Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

Subdivided Module Catalogue

for the Subject

Computational Humanities

as a degree subject in a Master's degree programme with 2 majors

(45 ECTS credits)

Examination regulations version: 2025
Responsible: Faculty of Arts, Historical, Philological, Cultural and Geographical Studies
Responsible: Faculty of Mathematics and Computer Science
Responsible: Institute of Computer Science

Learning Outcomes

German contents and learning outcome available but not translated yet.

Fachliche Ziele

- Die Absolventinnen und Absolventen können geistes- und kulturwissenschaftliches Wissen modellieren, daraus digitale Objekte erstellen und schließlich präsentieren. Sie beherrschen anspruchsvolle digitale geisteswissenschaftliche Werkzeuge, können digitale Textobjekte algorithmisch prozessieren und analysieren und - auch in großer Zahl - verwalten.
- Die Absolventinnen und Absolventen besitzen die Fähigkeit, Fragestellungen der Digital Humanities im Kontext der aktuellen Forschung zu operationalisieren, einen Workflow zu ihrer Beantwortung zu konzipieren, die nötigen Arbeitsschritte (s. o.) durchzuführen und das gesamte Projekt zu dokumentieren.

Befähigung, eine qualifizierte Erwerbstätigkeit aufzunehmen

- Die Absolventinnen und Absolventen besitzen die Fähigkeit, Fragestellungen der Digital Humanities zu analysieren, Verfahren zu deren Lösung zu entwickeln und in entsprechenden Arbeitsschritten umzusetzen.
- Die Absolventinnen und Absolventen können Problemzusammenhänge in mündlicher wie schriftlicher Form sachgerecht aufbereiten und - unter Medieneinsatz - zielgruppenspezifisch vermitteln.
- Durch die Auswahl bestimmter Module aus dem Wahlpflichtbereich kann ein Schwerpunkt "Data Science" gebildet werden. Ein entsprechendes Zertifikat ist in Vorbereitung (Herbst 2020).

Befähigung zum gesellschaftlichen Engagement

- Die Absolventinnen und Absolventen können gesellschaftliche und kulturelle Entwicklungen, Themen und Positionen in ihrer sprachlichen Verfasstheit und darüber hinaus reflektieren und analysieren. Sie sind in der Lage, sich in einer zunehmend komplexer werdenden Welt zu orientieren und eine Wertvorstellung für das eigene Denken und Handeln zu entwickeln.
- Die Absolventinnen und Absolventen sind in der Lage, geistes- und kulturwissenschaftliche Fragestellungen in die andere Diskurswelt der Informatik zu transferieren. Diese Vermittlerrolle trägt dazu bei, die eigene soziale, kulturgeschichtliche wie geschlechtliche Herkunft kritisch zu reflektieren.

Persönlichkeitsentwicklung

- Die Absolventinnen und Absolventen sind zur selbstständigen und kritischen Reflexion in der Lage und haben gelernt, ihre eigene Position im Dialog mit anderen zu finden, schriftlich und mündlich zu präsentieren und selbstkritisch zu hinterfragen.
- Den Absolventinnen und Absolventen stand die Möglichkeit offen, im Rahmen eines Auslandsaufenthalts internationale und interkulturelle Kompetenzen zu sammeln und eine interkulturelle Sensibilisierung zu erreichen.

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)):

07-May-2025 (2025-40)

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 (45 ECTS credits)				
10-I=AML-252-m01	Advanced Machine Learning	10	B/NB	19
10-I=MoNLP-252-m01	Modern Natural Language Processing	10	B/NB	21
04-CH=CH1-252-m01	Computational Humanities I	5	NUM	5
10-CH=CH2-252-m01	Computational Humanities II	5	NUM	13
04-CH=RI1-252-m01	Research Project Computational Humanities I	10	NUM	11
Compulsory Electives (5 ECTS credits)				
10-I=MMA3-252-m01	Multimedia Analysis 3	5	NUM	20
04-CH=CH3-252-m01	Computational Humanities III	5	NUM	6
04-CH=TM-252-m01	Temporal modeling	5	NUM	12
04-CH=CHD-252-m01	Cultural Heritage Data Management	5	NUM	7
04-CH=DE-252-m01	Digital Edition	5	NUM	9
10-CH=DT-252-m01	Digitization Technologies	5	NUM	14
04-CH=DA-252-m01	Principles of data annotation	5	NUM	8
04-CH=NFT-252-m01	New research avenues in Computational Humanities	5	NUM	10
10-CH=NFM-252-m01	New research methods in Computational Humanities	5	NUM	18
10-CH=HCI-252-m01	Foundations of Human-Computer-Interaction	5	NUM	15
Thesis (30 ECTS credits)				
10-CH=MT-252-m01	Master-Thesis Computational Humanities	25	NUM	17
10-CH=MK-252-m01	Concluding Colloquium Computational Humanities	5	NUM	16

Module title			Abbreviation
Computational Humanities I			04-CH=CH1-252-m01
Module coordinator			**Module offered by**
Chair of Digital Humanities and German Literature of the Modern Period			Faculty of Arts, Historical, Philological, Cultural and Geographical Studies
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

The course teaches the skills needed for the systematic analysis of written cultural data, e.g., literary texts or texts from social media. This includes the following tasks: Formulating a research hypothesis based on existing research and developing a research design to test it, automated extraction of specific text features including evaluation of the extraction method, and statistical analysis of the data.

Intended learning outcomes

Students are able to independently implement at least one typical research design in CH, make informed decisions about the extraction and analysis methods to be used, and implement them technically.

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

V (2) + Ü (2)
Module taught in: 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 (20 to 30 minutes) with written elaboration (3 to 5 pages) or
b) written examination (45 to 60 minutes) or
c) oral examination (approx. 20 minutes)
Language of assessment: 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 year, 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) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)

Module title	Abbreviation
Computational Humanities III	04-CH=CH3-252-m01

Module coordinator	Module offered by
Chair of Digital Humanities and German Literature of the Modern Period	Faculty of Arts, Historical, Philological, Cultural and Geographical Studies Institute of Computer Science

ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

The course teaches the necessary skills for the systematic analysis of cultural data, e.g., literary texts, music, images. This includes the following tasks: Formulating a research hypothesis in consultation with the state of the art and developing a research design to test it, automated extraction of specific features including evaluation of the extraction process, and statistical analysis of the data.

Intended learning outcomes

Students are able to independently implement at least one typical research design in CH, make informed decisions about the extraction and analysis methods to be used, and implement them technically.

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

V (2) + Ü (2)
Module taught in: 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 (20 to 30 minutes) with written elaboration (3 to 5 pages) or
b) written examination (45 to 60 minutes) or
c) oral examination (approx. 20 minutes)
Language of assessment: English
creditable for bonus

Allocation of places

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Additional information

Offering Institutions: Institute of Computer Science, Faculty of Arts, Historical, Philological, Cultural and Geographical Studies

Workload

150 h

Teaching cycle

Teaching cycle: every year, 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) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)

Module title	Abbreviation
Cultural Heritage Data Management	04-CH=CHD-252-m01

Module coordinator	Module offered by
Chair of Digital Humanities and German Literature of the Modern Period	Faculty of Arts, Historical, Philological, Cultural and Geographical Studies

ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Cultural data and research data from the cultural sciences and humanities often pose special challenges in terms of indexing, management and preservation. The data should often be usable for a long period of time and be available for very different applications, if possible also for scenarios that were not considered when the data was created. The seminar teaches relevant principles and techniques.

Intended learning outcomes

Students understand the challenges of cultural data management, can model cultural data and design and implement techniques for its management.

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

S (2)
Module taught in: 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 (20 to 30 minutes) with written elaboration (3 to 5 pages) or
b) written examination (45 to 60 minutes) or
c) oral examination (approx. 20 minutes)
Language of assessment: English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: if announced

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

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Module appears in

Master's degree (1 major) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)

Module title	Abbreviation
Principles of data annotation	04-CH=DA-252-m01

Module coordinator	Module offered by
Chair of Digital Humanities and German Literature of the Modern Period	Faculty of Arts, Historical, Philological, Cultural and Geographical Studies

ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Data annotation, i.e., the linking of concepts from the humanities and cultural studies with cultural data, is an essential tool for the development and evaluation of automatic processes in the CH. The seminar teaches the relevant work process from the development of annotation guidelines to their technical implementation in an annotation environment, the training of annotators, and the calculation of measures of inter-annotator agreement.

Intended learning outcomes

Students can independently develop an annotation and implement it themselves or supervise its implementation.

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

S (2)
Module taught in: 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 (20 to 30 minutes) with written elaboration (3 to 5 pages) or
b) written examination (45 to 60 minutes) or
c) oral examination (approx. 20 minutes)
Language of assessment: English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: if announced

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

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Module appears in

Master's degree (1 major) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)

Module title			Abbreviation
Digital Edition			04-CH=DE-252-m01
Module coordinator			**Module offered by**
Chair of Digital Humanities and German Literature of the Modern Period			Faculty of Arts, Historical, Philological, Cultural and Geographical Studies
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Digital editions make historical documents accessible and prepare them for the questions of a scientific audience. The module teaches the principles and techniques of designing, editing and presenting digital editions.

Intended learning outcomes

Students understand the functions and characteristics of digital editions and can independently take on roles in the conception, presentation or preparation of digital editions.

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

S (2)
Module taught in: 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 (20 to 30 minutes) with written elaboration (3 to 5 pages) or
b) written examination (45 to 60 minutes) or
c) oral examination (approx. 20 minutes)
Language of assessment: English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: if announced

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

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Module appears in

Master's degree (1 major) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)

Module title	Abbreviation
New research avenues in Computational Humanities	04-CH=NFT-252-m01

Module coordinator	Module offered by
Chair of Digital Humanities and German Literature of the Modern Period	Faculty of Arts, Historical, Philological, Cultural and Geographical Studies

ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Due to their close links to computer science and AI, CH are developing particularly rapidly, which makes it especially important to keep knowledge up to date. Current research trends are discussed using a selected example, e.g., the development of a new form of information representation, information extraction, or data analysis.

Intended learning outcomes

Insight into current research on a selected topic of CH. Acquisition of the competence to compile and understand current research on a selected topic.

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

S (2)
Module taught in: 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 (20 to 30 minutes) with written elaboration (3 to 5 pages) or
b) written examination (45 to 60 minutes) or
c) oral examination (approx. 20 minutes)
Language of assessment: English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: if announced

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

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Module appears in

Master's degree (1 major) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)

Module title	Abbreviation
Research Project Computational Humanities I	04-CH=RI1-252-m01

Module coordinator	Module offered by
Chair of Digital Humanities and German Literature of the Modern Period	Faculty of Arts, Historical, Philological, Cultural and Geographical Studies Institute of Computer Science

ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

The research project gives students the opportunity to independently apply what they have learned so far to a topic of their own choosing. Ideally, they should work on a research question from the formulation of the research hypothesis to data collection and analysis, or at least complete a significant step in the process.

Intended learning outcomes

Students are able to work on a problem in the CH, develop procedures for solving it, implement these in appropriate steps, and present the results.

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

R (0)
Module taught in: 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 project essay (12 to 20 pages)
Language of assessment: English
creditable for bonus

Allocation of places

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Additional information

Offering Institutions: Institute of Computer Science, Faculty of Arts, Historical, Philological, Cultural and Geographical Studies

Workload

300 h

Teaching cycle

Teaching cycle: every year, 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) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)

Module title	Abbreviation
Temporal modeling	04-CH=TM-252-m01

Module coordinator	Module offered by
Chair of Digital Humanities and German Literature of the Modern Period	Faculty of Arts, Historical, Philological, Cultural and Geographical Studies

ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Central questions in the humanities and cultural studies focus on the analysis of dynamic processes and historical developments rather than static snapshots. The computer-assisted investigation of such diachronic phenomena requires specific methods of data preparation and quantitative analysis. This module introduces the theoretical foundations and practical application of temporal modeling, in particular statistical time series analysis and related machine learning methods.

Intended learning outcomes

Students learn how to prepare diachronic data and analyze historical developments using quantitative methods. The focus is on the practical application of methods such as time series and trend analysis in order to test periodization hypotheses or uncover patterns in historical data.

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

S (2)
Module taught in: 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 (20 to 30 minutes) with written elaboration (3 to 5 pages) or
b) written examination (45 to 60 minutes) or
c) oral examination (approx. 20 minutes)
Language of assessment: 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 year, 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) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)

Module title			Abbreviation
Computational Humanities II			10-CH=CH2-252-m01
Module coordinator		**Module offered by**	
Chair of Digital Humanities and German Literature of the Modern Period		Institute of Computer Science	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Processing and discussion of exemplary research questions using computational humanities methods, with a focus on corpus analysis of non-textual cultural data such as audio, music, image, video, or 3D data. This includes the following tasks: Formulating a research hypothesis based on existing research and developing a research design to test it, automated extraction of specific audio or image features including evaluation of the extraction method, and statistical analysis of the data.

Intended learning outcomes

Students are able to answer research questions in computational humanities and to carry out and evaluate corpus analyses of non-textual data.

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

V (2) + Ü (2)
Module taught in: 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 (20 to 30 minutes) with written elaboration (3 to 5 pages) or
b) written examination (45 to 60 minutes) or
c) oral examination (approx. 20 minutes)
Language of assessment: 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 year, summer semester

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

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Module appears in

Master's degree (1 major) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)

Module title			Abbreviation
Digitization Technologies			10-CH=DT-252-m01
Module coordinator			**Module offered by**
Chair of Digital Humanities and German Literature of the Modern Period			Institute of Computer Science
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Treating and discussing exemplary scientific questions with methods of image-text digitization. The focus is on the acquisition and processing of image data, in particular using document analysis methods.

Intended learning outcomes

Students are able to work on, carry out and evaluate scientific questions of image-text digitization and document analysis.

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

S (2)
Module taught in: 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 (20 to 30 minutes) with written elaboration (3 to 5 pages) or
b) written examination (45 to 60 minutes) or
c) oral examination (approx. 20 minutes)
Language of assessment: English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: if announced

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

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Module appears in

Master's degree (1 major) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)

Module title			Abbreviation
Foundations of Human-Computer-Interaction			10-CH=HCI-252-m01
Module coordinator			**Module offered by**
--			Institute of Computer Science
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	--	--	

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

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

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Module appears in

Master's degree (1 major) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)

Module title			Abbreviation
Concluding Colloquium Computational Humanities			10-CH=MK-252-m01
Module coordinator		**Module offered by**	
Dean of Studies Informatik (Computer Science)		Faculty of Arts, Historical, Philological, Cultural and Geographical Studies Institute of Computer Science	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Presentation and defence of the results of the Master's thesis in an open discussion.

Intended learning outcomes

Students are able to present the results of their Master's theses and defend them in a discussion.

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

K (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)

final colloquium (approx. 60 minutes)
Language of assessment: German and/or English

Allocation of places

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Additional information

Offering Institutions: Institute of Computer Science, Faculty of Arts, Historical, Philological, Cultural and Geographical Studies

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

Master's degree (1 major) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)

Module title			Abbreviation
Master-Thesis Computational Humanities			10-CH=MT-252-m01
Module coordinator		**Module offered by**	
Dean of Studies Informatik (Computer Science)		Faculty of Arts, Historical, Philological, Cultural and Geographical Studies Institute of Computer Science	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
25	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Independent research and work on a topic of computational humanities that was agreed upon with a lecturer.

Intended learning outcomes

The student is able to independently research a given subject in computer science and use the knowledge and methods that they acquired in the master courses. They are able to present the result of their work in an acceptable manner.

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

A

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)

Master's thesis (60 pages)
Language of assessment: German and/or English

Allocation of places

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Additional information

Time to complete: 6 months
Offering Institutions: Institute of Computer Science, Faculty of Arts, Historical, Philological, Cultural and Geographical Studies

Workload

750 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

Master's degree (1 major) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)

Module title			Abbreviation
New research methods in Computational Humanities			10-CH=NFM-252-m01
Module coordinator		**Module offered by**	
Dean of Studies Informatik (Computer Science)		Institute of Computer Science	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

New research methods for the computational humanities.

Intended learning outcomes

Students have specialized knowledge of new research methods in computational humanities. They can understand, apply and evaluate these methods.

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

S (2)
Module taught in: 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 (20 to 30 minutes) with written elaboration (3 to 5 pages) or
b) written examination (45 to 60 minutes) or
c) oral examination (approx. 20 minutes)
Language of assessment: English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: if announced

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

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Module appears in

Master's degree (1 major) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)

Module title			Abbreviation
Advanced Machine Learning			10-I=AML-252-m01
Module coordinator		**Module offered by**	
Dean of Studies Informatik (Computer Science)		Institute of Computer Science	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

The lecture provides advanced knowledge of deep learning techniques such as FCN, CNN and LSTMs, practical application examples for NN architectures, e.g. in the field of image and speech processing. Current models and methods of machine learning and their technical background are presented. Building on this, models from the field of deep learning, such as CNNs, RNNs and sequence-to-sequence architectures, are discussed. The theoretical foundations of these models, such as training through backpropagation, are also discussed in detail. For all the models covered, it is shown how they are used in practice for specific problems such as image processing and text generation.

Intended learning outcomes

Students have knowledge of the possible applications and limitations of deep learning, of important architectures and how they are implemented in typical tools, of the ability to reprogram network structures from the literature, of data preparation and of solving concrete tasks.

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

V (2) + Ü (2) + T (2)
Module taught in: 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 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: 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 year, 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) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)

Module title			Abbreviation
Multimedia Analysis 3			10-I=MMA3-252-m01
Module coordinator			**Module offered by**
Dean of Studies Informatik (Computer Science)			Institute of Computer Science
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Introduction to advanced techniques for the analysis of multimodal data (e.g. audio/music processing, image processing) using machine learning methods. Discussion and evaluation of such methods in the context of the computational humanities.

Intended learning outcomes

Students have a basic understanding of the respective data types as well as theoretical and practical knowledge in the field of multimedia processing. They have gained experience with typical tasks and are able to understand, apply and evaluate the algorithms.

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

V (2) + Ü (2)
Module taught in: 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 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: 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 year, summer semester

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

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Module appears in

Master's degree (2 majors) Computational Humanities (2025)

Module title			Abbreviation
Modern Natural Language Processing			10-I=MoNLP-252-m01
Module coordinator		**Module offered by**	
Dean of Studies Informatik (Computer Science)		Institute of Computer Science	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Linguistic universals: words, morphology, parts-of-speech, syntax. Neural Language Models and word representation spaces. Transformer architecture and Pretrained (multilingual) Language Models: autoregressive and bidirectional language models, causal and masked language modeling. Machine translation and word alignment. Cross-lingual transfer: from word alignment and label projection, over MT-based transfer to zero-shot and few-shot transfer with multilingual Transformer-based language models. Advanced topics: modularization and language adaptation, multilingual sentence encoders, large language models (LLMs): instruction tuning and alignment.

Intended learning outcomes

Students will acquire theoretical and practical knowledge on modern natural language processing and also get an insight into cutting edge research in NLP. They will learn how to represent texts in shared representation spaces that enable semantic comparison for various NLP tasks. Upon successful completion of the course, the students will be well-equipped to solve practical NLP problems and to determine the optimal strategy to obtain best performance for a given task.

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

V (2) + Ü (2) + T (2)
Module taught in: 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 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: 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 year, summer semester

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

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Module appears in

Master's degree (1 major) Computational Humanities (2025)
Master's degree (2 majors) Computational Humanities (2025)