes

At the end of the course, the participants will have a fundamental understanding of a collaborative software development process. This includes in particular best practices for effectively working as a team, such as evaluation methods, communication of expectations and dealing with problems. In addition to these soft skills, the course "Softwarepraktikum Schnittstellenentwurf" ("Programming Course Interface Development") will teach students how to gather, analyse, specify and validate software requirements and to independently familiarise themselves with new software technologies and frameworks. In addition, students will enhance their basic programming skills (which are a prerequisite for participation in this course) during the project's implementation phase.

Courses (type, number of weekly contact hours, language — if other than German)

Ü (4)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

presentation of project results (approx. 20 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

300 h

Teaching cycle

Teaching cycle: only in winter semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Software Quality			10-HCI-B-SQ-242-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

The module teaches techniques and practices for creating high-quality software. Specifically, principles of typical software requirements such as reliability, testability, accuracy, security, reusability, maintainability, and efficiency in terms of runtime behavior and resource consumption are presented and discussed. Programming guidelines and source code examples are used to teach concepts, techniques and tools for creating professional quality code and high quality software products.

Intended learning outcomes

After participating in the module courses, students will be able to recall, summarize, explain, and implement theory and methods for creating high-quality software products. Students will be able to compare, describe, and develop testing techniques and software requirements specifications.

Courses (type, number of weekly contact hours, language — if other than German)

V (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (60 to 120 minutes)
If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: only in winter semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)

Module title			Abbreviation
Software Technology (HCI)			10-HCI-B-ST-242-m01
Module coordinator		**Module offered by**	
Dean of Studies Informatik (Computer Science)		Institute of Human Computer Media	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	undergraduate	--	

Contents

Object-oriented software development with UML, development of graphical user interfaces, basics of databases and object-relational mapping, basics of web programming (HTML, XML), software development processes, unified process, agile software development, project management, quality assurance.

Intended learning outcomes

The students possess basic and theoretical and practical knowledge to design and develop software systems.

Courses (type, number of weekly contact hours, language — if other than German)

V (2) + Ü (1)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (30 to 60 minutes)
If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: only in summer semester

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Bachelor's degree (1 major) Human-Computer-Interaction (2024)