Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

Module Catalogue

for the Subject

Information Systems

as a Master's with 1 major

with the degree "Master of Science"

(120 ECTS credits)

Examination regulations version: 2019
Responsible: Faculty of Business Management and Economics

Contents

The subject is divided into

Learning Outcomes

German contents and learning outcome available but not translated yet.
Der Master-Studiengang Information Systems wird von der Wirtschaftswissenschaftlichen Fakultät der JMU als forschungsorientierter Studiengang mit dem Abschluss „Master of Science" (M. Sc.) im Rahmen eines konsekutiven Bachelor- und Master- Modells angeboten. Der Grad des Master of Science stellt einen weiteren forschungsorientierten und berufsqualifizierenden Abschluss dar; die im Rahmen des Masterstudiums erworbene Qualifikation entspricht der eines Diplom-Wirtschaftsinformatikers bzw. einer Diplom-Wirtschaftsinformatikerin.
Im Masterstudiengang Information Systems erwerben die Studierenden vertiefte Kenntnisse und Fähigkeiten im Bereich der Wirtschaftsinformatik und erlangen so eine hohe wissenschaftliche und an¬ wendungsbezogene Qualifikation und Selbstständigkeit auf diesem Gebiet. Die Studierenden lernen Aufgabenstellungen und Systeme der Wirtschaftsinformatik zu analysieren, Defizite zu identifizieren und unter Einsatz etablierter sowie neuer Methoden und Techniken systematisch eine konzeptionell neue bzw. verbesserte Lösung zu erarbeiten. Durch die Master-Prüfung weist der Kandidat bzw. die Kandidatin nach, dass er bzw. sie fundierte Fachkenntnisse erworben hat und Aufgaben dieser Themenbereiche selbständig bearbeiten kann.
Die Masterprüfung führt zu einem zweiten berufsqualifizierenden Abschluss, welcher auf einem Bachelorstudiengang im Bereich Wirtschaftsinformatik bzw. auf einem wirtschaftswissenschaftlichen Bachelorstudiengang mit einer Schwerpunktsetzung im Bereich Wirtschaftsinformatik aufbaut. Durch die Masterprüfung wird festgestellt, ob die Studierenden die Zusammenhänge im Bereich Wirtschaftsinformatik so beherrschen, dass sie einen eigenen Forschungsbeitrag darin leisten können.
Durch die Ausbildung und Schulung des analytischen Denkens erwerben die Studierenden die Fähigkeit, sich später in die an sie herangetragenen Aufgabengebiete einzuarbeiten und insbesondere das bereits aus dem Bachelorstudium erworbene Grundwissen in einem Masterstudiengang selbständig anzuwenden sowie auf neue Aufgabenstellungen zu übertragen. Die Absolventinnen und Absolventen sind in der Lage, Informationen im ökonomischen Kontext differenziert zu betrachten und sie mit geeigneten Mo¬ dellen und Methoden zu analysieren und zu bewerten. Unter Berücksichtigung ethischer und ökologischer Fragestellungen können sie Potenziale und Risiken abschätzen sowie nachhaltige Verbesserungen oder Lösungen entwickeln. Ihre Urteile sind wissenschaftlich fundiert und beziehen die Abschätzung ökologischer und gesellschaftlicher Folgen ein. Die Absolventinnen und Absolventen sind in der Lage, ihre Entscheidungen zu erläutern und unter Beachtung wissenschaftlicher Grundsätze zu verteidigen.
Die Absolventinnen und Absolventen können am wissenschaftlichen Diskurs mit Fachvertreterinnen und Fachvertretern teilnehmen. Sie haben die notwendigen unternehmerischen, interkulturellen und Innovationskompetenzen für verantwortungsvolle Positionen in internationalen Teams und Unternehmen erworben. Neben Tätigkeiten in der Praxis sollen die Absolventen bzw. Absolventinnen befähigt werden, in Universitäten und wissenschaftlichen Einrichtungen tätig zu werden.
Zum Erreichen der Ziele ist ein hohes Maß an Eigeninitiative der Studierenden erforderlich. Studieren bedeutet insbesondere auch ein Selbststudium und das Studieren in Arbeitsgruppen. Die wissenschaftliche Literatur ist dabei eine unentbehrliche Hilfe.
Für den Erfolg im Studium und den beruflichen Erfolg nach dem Studium sind die Beherrschung der englischen Sprache und möglichst einer weiteren Fremdsprache in Wort und Schrift sowie Kenntnisse in Rhetorik und Präsentationstechniken besonders förderlich. Die Entwicklung dieser Kenntnisse fordert die eigene Initiative der Studierenden über das Lehrangebot hinaus. Das Studium fördert die Persönlichkeitsentwicklung und Ausbildung interkultureller Kompetenzen durch entsprechende Lehrangebote (auch in englischer Sprache) sowie die Förderung von Auslandsaufenthalten durch zahlreiche Partnerprogramme und die vereinfachte Anerkennung von im Ausland erworbenen Leistungen.

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)):

27-Mar-2019 (2019-25)

11-Nov-2020 (2020-103)

09-Jun-2021 (2021-61)

27-Apr-2022 (2022-27)

??-???-2023 (2023-??)

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.

Compulsory Courses

(25 ECTS credits)

Module title	Abbreviation
Information Processing within Organizations	12-IV-161-m01

Module coordinator	Module offered by
holder of the Chair of Business Management and Business Information Systems	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Content:
This course provides students with an in-depth overview of the structure and the application areas of business management information systems in enterprises and public institutions.

Outline of syllabus:
1. What is software: concepts, categories, application
2. Software life cycle: duration, phases, steps
3. As-is analysis: tasks, problems
4. To-be concept: system design, data design, dialog design, function design
5. Object orientation: paradigm shift
6. Change management: meaning, methodologies, project management
7. Office automation: tasks, areas of application

Intended learning outcomes

After completing the course "Integrated Information Processing", students will be able to
(i) understand the importance of integration in enterprises, especially in information systems;
(ii) assess the progress of development of a software project, estimate cycle costs, know and consider requirements, which brings a software implementation with;
(iii) select the correct procedures or practices in an as-is analysis and target conception and practically apply (with participation in the exercise);
(iv) understand the importance of change management and project management and know the appropriate methods for specific applications.

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 is creditable for bonus)

written examination (approx. 60 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

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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) Economathematics (2016)
Master's degree (1 major) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title			Abbreviation
IT-Management			12-M-ITM-161-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Information Systems Engineering		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Content:
This course provides students with an in-depth overview of aims, tasks and appropriate methods of IT management.

Outline of syllabus:
1. Organisation and distinction
2. IT strategy
3. IT organisation
4. Management of IT systems
5. Enterprise Architecture Management
6. IT project management
7. IT security
8. IT law
9. IT controlling

Reading:

- Hofmann/Schmidt: Masterkurs IT-Management, Wiesbaden.
- Tiemeyer: Handbuch IT-Management, Munich.
- Hanschke: Strategisches Management der IT-Landschaft, Munich.

Intended learning outcomes

After completing the course "IT Management", students will be able to
1. overview the different aspects to be considered regarding a purposeful IT management;
2. understand and apply appropriate methods and tools;
3. independently perform system search and selection in a team project (only after participation in the practice lessons).

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) oral examination (one candidate each: approx. 15 to 20 minutes; groups of 2: approx. 20 minutes; groups of 3: 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
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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) Economathematics (2016) Master's degree (1 major) Business Information Systems (2016) Master's degree (1 major) Business Management (2015) Master's degree (1 major) China Business and Economics (2016) Master's degree (1 major) International Economic Policy (2015) Master's degree (1 major) China Language and Economy (2016) Master's degree (1 major) Management (2018) Master's degree (1 major) International Economic Policy (2018) Master's degree (1 major) China Business and Economics (2019) Master's degree (1 major) China Language and Economy (2019) Master's degree (1 major) Information Systems (2019) Master's degree (1 major) China Business and Economics (2021) Master's degree (1 major) China Language and Economy (2021) Master's degree (1 major) Economathematics (2021) Master's degree (1 major) Information Systems (2022) Master's degree (1 major) International Economic Policy (2022) Master's degree (1 major) Management (2022) Master's degree (1 major) Economathematics (2022) exchange program Business Management and Economics (2022)

Module title			Abbreviation
Project Seminar			12-PS-192-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Business Management and Business Information Systems		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
15	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Content:
In small project teams of 4 to 10 members, students will spend several months actively working on a specific and realistic problem with practical relevance. They will progress through several project stages including as-is analysis, to-be conception and implementation of an IS solution. The project teams will be required to work independently and will only receive advice and minor support from research assistants.

Reading:
will vary according to topic

Intended learning outcomes

After completing the course "Projektseminar", students will be able to
1. analyze business tasks and requirements and generate fitting IS solutions;
2. apply project management methods;
3. internalize stress, time and conflict management by means of practical teamwork.

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

project: preparing a conceptual design (approx. 150 hours), designing and implementing an approach to solution (approx. 300 hours) as well as presentation (approx. 20 minutes), weighted 1:2:1
Language of assessment: German, English
Creditable for bonus

Allocation of places

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Additional information

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Workload

450 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) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)

Compulsory Electives I: Fundamentals Computer Science

(10 ECTS credits)

Module title			Abbreviation
Information Retrieval			10-I=IR-161-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

IR models (e. g. Boolean and vector space model, evaluation), processing of text (tokenising, text properties), data structures (e. g. inverted index), query elements (e. g. query operations, relevance feedback, query languages and paradigms, structured queries), search engine (e. g. architecture, crawling, interfaces, link analysis), methods to support IR (e. g. recommendation systems, text clustering and classification, information extraction).

Intended learning outcomes

The students possess theoretical and practical knowledge in the area of information retrieval and have acquired the technical know-how to create a search engine.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT,IS,HCI,GE

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) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's degree (1 major) Digital Humanities (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)

Master's degree (1 major) Mathematics (2019)
Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)

Module title			Abbreviation
Analysis and Design of Programs			10-I=PA-161-m01

Module coordinator	Module offered by
holder of the Chair of Computer Science II	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

Program analysis, model creation in software engineering, program quality, test of programs, process models.

Intended learning outcomes

The students are able to analyse programs, to use testing frameworks and metrics as well as to judge program quality.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IS,ES,GE

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) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Physics (2016)
Master's degree (1 major) Nanostructure Technology (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)

Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) Nanostructure Technology (2020)
Master's degree (1 major) Physics (2020)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Physics International (2020)
Master's degree (1 major) Quantum Engineering (2020)
Master's degree (1 major) Quantum Technology (2021)
Master's degree (1 major) Computational Mathematics (2022)
Master's degree (1 major) Mathematics (2022)

Module title	Abbreviation
Security of Software Systems	10-I=SSS-172-m01

Module coordinator	Module offered by
holder of the Chair of Computer Science II	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 lecture provides an overview of common software vulnerabilities, state-of-the-art attack techniques on modern computer systems, as well as the measures implemented to protect against these attacks. In the course, the following topics are discussed:

- x86-64 instruction set architecture and assembly language
- Runtime attacks (code injection, code reuse, defenses)
- Web security
- Blockchains and smart contracts
- Side-channel attacks
- Hardware security

Intended learning outcomes

Students gain a deep understanding of software security, from hardware and low-level attacks to modern concepts such as blockchains. The lecture prepares for research in the area of security and privacy, while the exercises allow students to gain hands-on experience with attacks and analysis of systems from an attacker's perspective.

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 is creditable for 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

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE, IS, LR, HCI, ES.
Basic programming knowledge in C is required.

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) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)
Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Aerospace Computer Science (2020)
Master's degree (1 major) eXtended Artificial Intelligence (xtAI) (2020)

Module title			Abbreviation
Software Architecture			10-I=SAR-161-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science II		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

Current topics in the area of aerospace.

Intended learning outcomes

The students possess a fundamental and applicable knowledge about advanced topics in software engineering with a focus on modern software architectures and fundamental approaches to model-driven software engineering.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,ES

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) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Module studies (Master) Computer Science (2019)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)

Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Computer Science (2021)
Master's degree (1 major) Computational Mathematics (2022)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Mathematics (2022)
Master's degree (1 major) Computer Science (2023)

Module title			Abbreviation
Artificial Intelligence 1			10-I=KI1-161-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science VI		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

Intelligent agents, uninformed and heuristic search, constraint problem solving, search with partial information, propositional and predicate logic and inference, knowledge representation.

Intended learning outcomes

The students possess theoretical and practical knowledge about artificial intelligence in the area of agents, search and logic and are able to assess possible applications.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,SE,IS,HCI

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) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Physics (2016)
Master's degree (1 major) Nanostructure Technology (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)

Master's degree (1 major) Mathematics (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) Nanostructure Technology (2020)
Master's degree (1 major) Physics (2020)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Aerospace Computer Science (2020)
Master's degree (1 major) Physics International (2020)
Master's degree (1 major) Quantum Engineering (2020)
Master's degree (1 major) Quantum Technology (2021)

Module title	Abbreviation
Discrete Event Simulation	10-I=ST-161-m01

Module coordinator	Module offered by
holder of the Chair of Computer Science III	Institute of Computer Science

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Introduction to simulation techniques, statistical groundwork, creation of random numbers and random variables, random sample theory and estimation techniques, statistical analysis of simulation values, inspection of measured data, planning and evaluation of simulation experiments, special random processes, possibilities and limits of model creation and simulation, advanced concepts and techniques, practical execution of simulation projects.

Intended learning outcomes

The students possess the methodic knowledge and the practical skills necessary for the stochastic simulation of (technical) systems, the evaluation of results and the correct assessment of the possibilities and limits of simulation methods.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT,IS,ES,GE

Workload

240 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) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)

Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)
Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Aerospace Computer Science (2020)
Master's degree (1 major) eXtended Artificial Intelligence (xtAI) (2020)

Module title			Abbreviation
Advanced Programming			10-I=APR-182-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science II		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

With the knowledge of basic programming, taught in introductory lectures, it is possible to realize simpler programs. If more complex problems are to be tackled, suboptimal results like long, incomprehensible functions and code duplicates occur. In this lecture, further knowledge is to be conveyed on how to give programs and code a sensible structure. Also, further topics in the areas of software security and parallel programming are discussed.

Intended learning outcomes

Students learn advanced programming paradigms especially suited for space applications. Different patterns are then implemented in multiple languages and their efficiency measured using standard metrics. In addition, parallel processing concepts are introduced culminating in the use of GPU architectures for extremely quick processing.

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 is creditable for bonus)

written examination (90 to 120 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

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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) Satellite Technology (2018)
Master's degree (1 major) Information Systems (2019)

Module title			Abbreviation
Programming with neural nets			10-I=PNN-212-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		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

Overview over NN, implementation of important NN-architectures like FCN, CNN and LSTMs, practical example for NN-architectures, among others in the area of image and language processing.

Intended learning outcomes

Knowledge about possible applications and limitations of NN, for important architectures (eg. FCN, CNN, LSTM) and how they are implemented in NN-tools like Tensorflow/Keras, ability to program network structures from literature, to prepare data and solve concrete tasks for NN.

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 is creditable for 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).
creditable for bonus
Language of assessment: German and/or English

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT,KI,HCI,GE

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) Information Systems (2019)
Master's degree (1 major) Computer Science (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)

Module title	Abbreviation
NLP and Text Mining	10-I=STM-162-m01

Module coordinator	Module offered by
holder of the Chair of Computer Science VI	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

Foundations in the following areas: definition of NLP and text mining, properties of text, sentence boundary detection, tokenisation, collocation, N-gram models, morphology, hidden Markov models for tagging, probabilistic parsing, word sense disambiguation, term extraction methods, information extraction, sentiment analysis. The students possess theoretical and practical knowledge about typical methods and algorithms in the area of text mining and language processing mostly for English. They are able to solve problems through the methods taught. They have gained experience in the application of text mining algorithms.

Intended learning outcomes

The students possess theoretical and practical knowledge about typical methods and algorithms in the area of text mining and language processing. They are able to solve practical problems with the methods acquired in class. They have gained experience in the application of text mining algorithms.

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 is creditable for 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: German and/or English

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT, IT, HCI.

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) Computer Science (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)
Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)

Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Computer Science (2021)
Master's degree (1 major) Computational Mathematics (2022)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Mathematics (2022)
Master's degree (1 major) Computer Science (2023)

Module title			Abbreviation
Systems Benchmarking			10-I=SB-212-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		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 (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for 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).
creditable for bonus
Language of assessment: German and/or English

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,ES,HCI,GE

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) Information Systems (2019)
Master's degree (1 major) eXtended Artificial Intelligence (xtAI) (2020)
Master's degree (1 major) Computer Science (2021)
Master's degree (1 major) Aerospace Computer Science (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)
Master's degree (1 major) Aerospace Computer Science (2023)

Module title			Abbreviation
Computer Vision			10-xtAI=CV-202-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

The lecture provides knowledge about current methods and algorithms in the field of computer vision. Important basics as well as the most recent approaches to image representation, image processing and image analysis are taught. Actual models and methods of machine learning as well as their technical backgrounds are presented and their respective applications in image processing are shown.

Intended learning outcomes

Students have fundamental knowledge of problems and techniques in the field of computer vision and are able to independently identify and apply suitable methods for concrete problems.

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 is creditable for 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

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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) Information Systems (2019)
Master's degree (1 major) eXtended Artificial Intelligence (xtAI) (2020)
Master's degree (1 major) Computer Science (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)
Master's degree (1 major) Aerospace Computer Science (2023)

Module title			Abbreviation
Image Processing and Computational Photography			10-I=IP-222-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 (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 is creditable for 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

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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) Information Systems (2019)
Master's degree (1 major) eXtended Artificial Intelligence (xtAI) (2020)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)
Master's degree (1 major) Aerospace Computer Science (2023)

Module title			Abbreviation
Multilingual NLP			10-I=MNLP-232-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 (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 is creditable for 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

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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) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)

Module title	Abbreviation
Statistical Network Analysis	10-I=SNA-232-m01

Module coordinator	Module offered by
holder of the Chair of Computer Science XV	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

Networks matter! This holds for technical infrastructures like communication or transportation networks, for information systems and social media in the World Wide Web, but also for various social, economic and biological systems. What can we learn from data that capture the interaction topology of such complex systems? What is the role of individual nodes and how can we discover significant patterns in the structure of networks? How do these structures influence dynamical process like diffusion or the spreading of epidemics? Which are the most influential actors in a social network? And how can we analyze time series data on systems with dynamic network topologies?
Addressing those questions, the course combines a series of lectures -- which introduce fundamental concepts for the statistical modelling of complex networks -- with weekly exercises that show how we can apply them to practical network analysis tasks. Topics covered include foundations of graph theory, centrality and modularity measures, aggregate statistical characteristics of large networks, random graphs and statistical ensembles of complex networks, generating function analysis of expected graph properties, scale-free networks, stochastic dynamics in networks, spectral analysis, as well as the modelling of time-varying networks. The course material consists of annotated slides for lectures as well as a accompanying git-Repository of jupyter notebooks, which implement and validate the theoretical concepts covered in the lectures. Students can test and deepen their knowledge through weekly exercise sheets. The successful completion of the course requires to pass a final written exam.

Intended learning outcomes

The course will equip participants with statistical network analysis techniques that are needed for the data-driven modelling of complex technical, social, and biological systems. Students will understand how we can quantitatively model the topology of networked systems and how we can detect and characterize topological patterns. Participants will learn how to use analytical methods to make statements about the expected properties of very large networks that are generated based on different stochastic models. They further gain an analytical understanding of how the structure of networks shapes dynamical processes, how statistical fluctuations in degree distributions influence the robustness of systems, and how emergent network features emerge from simple random processes.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):

IN
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) Information Systems (2019) Master's degree (1 major) Information Systems (2022) Master's degree (1 major) Computer Science (2023) Master's degree (1 major) Aerospace Computer Science (2023)

Module title			Abbreviation
Operations Research			10-I=OR-232-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 (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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IN

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) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)

Module title			Abbreviation
Machine Learning for Networks 1			10-I=MLN1-232-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 (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 is creditable for 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

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,IT,SE,KI,HCI,IN

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) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)

Module title			Abbreviation
Data Science			10-I=DM-232-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		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

Foundations in the following areas: definition of data mining and knowledge discovery in databases, process model, relationship to data warehouse and OLAP data preprocessing, data visualisation, unsupervised learning methods (cluster- and association methods), supervised learning (e. g. Bayes classification, KNN, decision trees, SVM), learning methods for special data types, further learning paradigms.

Intended learning outcomes

The students possess a theoretical and practical knowledge of typical methods and algorithms in the area of data mining and machine learning. They are able to solve practical knowledge discovery problems with the help of the knowledge acquired in this course and by using the KDD process. They have acquired experience in the use or implementation of data mining algorithms.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT,KI,HCI,GE,SEC

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) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)
Master's degree (1 major) Aerospace Computer Science (2023)

Compulsory Electives II: Tracks

(40 ECTS credits)

Out of the five tracks, students may select two.

Track 1: Enterprise Systems

(20 ECTS credits)

Module title			Abbreviation
Business Software 1: IS-based Enterprise Management			12-GPU-192-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Business Management and Business Information Systems		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Content:
This module provides students with an overview of the structure of a business information system (SAP Business ByDesign) in depth.
Outline of syllabus:
1. Integrated information systems: integration, standard software, system architecture
2. Working with standard business software
3. Consulting in integrated information systems: project management, project organisation, presentation skills
Description:
The lecture will be accompanied by an exercise that will present students with an opportunity to access, in small groups, the enterprise resource planning system operated by the Chair in its ERP laboratory and to work with the software, dealing with a wide variety of business processes.
If you would like to register for this course, please submit an application to the consultants (cover letter, CV, certificates; please also specify your degree programme and student ID number).

Intended learning outcomes

After completing the course "Business Software 1", students will be able to
(i) understand an ERP system in its depth;
(ii) understand the interaction of business processes;
(iii) execute business tasks and processes in an ERP system independently (after participation in the practice lessons).

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 is creditable for bonus)

a) Written examination (approx. 60 minutes) or
b) oral examination (one candidate each: approx. 10 to 15 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes) or
c) Term paper (15 to 20 pages) or
Creditable for bonus
Language of assessment: German and/or English
Assessment offered: Once a year, winter semester

Allocation of places

20 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master's students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

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) Information Systems (2019) Master's degree (1 major) China Business and Economics (2021) Master's degree (1 major) China Language and Economy (2021) Master's degree (1 major) Economathematics (2021) Master's degree (1 major) Management (2022)

Module title	Abbreviation
Business Software 2: Enterprise Resource Planning Systems	12-M-ERP-192-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management and Business Information Systems	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Content:
This module provides students with an overview of the structure of business information systems in width as well as the selection and implementation of business information systems in organisations.

Outline of syllabus:
1. Integrated information systems: integration, standard software, system architectures, operating models
2. Selection of integrated information systems: methods, cost-benefit analysis
3. Implementation of integrated information systems: project management, project organisation, project marketing

The lecture will be accompanied by an exercise that will present students with an opportunity to access, in small groups, the enterprise resource planning system operated by the Chair in its ERP laboratory and to work with the software, dealing with a wide variety of business processes.

Intended learning outcomes

After completing the course "Business Software 2", students will be able to
1. differentiate between system architectures and -philosophies;
2. understand the interaction of business processes;
3. come to a selection decision for an ERP system using a structured approach and compare different ERP systems;
4. execute business tasks and processes in an ERP system independently (after participation in the practice lessons).

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 is creditable for bonus)

a) Written examination (approx. 60 minutes) or
b) oral examination (one candidate each: approx. 10 to 15 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes) or
c) Term paper (15 to 20 pages) or
Creditable for bonus
Language of assessment: German and/or English
Assessment offered: Once a year, summer semester

Allocation of places

20 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master's students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

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) Information Systems (2019)

Module title	Abbreviation
Advanced Seminar: Enterprise Systems	12-M-ES-161-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management and Business Information Systems	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

In this course, students will acquire important knowledge and skills that will enable them to prepare a well-structured term paper and to present the results of their work with the help of relevant topics in the fields of information systems and enterprise systems.

Reading:
will vary according to topic

Intended learning outcomes

After completing the course "Enterprise Systems", students will be able to
1. understand the fundamentals of scientific literature reviews;
2. integrate elaborated content in a scientific thesis;
3. create presentations independently.

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes), weighted 2:1
Language of assessment: German and/or English

Allocation of places

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

Additional information

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Workload

300 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) Economathematics (2016)
Master's degree (1 major) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)

Master's degree (1 major) Management (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Track 2: Business Analytics

(20 ECTS credits)

Module title	Abbreviation
Decision Support Systems	12-M-DSS-192-m01

Module coordinator	Module offered by
Holder of the Chair of Business Analytics	Faculty of Business Management and Economics

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 discusses advanced approaches for modelling and solving decision problems in business settings. The acquired insights are used to design and implement decision support systems using standard software tools (Python).

Intended learning outcomes

After successfully completing the course, students should be able to

- Understand the structure of classic business decision problems
- Isolate key elements from general problem descriptions and convert them to quantitative decision models
- Solve different classes of optimization problems (linear, network, integer, multi-objective, non-linear, stochastic)
- Implement decision support systems

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 is creditable for bonus)

a) Written examination (approx. 60 minutes) or
b) oral examination (one candidate each: approx. 10 to 15 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes)
Creditable for bonus
Language of assessment: German and/or English

Allocation of places

40 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master's students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

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) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)

Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)

Module title	Abbreviation
Analytical Information Systems	12-BI-192-m01

Module coordinator	Module offered by
Holder of the Chair of Business Analytics	Faculty of Business Management and Economics

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 provides an overview of the structure and applications of analytical information systems. A special focus is on individual quantitative methods of data analysis. On the one hand, methods from the areas of data preparation and data manipulation as well as their practical application are introduced. On the other hand, an introduction to methods and the application of machine learning methods for predictive analytics, in particular neural networks and deep learning, is given.

Intended learning outcomes

The module provides students with knowledge of:

- Data Manipulation
- Data Engineering
- Descriptive Analytics
- Predictive Analytics and Data Mining
- Supervised Learning
- Unsupervised Learning
- Neural Networks and Deep Learning
- Text Mining
- Big Data Technologies

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 is creditable for bonus)

Written examination (approx. 60 Minutes)
Creditable for bonus
Language of assessment: German and/or English

Allocation of places

40 places.
WM1:
Should the number of applications exceed the number of available places, places will be allocated as follows:
1) Master's students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

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) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)

Module title	Abbreviation
Business Analytics	12-M-BUA-161-m01

Module coordinator	Module offered by
Holder of the Chair of Business Analytics	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

In this course, students will acquire important knowledge and skills that will enable them to prepare a well-structured term paper and to present the results of their work with the help of relevant topics in the field of business management decision models and methods and their application in the development of decision-support systems as well as analytical information systems and quantitative methods of data analysis.

Students work on current topics using methods from machine learning, mathematical optimization and simulation.

Intended learning outcomes

The module provides students with knowledge of:
- Scientific literature
- Implementation of methods in code
- Integration of developed results in scientific papers
- Creating presentations and lectures

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes), weighted 2:1
Assessment offered: Once a year, winter semester
Language of assessment: German and/or English

Allocation of places

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

Additional information

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Workload

300 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) Economathematics (2016)
Master's degree (1 major) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)

Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)

Track 3: Electronic Business

(20 ECTS credits)

Module title			Abbreviation
E-Business Strategies			12-M-IBS-192-m01

Module coordinator	Module offered by
Holder of the Chair of Information Systems Engineering	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

The module provides an overview of strategic implications of digital technologies at the level of organisations, industries and value networks. To this end, concepts and frameworks from strategic technology management are applied to digital innovations and illustrated with numerous examples. In the accompanying exercise, case studies of well-known digital companies and their business models are analysed and discussed.

Intended learning outcomes

- Understand theoretical concepts of strategy development and implementation in the context of digital technologies.

- Apply different frames of reference and understand their strengths and weaknesses in the context of practical application.

- Transfer the concepts to real business situations

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 is creditable for bonus)

a) Written examination (approx. 60 minutes) or
b) oral examination (one candidate each: approx. 10 to 15 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes) or
Creditable for bonus
Language of assessment: German and/or English

Allocation of places

40 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master's students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

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) Information Systems (2019)

Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)

Module title	Abbreviation
Mobile and Ubiquitous Systems	12-M-MUS-161-m01

Module coordinator	Module offered by
Holder of the Chair of Information Systems Engineering	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

The module provides an overview of technologies and business applications of mobile & ubiquitous computing. Concepts and applications are illustrated using numerous examples from mobile telecommunications to the Internet of Things. In the accompanying exercise, corresponding case study texts are analysed and discussed.

Intended learning outcomes

- Understand the technological basics of mobile & ubiquitous computing.

- Analysing business applications in processes, products/services and business models

- Apply the concepts learned to real-life problems in a business context

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

Ü (2) + V (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) oral examination (one candidate each: approx. 15 to 20 minutes; groups of 2: approx. 20 minutes; groups of 3: 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

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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) Economathematics (2016)
Master's degree (1 major) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) Media Communication (2016)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Media Communication (2018)
Master's degree (1 major) Management (2018)
Master's degree (1 major) China Business and Economics (2019)

Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Media Communication (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
exchange program Business Management and Economics (2022)

Module title			Abbreviation
Seminar: E-Business Strategies			12-M-SEBS-161-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Information Systems Engineering		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

In this course, students will acquire important knowledge and skills that will enable them to prepare a well-structured term paper and to present the results of their work with the help of relevant topics in the fields of web-based platforms (electronic markets, Web 2.0 etc.) and strategic management of a company.

Intended learning outcomes

- Academic literature review

- Integration of developed results in scientific papers

- Creating presentations and talks

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes), weighted 2:1
Assessment offered: Once a year, winter semester
Language of assessment: German and/or English

Allocation of places

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

Additional information

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Workload

300 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) Economathematics (2016)
Master's degree (1 major) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) Information Systems (2019)

Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Track 4: Global Operations and Information Management

(20 ECTS credits)

Module title			Abbreviation
Corporate Entrepreneurship			12-M-UGF1-182-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Entrepreneurship and Strategy		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module is a theory-led and practice-oriented primer on corporate entrepreneurship. It provides you with knowledge useful for anyone aiming at working (or researching) in the field of corporate innovation and entrepreneurship or at pursuing an 'intrapreneurial' or entrepreneurial career.

(1) Introduction to corporate entrepreneurship

(2) Antecedents and forms of corporate entrepreneurship

(3) Corporate strategy and corporate entrepreneurship

(4) Organizational structure and corporate entrepreneurship

(5) Human resource management and corporate entrepreneurship

(6) Building supportive organizational cultures

(7) Entrepreneurial control systems

(8) Entrepreneurial leadership

(9) The corporate entrepreneur as a champion and diplomat

(10) The pay-off from corporate entrepreneurship

(11) Corporate venture capital

(12) Corporate entrepreneurship in nonprofit and government organizations

(13) Universities and academic spin-offs

(14) Wrap-up and Q&A

Intended learning outcomes

Educational aims

- Clarify the role of corporate entrepreneurship
- Explain theoretical concepts and mechanisms behind corporate entrepreneurship
- Enable students to critically appraise alternative approaches to corporate entrepreneurship
- Enable students to evaluate the boundaries and risks of corporate entrepreneurship

Learning outcomes

On successful completion of this module students will be able to:

- Create and evaluate concepts related to corporate entrepreneurship
- Assess the role of corporate entrepreneurship for creating and sustaining competitive advantage
- Make judgements about the organizational and managerial implications of corporate entrepreneurship
- Systematically choose between different routes of action

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 is creditable for bonus)
a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages) or c) oral examination of one candicate each (approx. 10 to 15 minutes) or oral examination in groups (groups of 2 approx. 20 minutes, groups of 3 approx. 30 minutes) Language of assessment: English
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) Management (2018) Master's degree (1 major) International Economic Policy (2018) Master's degree (1 major) China Business and Economics (2019) Master's degree (1 major) China Language and Economy (2019) Master's degree (1 major) Information Systems (2019) Master's degree (1 major) China Business and Economics (2021) Master's degree (1 major) China Language and Economy (2021) Master's degree (1 major) Economathematics (2021) Master's degree (1 major) Information Systems (2022) Master's degree (1 major) International Economic Policy (2022) Master's degree (1 major) Management (2022) Master's degree (1 major) Economathematics (2022) exchange program Business Management and Economics (2022)

Module title			Abbreviation
Digital Entrepreneurship			12-M-UGF3-182-m01

Module coordinator	Module offered by
Holder of the Chair of Entrepreneurship and Strategy	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

This module provides an introduction into digital entrepreneurship and digital transformation. (1) Introduction (2) Digital business models (3) Identifying and exploiting opportunities for digital entrepreneurship (4) Strategies for creating competitive advantage in digital entrepreneurship (5) Digital marketing for entrepreneurs (6) Crowdfunding for entrepreneurs (7) Design thinking (8) Lean startup (9) Platform ecosystems and online communities (10) Digital strategy and digital transformation (11) The agile organization (12) Crowdsourcing (13) Cyberfraud (14) Wrap-up and Q&A

Intended learning outcomes

Educational aims: Clarify the role of digital entrepreneurship and digital transformation. Explain theoretical concepts and mechanisms behind digital entrepreneurship and digital transformation. Enable students to critically appraise alternative approaches to digital entrepreneurship and digital transformation. Enable students to evaluate the boundaries and risks of digital entrepreneurship and digital transformation
Learning outcomes: On successful completion of this module students will be able to (1) Assess the role of digital entrepreneurship and digital transformation for creating and sustaining competitive advantage, (2) Create and evaluate concepts related to digital entrepreneurship and digital transformation, (3) Make judgements about the organizational and managerial implications of digital entrepreneurship and digital transformation, (4) Systematically choose between different routes of action.

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 is creditable for bonus)

a) written examination (approx. 60 to 120 minutes) or b) log (15 to 20 pages) or c) oral examination (one candidate each: approx. 10 to 15 minutes; groups of 2: approx. 20 minutes; groups of 3: approx. 30 minutes)
Language of assessment: English

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) Human-Computer-Interaction (2018)
Master's degree (1 major) Management (2018)
Master's degree (1 major) International Economic Policy (2018)

Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Human-Computer-Interaction (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title			Abbreviation
Advanced Seminar: Entrepreneurship and Management			12-M-SAS-182-m01

Module coordinator	Module offered by
Holder of the Chair of Entrepreneurship and Strategy	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Students develop seminar papers on varying topics in the domain of entrepreneurship, strategy, and innovation and present the key insights from their work.

Intended learning outcomes

Educational aims

- Enable students to position their research
- Enable students to critically review a substantial body of literature in short time
- Enable students to develop a sound theoretical framework
- Enable students to create a research paper fully meeting academic standards

Learning outcomes

On successful completion of this module students will be able to:

- Differentiate their research from previous work
- Adopt theoretical perspectives to understand complex phenomena
- Engage in comprehensive academic reasoning
- Articulate abstract and complex phenomena and relationships in written and oral form

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

term paper (approx. 20 pages) and presentation (15 to 30 minutes), weighted 2:1
Assessment offered: Once a year, winter semester
Language of assessment: German and/or English

Allocation of places

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

Additional information

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Workload

300 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) Management (2018)

Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Track 5: Operations Management

(20 ECTS credits)

Module title			Abbreviation
Global Logistics & Supply Chain Management			12-M-GLSC-182-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Logistics and Quantitative Methods in Business Administration		Faculty of Business Management and Economics	
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 "Global Logistics & Supply Chain Management" acquaints students with advanced methods for the planning of global production networks and demonstrates the application of these with the help of multiple case studies.

Intended learning outcomes

After completing this course students can
(i) analyze and evaluate global production networks;
(ii) develop and apply appropriate methods to plan production networks;
(iii) evaluate the consequences of uncertainties in processes and apply concepts and methods to plan uncertain processes.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 to 20 pages)
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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)

Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Advanced Operations & Logistics Management	12-M-AOLM-182-m01

Module coordinator	Module offered by
Holder of the Chair of Logistics and Quantitative Methods in Business Administration	Faculty of Business Management and Economics

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 "Advanced Operations & Logistics Management" acquaints students with advanced methods for the planning of integrated production and logistics systems and demonstrates the application of these with the help of multiple case studies

Intended learning outcomes

After completing this course students can
(i) analyze and evaluate integrated production and logistics systems;
(ii) develop and apply appropriate methods to plan complex production and logistics systems;
(iii) evaluate the consequences of uncertainties in processes, and
(iv) apply concepts and methods to plan uncertainties processes.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 to 20 pages)
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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)

Master's degree (1 major) International Economic Policy (2022) Master's degree (1 major) Management (2022) Master's degree (1 major) Economathematics (2022) exchange program Business Management and Economics (2022)

Module title			Abbreviation
Seminar: Operations Management			12-M-SN-161-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management and Business Information Systems	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

With the help of topics from the area of "Operations Management", this course will provide students with knowledge and skills that will enable them to prepare a well-structured term paper and to present the key results of their work.

Intended learning outcomes

Students will learn how to convince a critical audience by giving a presenation regarding a topic from the area of Operations Management. By developing and giving a presentation as well as by answering questions the students will practice their skills to deal with difficult communication situations and to argument for and against a certain topic.

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes), weighted 2:1
Assessment offered: Once a year, winter semester
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

300 h

Teaching cycle

--

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

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Module appears in

Master's degree (1 major) Business Information Systems (2016)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)

Compulsory Electives III: Electives

(15 ECTS credits)

Module title	Abbreviation
Adaption and Continuous System Engineering	12-ACSE-161-m01

Module coordinator	Module offered by
holder of the Chair of Business Management and Business Information Systems	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Business Suite: The constantly changing environment with its organisational and IT-oriented developments forces companies to adapt their standard business software solutions. With the help of dynamic adaptation (Continuous System Engineering), this process of change can be supported effectively and efficiently. This module discusses both the systematic implementation of adaptation steps (so-called customising) using the example of the mySAP Business Suite and the concept of Continuous System Engineering using various practical examples. **Business Apps:** The course combines theory and practice in the area of cloud computing and ERP. Participants gain an insight into the architecture of the ByDesign platform and are presented with an opportunity to gain practical experience working with the corresponding software development kit.

Content:

- Fundamentals of cloud computing
- Cloud business solutions
- Architecture of the SAP Business ByDesign platform
- Platform adaption and extensibility
- Basics of software development in SAP Cloud Applications Studio
- Hands-on SDK: independently designing and developing a demo app

Intended learning outcomes

Business Suite: Students learn about the various ways of adapting a standard business software solution to the special requirements of a company. They also develop a fundamental understanding of the dynamic adaptation of business software libraries. Based on selected examples from the SAP Business Suite that the acquired knowledge will be deepened by using case studies. Business Apps: The course imparts knowledge and delivers skills in cloud computing for businesses, ERP systems architecture and software development at the example of the SAP Business ByDesign platform. The independent planning, implementation and documentation of a business app trains important core competencies of technology-oriented Business Informatics.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 20 pages) or c) oral examination (one candidate each: approx. 10 to 15 minutes; groups of 2: approx. 20 minutes; groups of 3: approx. 30 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

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) Economathematics (2016) Master's degree (1 major) Business Information Systems (2016) Master's degree (1 major) Business Management (2015) Master's degree (1 major) China Business and Economics (2016) Master's degree (1 major) International Economic Policy (2015) Master's degree (1 major) China Language and Economy (2016) Master's degree (1 major) Information Systems (2019) Master's degree (1 major) Information Systems (2022)

Module title	Abbreviation
Business Service Platforms 2	12-AGP2-192-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management and Business Information Systems	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

The next generation of business service platforms leads to a transformation of traditional industrial enterprises into service businesses that generate a large proportion of value in developed economies. New ICT technologies such as cloud computing, the Internet of Things and semantic technologies will contribute to the success of these businesses in a similar way as ERP contributed to the success of industrial enterprises. But we are still at the beginning of the evolution of business service platforms, which will have to become more adaptable to support special business models and allow differentiating customer service processes.
The course will discuss different case studies on services businesses. The digital transformation of the software industry into a service industry is the most prominent of these case.

Intended learning outcomes

Be aware of the growing economic importance of the service sector. Understand that services businesses in are facing a special productivity problem, which could not be adressed by the same processes applied in the manufacturing industries. Understand the new ICT technologies we have at hand today to deliver smart solutions for this problem. Be aware of the diversity of services business today where we have no evidence that a general standard can be found applicable to most subsectors similar to the standardization achieved for the manufacturing industries after twenty years of research.

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

V (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Written examination (approx. 60 minutes)
Creditable for bonus
Language of assessment: German and/or English

Allocation of places

40 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master's students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

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) Information Systems (2019)

Module title	Abbreviation
Business Service Platforms 1	12-BSA-192-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management and Business Information Systems	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

A next generation of enterprise systems called business service platforms is emerging using new disruptive technologies such as cloud computing, big data and mobility. These business service platforms apply the concept of product platforms to software. They will
1. be services based
2. be offered as a service in the cloud
3. address new classes of users and types of business especially in the service business
4. allow for a high degree of business adaptability and extensibility.
5. be supplemented by a broad offer of partner add-ons supporting accelerated innovation.
These new business service platforms will play a key role in the digital transformation of the software industry.

Intended learning outcomes

Be aware of the big business productivity progress enabled by BIS in the last 50 years. Understand the limitations of these systems in spite of the digital transformation of the software industry ahead. Be able to critically assess the business potential of new IC technologies. Understand the business demand for change. Understand the necessary organizational learning needed to leverage new technology for business change management.

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

V (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Written examination (approx. 60 minutes)
Creditable for bonus
Language of assessment: German and/or English

Allocation of places

40 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master's students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

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) Information Systems (2019)

Module title			Abbreviation
Business Processes Organisation, Business Software and Process Industries			12-GLP-161-m01
Module coordinator		**Module offered by**	
holder of the Chair of Business Management and Business Information Systems		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

ERP systems have become key elements of successful companies. Business processes in companies can no longer be managed without using such ERP systems. In financial departments of companies, such systems have been used for a long time, but business processes e. g. for logistical tasks have so far not been supported by ERP solutions. This module explains how this issue could be resolved as well as what constraints and what dependencies have to be considered.

Intended learning outcomes

After completing this module, students should be able to
(i) know about actual business processes in companies;
(ii) understand selected problems in the organization and design of logistical business processes and work out solutions;
(iii) know and design basic data structures and data flows of an ERP system;
(iv) map businesss processes within an ERP system;
(v) consider the specifics of a certain industry (e. g. the process industry) when organizing business processes;
(vi) map the core business processes within an ERP system.

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 is creditable for bonus)

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

Allocation of places

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

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) Economathematics (2016)
Master's degree (1 major) Business Information Systems (2016)

Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)

Module title			Abbreviation
Work and Information			12-ITA-161-m01
Module coordinator			**Module offered by**
holder of the Chair of Business Management and Business Information Systems			Faculty of Business Management and Economics
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module discusses relevant principles, concepts and applications of business information processing and its impact on organisational and process structures in today's business world.

Intended learning outcomes

The expertise gained from other modules related to business management issues can be interpreted and classified in a certain way by participating in this module. For decisions in regards to human resources planning, investment, and a company's strategy, the students will get to know all the relevant concepts and interdependencies, which come with taking information processing into account as the so called "fourth" factor of production.

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

V (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) oral examination (one candidate each: approx. 15 to 20 minutes; groups of 2: approx. 20 minutes; groups of 3: approx. 30 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

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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) Economathematics (2016)
Master's degree (1 major) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)

Module title			Abbreviation
Work Order Planning for Automated Manufacturing			12-M-AGAF-161-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Business Management and Business Information Systems		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

The idea of integration of business information systems is primarily practiced and developed as an ERP system in terms of business application areas, their temporal overlap (data warehouse), their spatial relationship (supply network) and connection of legal tasks (eGovernment). However, linking the commercial view of incoming customer orders with the logistic or more technical view of the scheduling of production orders and the resulting consequences for the processes is a critical success factor.

Intended learning outcomes

Linking research and lectures of the Institute of Robotics and Telematics as well as the orientation of the Chair of Business Integration allows students a conceptual as well as practical insight into the challenges of this in the future essential part of the operational automation development.

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 is creditable for 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

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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) Economathematics (2016)
Master's degree (1 major) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Information Systems (2019)

Module title			Abbreviation
Topics in Business Information Systems 1			12-M-ATW1-161-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management and Business Information Systems	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

This course is a dummy module, e. g. for courses in the area of business informatics taken abroad.

Intended learning outcomes

The competences depend on the individual module, which has been taken to transfer these credits to the University of Wuerzburg.

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

V (2) + Ü (2)
Course type: alternatively S instead of V + Ü

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) presentation (15 to 20 minutes) and written elaboration (approx. 20 pages), weighted 1:2 or c) oral examination (one candidate each: approx. 10 to 15 minutes; groups of 2: approx. 20 minutes; groups of 3: 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

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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) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)

Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)

Module title	Abbreviation
Topics in Business Information Systems 2	12-M-ATW2-161-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management and Business Information Systems	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

This course is a dummy module, e. g. for courses in the area of business informatics taken abroad.

Intended learning outcomes

The competences depend on the individual module, which has been taken to transfer these credits to the University of Wuerzburg.

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

V (2) + Ü (2)
Course type: alternatively S instead of V + Ü

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) presentation (15 to 20 minutes) and written elaboration (approx. 20 pages), weighted 1:2 or c) oral examination (one candidate each: approx. 10 to 15 minutes; groups of 2: approx. 20 minutes; groups of 3: 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

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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) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)

Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)

Module title	Abbreviation
Information systems research	12-M-ISR-192-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management and Business Information Systems	Faculty of Business Management and Economics

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 provides an overview of theoretical scientific foundations, theories, research topics and methods of international research in business informatics.

Intended learning outcomes

The module provides students with knowledge of:
(i) Exploration of classical themes of WI / IS research;
(ii) Getting to know the relevant paradigms, theories and methods;
(iii) Recognition of the interfaces to other areas of business administration and management practice;
(iv) Gain experience in finding and evaluation of scientific literature

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 is creditable for bonus)

a) Written examination (approx. 60 minutes) or
b) oral examination (one candidate each: approx. 15 to 20 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes)
Creditable for bonus
Language of assessment: German and/or English

Allocation of places

40 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master's students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

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) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)

Module title			Abbreviation
Databases 2			10-I=DB2-161-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

Data warehouses and data mining; web databases; introduction to Datalog.

Intended learning outcomes

The students have advanced knowledge about relational databases, XML and data mining.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE, IS, HCI.

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) Computer Science (2016)
Master's degree (1 major) Business Information Systems (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Aerospace Computer Science (2020)
Master's degree (1 major) eXtended Artificial Intelligence (xtAI) (2020)

Module title			Abbreviation
Compiler Construction			10-I=CB-161-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science II		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

Lexical analysis, syntactic analysis, semantics, compiler generators, code generators, code optimisation.

Intended learning outcomes

The students possess knowledge in the formal description of programming languages and their compilation. They are able to perform transformations between them with the help of finite automata, push-down automata and compiler generators.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,IS,GE

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) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)
Master's degree (1 major) Information Systems (2019)

Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Computational Mathematics (2022)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Mathematics (2022)

Module title			Abbreviation
Information Retrieval			10-I=IR-161-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

IR models (e. g. Boolean and vector space model, evaluation), processing of text (tokenising, text properties), data structures (e. g. inverted index), query elements (e. g. query operations, relevance feedback, query languages and paradigms, structured queries), search engine (e. g. architecture, crawling, interfaces, link analysis), methods to support IR (e. g. recommendation systems, text clustering and classification, information extraction).

Intended learning outcomes

The students possess theoretical and practical knowledge in the area of information retrieval and have acquired the technical know-how to create a search engine.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT,IS,HCI,GE

Workload

150 h

Teaching cycle

--

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

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Module appears in

Master's degree (1 major) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's degree (1 major) Digital Humanities (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)

Master's degree (1 major) Mathematics (2019)
Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)

Module title			Abbreviation
Artificial Intelligence 1			10-I=KI1-161-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science VI		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

Intelligent agents, uninformed and heuristic search, constraint problem solving, search with partial information, propositional and predicate logic and inference, knowledge representation.

Intended learning outcomes

The students possess theoretical and practical knowledge about artificial intelligence in the area of agents, search and logic and are able to assess possible applications.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,SE,IS,HCI

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) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Physics (2016)
Master's degree (1 major) Nanostructure Technology (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)

Master's degree (1 major) Mathematics (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) Nanostructure Technology (2020)
Master's degree (1 major) Physics (2020)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Aerospace Computer Science (2020)
Master's degree (1 major) Physics International (2020)
Master's degree (1 major) Quantum Engineering (2020)
Master's degree (1 major) Quantum Technology (2021)

Module title			Abbreviation
Artificial Intelligence 2			10-I=KI2-161-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science VI		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

Planning, probabilistic closure and Bayesian networks, utility theory and decidability problems, learning from observations, knowledge while learning, neural networks and statistical learning methods, reinforcement learning, processing of natural language.

Intended learning outcomes

The students possess theoretical and practical knowledge about artificial intelligence in the area of probabilistic closure, learning and language processing and are able to assess possible applications.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,SE,IS,HCI,GE

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) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)

Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Aerospace Computer Science (2020)

Module title			Abbreviation
E-Learning			10-I=EL-161-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science VI		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

Learning paradigms, learning system types, author systems, learning platforms, standards for learning systems, intelligent tutoring systems, student models, didactics, problem-oriented learning and case-based training systems, adaptive tutoring systems, computer-supported cooperative learning, evaluation of learning systems.

Intended learning outcomes

The students possess a theoretical and practical knowledge about eLearning and are able to assess possible applications.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,IS,HCI,GE

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) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)

Master's degree (1 major) Media Communication (2019)
Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)

Module title			Abbreviation
Analysis and Design of Programs			10-I=PA-161-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science II		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

Program analysis, model creation in software engineering, program quality, test of programs, process models.

Intended learning outcomes

The students are able to analyse programs, to use testing frameworks and metrics as well as to judge program quality.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IS,ES,GE

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) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Physics (2016)
Master's degree (1 major) Nanostructure Technology (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)

Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) Nanostructure Technology (2020)
Master's degree (1 major) Physics (2020)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Physics International (2020)
Master's degree (1 major) Quantum Engineering (2020)
Master's degree (1 major) Quantum Technology (2021)
Master's degree (1 major) Computational Mathematics (2022)
Master's degree (1 major) Mathematics (2022)

Module title			Abbreviation
Professional Project Management			10-I=PM-182-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science III		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	Simultaneous completion of module 10-I=PRJAK is recommended.	

Contents

Project goals, project assignment, project success criteria, business plan, environment analysis and stakeholder management, initialisation, definition, planning, execution/control, finishing of projects, reporting, project communication and marketing, project organisation, team building and development, opportunity and risk management; conflict and crisis management, change and claim management; contract and procurement management, quality management, work techniques, methods and tools; leadership and social skills in project management, program management, multiproject management, project portfolio management, PMOs; peculiarities of software projects; agile project management/SCRUM, combination of classic and agile methods.

Intended learning outcomes

The students possess practically relevant knowledge about the topics of production management and/or professional project management. They are familiar with the critical success criteria and are able to initiate, define, plan, control and review projects.

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

V (4)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE, IT, IS, ES, LR, HCI, GE.

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) Computer Science (2018)
Master's degree (1 major) Management (2018)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)
Master's degree (1 major) Information Systems (2019)

Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Algorithms for Geographic Information Systems	10-I=AGIS-161-m01

Module coordinator	Module offered by
holder of the Chair of Computer Science I	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

Algorithmic foundations of geographic information systems and their application in selected problems of acquisition, processing, analysis and presentation of spatial information. Processes of discrete and continuous optimisation. Applications such as the creation of digital height models, working with GPS trajectories, tasks of spatial planning as well as cartographic generalisation.

Intended learning outcomes

The students are able to formalise algorithmic problems in the field of geographic information systems as well as to select and improve suitable approaches to solving these problems.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,IS,HCI

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) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)

Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Aerospace Computer Science (2020)

Module title	Abbreviation
Real-Time Interactive Systems	10-HCI=RIS-182-m01

Module coordinator	Module offered by
holder of the Chair of Computer Science IX	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

This course provides an introduction into the requirements, concepts, and engineering art of highly interactive human-computer systems. Such systems are typically found in perceptual computing, Virtual, Augmented, Mixed Reality, computer games, and cyber-physical systems. Lately, these systems are often termed Real-Time Interactive Systems (RIS) due to their common aspects.
The course covers theoretical models derived from the requirements of the application area as well as common hands-on and novel solutions necessary to tackle and fulfill these requirements. The first part of the course will concentrate on the conceptual principles characterizing real-time interactive systems. Questions answered are: What are the main requirements? How do we handle multiple modalities? How do we define the timeliness of RIS? Why is it important? What do we have to do to assure timeliness? The second part will introduce a conceptual model of the mission-critical aspects of time, latencies, processes, and events necessary to describe a system's behavior. The third part introduces the application state, it's requirements of distribution and coherence, and the consequences these requirements have on decoupling and software quality aspects in general. The last part introduces some potential solutions to data redundancy, distribution, synchronization, and interoperability. Along the way, typical and prominent state-of-the-art approaches to reoccurring engineering tasks are discussed. This includes pipeline systems, scene graphs, application graphs (aka field routing), event systems, entity and component models, and others. Novel concepts like actor models and ontologies will be covered as alternative solutions. The theoretical and conceptual discussions will be put into a practical context of today's commercial and research systems, e.g., X3D, instant reality, Unity3d, Unreal Engine 4, and Simulator X.

Intended learning outcomes

After the course, the students will have a solid understanding of the boundary conditions defined by both, the physiological and psychological characteristics of the human users as well as by the architectures and technological characteristics of today's computer systems. Participants will gain a solid understanding about what they can expect from today's technological solutions. They will be able to choose the appropriate approach and tools to solve a given engineering task in this application area and they will have a well-founded basis enabling them to develop alternative approaches for future real-time interactive systems.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): HCI. Cf. Section 3 Subsection 3 Sentence 8 FSB (subject-specific provisions).

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) Computer Science (2018) Master's degree (1 major) Information Systems (2019) Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020) Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020) Master's degree (1 major) Computer Science (2021) Master's degree (1 major) Information Systems (2022) Master's degree (1 major) Computer Science (2023)

Module title			Abbreviation
Logic Programming			10-I=LP-172-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science I		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

Logic-relational programming paradigm, top-down evaluation with SLD(NF) resolution. Introduction to the logic programming language Prolog: recursion, predicate-oriented programming, backtracking, cut, side effects, aggregations. Connection to (deductive) databases. Comparison with Datalog, short introduction of advanced concepts like constraint logic programming.

Intended learning outcomes

The students have fundamental and practicable knowledge of logic programming. They are able to implement compact and declarative programs in Prolog, and to compare this approach to the traditional imperative programming paradigm.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT, SE, IT, IS.

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) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)

Module title	Abbreviation
Machine Learning for Natural Language Processing	10-I=NLP-182-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

The lecture conveys advanced knowledge about methods in computational text processing. To this end, it presents state of the art models and techniques in the area of machine learning, as well as their technical background, and their respective applications in Natural Language Processing. As one important building block of almost all modern NLP-models, different techniques for learning representations of words, so called Word Embeddings, are presented. Starting from this we cover, among others, models from the area of Deep Learning, like CNNs, RNNs and Sequence-to-Sequence architectures. The theoretical foundations of these models, like their training with Backpropagation, are also covered in depth. For all models presented in the lecture, we show their application to problems like sentiment analysis, text generation and machine translation in practice.

Intended learning outcomes

The participants have solid knowledge on problems and methods in the area of computational text processing and are able to identify and apply suitable methods for a specific task.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT, IS, HCI.

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) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)
Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)

Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)

Module title			Abbreviation
Medical Informatics			10-I=MI-161-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science VI		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

Electronic patient folder, coding of medical data, hospital information systems, operation of computers in infirmary and functional units, medical decision making and assistance systems, statistics and data mining in medical research, case-based training systems in medical training.

Intended learning outcomes

The students possess theoretical and practical knowledge about the application of computer science methods in medicine.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,IS,HCI,GE

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) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)

Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)

Module title			Abbreviation
Performance Engineering & Benchmarking of Computer Systems			10-I=PEB-161-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science II		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 performance engineering of commercial software systems, performance measurement techniques, benchmarking of commercial software systems, modelling for performance prediction, case studies.

Intended learning outcomes

The students possess a fundamental and applicable knowledge in the areas of performance metrics, measurement techniques, multi-factorial variance analysis, data analysis with R, benchmark approaches, modelling with queue networks, modelling methods, resource demand approximation, petri nets.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,ES,HCI,GE

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) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)

Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Aerospace Computer Science (2020)

Module title			Abbreviation
Programming with neural nets			10-I=PNN-182-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science VI		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

Overview over NN, implementation of important NN-architectures like FCN, CNN and LSTMs, practical example for NN-architectures, among others in the area of image and language processing.

Intended learning outcomes

Knowledge about possible applications and limitations of NN, for important architectures (eg. FCN, CNN, LSTM) and how they are implemented in NN-tools like Tensorflow/Keras, ability to program network structures from literature, to prepare data and solve concrete tasks for NN.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE, IT, IS, HCI, GE.

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) Computer Science (2018)
Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)

Module title	Abbreviation
Robotics 1	10-I=RO1-182-m01

Module coordinator	Module offered by
holder of the Chair of Computer Science VII	Institute of Computer Science

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

History, applications and properties of robots, direct kinematics of manipulators: coordinate systems, rotations, homogenous coordinates, axis coordinates, arm equation. Inverse kinematics: solution properties, end effector configuration, numerical and analytical approaches, examples of different robots for analytical approaches. Workspace analysis and trajectory planning, dynamics of manipulators: Lagrange-Euler model, direct and inverse dynamics. Mobile robots: direct and inverse kinematics, propulsion system, tricycle, Ackermann steering, holonomes and non-holonome restrictions, kinematic classification of mobile robots, posture kinematic model. Movement control and path planning: roadmap methods, cell decomposition methods, potential field methods. Sensors: position sensors, speed sensors, distance sensors.

Intended learning outcomes

The students master the fundamentals of robot manipulators and vehicles and are, in particular, familiar with their kinematics and dynamics as well as the planning of paths and task execution.

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

V (4) + 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 is creditable for bonus)

written examination (approx. 60 to 90 minutes)
Separate written examination for Master's students.
Language of assessment: English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IS, ES, LR, HCI, GE.

Workload

240 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) Computer Science (2018)
Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)

Module title	Abbreviation
Security of Software Systems	10-I=SSS-172-m01

Module coordinator	Module offered by
holder of the Chair of Computer Science II	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 lecture provides an overview of common software vulnerabilities, state-of-the-art attack techniques on modern computer systems, as well as the measures implemented to protect against these attacks. In the course, the following topics are discussed:

- x86-64 instruction set architecture and assembly language
- Runtime attacks (code injection, code reuse, defenses)
- Web security
- Blockchains and smart contracts
- Side-channel attacks
- Hardware security

Intended learning outcomes

Students gain a deep understanding of software security, from hardware and low-level attacks to modern concepts such as blockchains. The lecture prepares for research in the area of security and privacy, while the exercises allow students to gain hands-on experience with attacks and analysis of systems from an attacker's perspective.

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 is creditable for 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

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE, IS, LR, HCI, ES.
Basic programming knowledge in C is required.

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) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)
Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Aerospace Computer Science (2020)
Master's degree (1 major) eXtended Artificial Intelligence (xtAI) (2020)

Module title			Abbreviation
Discrete Event Simulation			10-I=ST-161-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science III		Institute of Computer Science	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
8	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Introduction to simulation techniques, statistical groundwork, creation of random numbers and random variables, random sample theory and estimation techniques, statistical analysis of simulation values, inspection of measured data, planning and evaluation of simulation experiments, special random processes, possibilities and limits of model creation and simulation, advanced concepts and techniques, practical execution of simulation projects.

Intended learning outcomes

The students possess the methodic knowledge and the practical skills necessary for the stochastic simulation of (technical) systems, the evaluation of results and the correct assessment of the possibilities and limits of simulation methods.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT,IS,ES,GE

Workload

240 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) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)

Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)
Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Aerospace Computer Science (2020)
Master's degree (1 major) eXtended Artificial Intelligence (xtAI) (2020)

Module title			Abbreviation
Software Architecture			10-I=SAR-161-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science II		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

Current topics in the area of aerospace.

Intended learning outcomes

The students possess a fundamental and applicable knowledge about advanced topics in software engineering with a focus on modern software architectures and fundamental approaches to model-driven software engineering.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,ES

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) Computer Science (2016)
Master's degree (1 major) Mathematics (2016)
Master's degree (1 major) Computational Mathematics (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Module studies (Master) Computer Science (2019)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)

Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Computer Science (2021)
Master's degree (1 major) Computational Mathematics (2022)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Mathematics (2022)
Master's degree (1 major) Computer Science (2023)

Module title	Abbreviation
NLP and Text Mining	10-I=STM-162-m01

Module coordinator	Module offered by
holder of the Chair of Computer Science VI	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

Foundations in the following areas: definition of NLP and text mining, properties of text, sentence boundary detection, tokenisation, collocation, N-gram models, morphology, hidden Markov models for tagging, probabilistic parsing, word sense disambiguation, term extraction methods, information extraction, sentiment analysis. The students possess theoretical and practical knowledge about typical methods and algorithms in the area of text mining and language processing mostly for English. They are able to solve problems through the methods taught. They have gained experience in the application of text mining algorithms.

Intended learning outcomes

The students possess theoretical and practical knowledge about typical methods and algorithms in the area of text mining and language processing. They are able to solve practical problems with the methods acquired in class. They have gained experience in the application of text mining algorithms.

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 is creditable for 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: German and/or English

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT, IT, HCI.

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) Computer Science (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)
Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)

Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's degree (1 major) Computer Science (2021)
Master's degree (1 major) Computational Mathematics (2022)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Mathematics (2022)
Master's degree (1 major) Computer Science (2023)

Module title			Abbreviation
Project - Current Topics in Computer Science			10-I=PRJAK-162-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

Completion of a project task (in Teams).

Intended learning outcomes

The project allows participants to work on a problem in computer science in teams.

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

P (4)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

project report (10 to 15 pages) and presentation of project (15 to 30 minutes)
Each project is offered one time only. The project will not be repeated; there will not be another project with the same topic. Assessment can, therefore, only be offered for the project offered in the respective semester.
Assessment offered: In the semester in which the course is offered
Language of assessment: German and/or English

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT, SE, IT, IS, ES, LR, HCI, GE.

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) Computer Science (2016)
Master's degree (1 major) Computer Science (2017)
Master's degree (1 major) Computer Science (2018)
Master's degree (1 major) Management (2018)
Master's degree (1 major) Computational Mathematics (2019)
Master's degree (1 major) Mathematics (2019)
Master's degree (1 major) Media Communication (2019)
Master's degree (1 major) Information Systems (2019)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)

Module title	Abbreviation
International Marketing	12-M-IMM-161-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management and Marketing	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Description:
The module builds on the knowledge acquired during the Bachelor's degree programme or the *Grundstudium* (stage I studies). It provides a systematic introduction to strategic marketing decisions in global and international contexts. These are explained mainly by Porter's diamond and cluster models. Another focus is on internationalisation strategies, which require country analyses and decisions on the selection of national markets as well as a timing of the countries market development. In addition, the module discusses different strategies for market entry and market development.

Outline of syllabus:
1. Internationalisation of the economy and regional integration processes
   - Globalisation
   - Competitiveness of countries, industries and companies in an international context
2. International strategic marketing decisions
   - Market entry forms
   - Market development strategies
   - Timing strategies
   - International organisation structures
3. Theories and strategies of internationalisation
   - Foreign trade theory
   - Multinational enterprise
   - Internationalisation strategies

Reading:
Meffert, H. / Burmann C. / Becker, C.: Internationales Marketing-Management, Stuttgart etc. (most recent edition).
Berndt, R. / Fantapié-Altobelli C. / Sander M.: Internationales Marketing-Management, Berlin etc. (most recent edition).

Intended learning outcomes

Students acquire in-depth skills in the field of strategic and operational management with particular attention to the international context. Students achieve particular expertise in the analysis, assessment and implementation of international business decisions and gain skills thus guiding the execution of marketing and management positions in globally-active companies.

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 is creditable for 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
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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) Economathematics (2016) Master's degree (1 major) Business Information Systems (2016) Master's degree (1 major) Business Management (2015) Master's degree (1 major) China Business and Economics (2016) Master's degree (1 major) International Economic Policy (2015) Master's degree (1 major) China Language and Economy (2016) Master's degree (1 major) Management (2018) Master's degree (1 major) International Economic Policy (2018) Master's degree (1 major) China Business and Economics (2019) Master's degree (1 major) China Language and Economy (2019) Master's degree (1 major) Information Systems (2019) Master's degree (1 major) China Business and Economics (2021) Master's degree (1 major) China Language and Economy (2021) Master's degree (1 major) Economathematics (2021) Master's degree (1 major) Information Systems (2022) Master's degree (1 major) International Economic Policy (2022) Master's degree (1 major) Management (2022) Master's degree (1 major) Economathematics (2022) exchange program Business Management and Economics (2022)

Module title	Abbreviation
Brand Management & Market Research	12-M-MM-161-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management and Marketing	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Description:
At the beginning of the 21st century, marketing - until then interpreted as a market-oriented corporate management approach - was further developed to be seen as the entrepreneurial task of creating "shared value" for the organisation on the one hand and - broadly speaking - for society on the other hand. This idea leads to high requirements regarding the strategic sustainable positioning of the brand as well as brand management itself.

Outline of syllabus:
1. Brand leadership and brand assessment
2. Brand leadership, identity and relevance according to David Aaker's approach
3. Brand strategies
4. Consumer behaviour
5. Market research methods and the development of brand strategies
6. Market research methods

Intended learning outcomes

Based on the theories of Meffert and Aaker, students will gain a profound understanding for brand leadership, which will be deepened by many pracital implications and examples. Provided by cases studies and market research tools, it's the defined goal of this lecture to convey an in-depth knowledge for consumer behavior and sustainable brand management.

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 is creditable for 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

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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) Economathematics (2016)
Master's degree (1 major) Business Information Systems (2016)

Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)

Module title	Abbreviation
Strategic Networks in Industry	12-M-MS-161-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management and Marketing	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

The primary object of this course is to gain a detailed understanding of strategic networks and of the phenomenon of clustering in the industrial industry. The example of the international automotive industry is used for clarification of the theoretical contents.
The focus is on marketing in industrial companies and also on CSR - CSR is considered the "driver" of sustainable innovations - as well as the different strategy types of sustainable innovations.
Outline of syllabus:
1. Strategic networks and clusters in industrial industries such as the automotive industry
2. Transaction types of Williamson as well as strategic cooperation between automobile manufacturers and suppliers
3. Management of business types, in particular the business of suppliers in the automotive industry
4. Cluster and entrepreneurship activities
5. Sustainable innovation strategies

Intended learning outcomes

By the end of the course, students gain a profound understanding above the basics of network research. Furthermore students will aquire sectoral knowledge of the automotive industry as well as detailed cluster skills.

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 is creditable for 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

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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) Economathematics (2016)
Master's degree (1 major) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)

Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)

Module title			Abbreviation
Strategic Marketing			12-M-SM-161-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Business Management and Marketing		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Description:
The module raises awareness in students of the relevance and necessity of strategic management in a competitive and dynamical competitive process.

Content:
Based on the marketing strategies as well as the stakeholder and entrepreneurship approaches, this module discusses the roots of the concept of strategy in marketing based on Drucker, Porter, Ansoff and Mintzberg. The focus of the module is on thinking in competitive advantages, which is directly related to responsible leadership.

Outline of syllabus:
1. Competitive dynamics requires strategy and leadership
2. Marketing strategies, stakeholder management and entrepreneurship
3. Objectives and tasks of corporate governance in management practice
4. Competitive forces, strategies and benefits according to Michael Porter
5. Growth strategies and marketing myths
6. Future technologies, new businesses and dynamic capabilities
7. Nature and principles of responsible management

Reading:
Barnard, CI (1938): The Functions of the Executive, Harvard University Press, Cambridge, Massachusetts.
Eschenbach, R.; Eschenbach, S.; Kunesch, H. (2008): Strategische Konzepte: Management-Ansätze von Ansoff bis Ulrich, 5th ed., Schäffer-Poeschel Stuttgart.
Freeman, RE (2010): Strategic Management: A Stakeholder Approach, Cambridge University Press.
Grant, R. M.; Nippa, M. (2006): Strategisches Management: Analyse, Entwicklung und Implementierung von Unternehmensstrategien, 5th ed., Pearson Munich.
Hinterhuber, H. H. (2011): Strategische Unternehmensführung -- I. Strategisches Denken, 8th ed., Erich Schmidt Verlag, Berlin.
Hungenberg, H. (2012): Strategisches Management in Unternehmen: Ziele -- Prozesse -- Verfahren, 7th ed., Gabler, Wiesbaden.
Johnson, G.; Scholes, K.; Whittington, R. (2009): Fundamentals of Strategy, 1st ed., Financial Times and Prentice Hall Harlow.
Kotler, P.; Berger, R.; Bickhoff, N. (2010): The Quintessence of Strategic Management, Springer, Heidelberg.
Laasch, O.; Conaway RN (2014): The Principles of Responsible Management: Global Sustainability, Responsibility, and Ethics, Cengage Stamford.
Meffert, H.; Burmannn, C.; Kirchgeorg, M. (2012): Marketing -- Grundlagen marktorientierter Unternehmensführung, 11th ed., Gabler, Wiesbaden.
Meyer, M. (1995): Ökonomische Organisation der Industrie: Netzwerkarrangements zwischen Markt und Unternehmung, Gabler, Wiesbaden.
Müller-Stewens, G.; Lechner, C. (2011): Strategisches Management -- Wie strategische Initiativen zum Wandel führen, 4th ed., Schäffer-Poeschel Stuttgart.
Porter, M. (1999): Wettbewerb und Strategie, Econ Munich. (Original: Porter, M.: On Competition, Boston, 1998.)
Porter, M. (2014): Wettbewerbsvorteile -- Spitzenleistungen erreichen und behaupten, 8th ed., Campus Frankfurt / New York. (Original: Porter, M.: Competitive Advantage, New York, 1985)

Porter, M. (2013): Wettbewerbsstrategie -- Methoden zur Analyse von Branchen und Konkurrenten, 12th ed., Campus, Frankfurt / New York. (Original: Porter, M.: Competitive Strategy, New York, 1980)
Welge, M. K.; Al-Laham, A. (2012): Strategisches Management: Grundlagen -- Prozesse -- Implementierung, 6th ed., Springer Wiesbaden.

Intended learning outcomes

The students have a deeper understanding of the sustainable corporate management and have the basics of the competitive process and competitive dynamics available. In addition, they can use the acquired knowledge, while taking into account the conventional problems of the strategic and sustainable management, to solve business case studys on their own.

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 is creditable for 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

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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) Economathematics (2016)
Master's degree (1 major) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title			Abbreviation
Industrial Management 4			12-M-BE-192-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Business Management and Industrial Management		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This course will develop the objectives, principles and structure of electronically supported procurement processes with a special focus on catalogue-based procurement systems, electronic tendering systems, electronic (reverse) auctions, e-marketplaces, supplier relationship management systems and eSupply chain management systems.

Intended learning outcomes

The students will be able to describe and evaluate both the potentials and goals of electronic supported procurement systens and will be able to design appropriate systems for real-life applications. Students will get insight into the essentials of operational procurement management, especially e-procurement with a focus on catalog-based procurement systems, electronic tendering systems, electronic (reverse) auctions, e-marketplaces, supplier relationship management systems and eSupply chain management systems. After completing this module, students can define and analyze the related tasks and processes and show or develop theory-based and application-oriented possible solutions at a high professional level.

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 is creditable for bonus)

a) Written examination (approx. 40 to 60 minutes) or
b) Presentation (approx. 20 Minutes) and term paper (15 to 20 pages), weighted 1:1 or
c) Term paper (30 to 40 pages) or
d) entirely or partly computerised written examination (approx. 60 minutes) or
e) Portfolio (approx. 20 pages)
Creditable for bonus
Language of assessment: German and/or English

Allocation of places

20 places.
(1) A total of 15 places will be allocated to students of the Master's degree programmes Management as well as International Economic Policy.
Should the number of applications exceed 15, these places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.
(2) A total of 5 places will be allocated to students of the Master's degree programme Information Systems.
Should the number of applications exceed 5, these places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

Additional information

Module can be taught in form of E Learning course, seminar, workshop etc.

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) Information Systems (2019) Master's degree (1 major) China Business and Economics (2021) Master's degree (1 major) China Language and Economy (2021) Master's degree (1 major) Economathematics (2021) Master's degree (1 major) Information Systems (2022) Master's degree (1 major) Management (2022) Master's degree (1 major) Economathematics (2022)

Module title	Abbreviation
Industrial Management 2	12-M-LA-182-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management and Industrial Management	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

This module analyses and classifies approaches of production planning and control. In addition, it develops methods and models of lot sizing and scheduling. The focus is on the determination of optimal production and transport volumes as well as the planning of orders and manufacturing orders.

Intended learning outcomes

Students learn essential concepts, principles and methods of production planning and control with emphasis on the determination of optimal production and transport volumes as well as the planning of production and order sequences. Then, based on this expertise related knowledge broadening and deepening, essential competencies are conveyed, which allow the imaging of realistic situations and problems using mathematical and quantitative models for the derivation and assessment of alternative courses of action. After completion of the module students can answer, analyze and structure questions of production planning and control, goal-oriented. They can also arrange the planning areas in the overall business context and have an in-depth overview of the production planning and control.

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

V (2) + Ü (2)
Course type: might also be offered as eLearning, seminary, workshop, etc.

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 40 to 60 minutes) or b) presentation (approx. 20 minutes) and term paper (15 to 20 pages), weighted 1:1 or c) term paper (approx. 30 to 40 pages) or d) entirely or partly computerised written examination (approx. 60 minutes) or e) portfolio (approx 20 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

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) Management (2018)

Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Industrial Management 1	12-M-SBM-182-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management and Industrial Management	Faculty of Business Management and Economics

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 addresses central issues of strategic supply management. The supply function of the company (purchasing, materials management, procurement logistics) and its strategic importance is analysed and basic methods are developed that are relevant in this area.

Intended learning outcomes

Students learn the principles of performance-oriented optimization of all procurement activities to develop long-term, competitively sensitive potential for success. After completion of the module students are able to prepare structured, to goal-oriented analyze and to respond to performance-oriented issues of strategic procurement based on key instruments. Students are able to accurately classify the tasks of the procurement and to describe and discuss their strategic importance and dominate essential methods and procedures used in this area to apply.

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

V (2) + Ü (2)
Course type: might also be offered as eLearning, seminary, workshop, etc.

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 40 to 60 minutes) or b) presentation (approx. 20 minutes) and term paper (15 to 20 pages), weighted 1:1 or c) term paper (approx. 30 to 40 pages) or d) entirely or partly computerised written examination (approx. 60 minutes) or e) portfolio (approx 20 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)

Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Industrial Management 3	12-M-SPM-182-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management and Industrial Management	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

This module will discuss contents and procedures of strategic production management and, in particular, planning and control concepts.
Students will become familiar with the essentials of strategic production management. Theoretical and analytical models will be used for analysing both economic and ecological issues. In addition, the module will discuss principles of value structure optimisation and will develop competences regarding the development of integrated mathematical models.

Intended learning outcomes

After completion of the module students are able to process, to analyze and answer questions of operations strategy structured and goal-oriented in a global context using appropriate methods. Furthermore, they know the main strategic tasks and objectives in production management and evaluate and apply planning and control concepts for the production in realistic application situations.

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

V (2) + Ü (2)
Course type: might also be offered as eLearning, seminary, workshop, etc.

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 40 to 60 minutes) or b) presentation (approx. 20 minutes) and term paper (15 to 20 pages), weighted 1:1 or c) term paper (approx. 30 to 40 pages) or d) entirely or partly computerised written examination (approx. 60 minutes) or e) portfolio (approx 20 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)

Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title			Abbreviation
Legal Foundations of Risk Management and Compliance			12-M-RM1-161-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Financial Accounting		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
2	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Content: This module analyses the presentation of opportunities and risks in financial reports, i. e. annual or interim reports, in conjunction with selected value-based management and profitability analysis approaches.

Outline of syllabus:
1. Basics of financial reporting and risk management;
2. Practice of risk reporting;
3. Profitability analysis according to Penman;
4. Value-based management and risk management;
5. Residual income and business valuation;
6. Analysis of equity risk;
7. Analysis of credit risk;
8. Risk management monitoring by audit committees and auditors.

Reading list to be provided in class.

Intended learning outcomes

After completing the course, the students will be able
1. to present the relation between risk management and financial reporting;
2. to analyze and solve independently complex problems with respect to the presentation of opportunities and risk in financial reports based on national and international standards;
3. to identify the relation between risks and value-based management;
4. to evaluate independently selected research results concerning risk reporting and desing own research- or practice-oriented projects.

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

V (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

30 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

Additional information

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Workload

60 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) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) Management (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)

Module title			Abbreviation
Financial Statement Analysis and Business Valuation			12-M-UA-161-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Financial Accounting		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Fundamental investing involves valuation, and much of the information for valuation is contained in financial statements. This module provides a basic understanding of financial statement analysis, particularly on how to extract value-relevant information from financial statements, carry out financial statement analysis, and use financial data to value corporations. The module also provides the necessary tools to gain insights into what generates value in a corporation.

Intended learning outcomes

Students can understand publicly traded companies' financial statements (US GAAP/IFRS), identify value-relevant information in financial statements, and use this information for valuation. They know the relevant techniques to evaluate financial statements and understand the fundamental role of financial information in the valuation process. Students can apply valuation technics to real-world cases and recommend investment decisions.

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 is creditable for bonus)

written examination (approx. 60 to 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

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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) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)

Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title			Abbreviation
Philosophy of Science and Ethics in Business Management and Economics			12-M-WEW-182-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Financial Accounting		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module will take the form of a seminar. Participants will independently work on a problem in economic policy or will review an important publication on a topic in economics.

Intended learning outcomes

Students are able to present the status of a current project in a talk as well as to discuss and defend it.

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

term paper (approx. 20 to 25 pages) and presentation (approx. 20 minutes), weighted 2:1
Assessment offered: In the semester in which the course is offered
Language of assessment: German and/or English
creditable for bonus

Allocation of places

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

Additional information

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Workload

300 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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)

Module title			Abbreviation
Risk Management - Concepts and Systems			12-RM-KS-161-m01
Module coordinator		**Module offered by**	
holder of the Chair of Business Management and Accounting		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Concepts: The course will provide students with an overview of the main goals, contents, methods and instruments of opportunity and risk management in industrial and commercial enterprises. **Systems:** The course will provide students with an overview of the design and functionality of essential information systems for risk management.

Intended learning outcomes

Concepts: After completion of the module students have a sound understanding of basic concepts, processes, methods and tools of risk management. They are able to justify the duties and functions of risk management in the company in theory and practice. They can also evaluate proposed solutions for the design of a risk management system, analyze selected issues of risk management and building on that, develop their own solutions. Systems: After completing this module, students can
(i) judge legal, organizational and methodological requirements for the implementation of risk management processes in a risk management information system (RMIS);
(ii) understand the technical basis for RMIS;
(iii) estimate the different characteristics of various information systems for the RM;
(iv) understand the workings of RMIS.

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

V (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) oral examination (one candidate each: approx. 15 to 20 minutes; groups of 2: approx. 20 minutes; groups of 3: approx. 30 minutes)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

25 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

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) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title			Abbreviation
Discounted Cashflow			12-M-CF1-182-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Corporate Finance		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

The module covers discounted cash flow (DCF) methods under certainty as well as uncertainty in the context of the valuation of unlevered and levered companies. Furthermore, tax aspects as well as their influence on the company value are considered.

Syllabus:

1. Introduction
2. DCF Theory under certainty
   1. NPV without taxes
   2. NPV with personal taxes
   3. NPV with corporate taxes
3. DCF Theory under uncertainty
   1. DCF basics
   2. Valuation of unlevered companies
   3. Valuation of levered companies
4. Practice of DCF methods

Intended learning outcomes

After completion of this module, the students will know a variety of discounted cashflow techniques and are able to apply properly them in order to evaluate projects or firms.

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 is creditable for bonus)

a) written examination (approx. 60 to 90 minutes) or b) term paper (approx. 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

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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) Management (2018)

Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)

Module title	Abbreviation
Portfolio and Capital Market Theory	12-M-CF2-182-m01

Module coordinator	Module offered by
Holder of the Chair of Corporate Finance	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

This module conveys profound knowledge of individual portfolio choices and on this basis the most important capital market theory (namely capital asset pricing model) is introduced, including its assumptions, implications and extensions.

Syllabus:

1. Modern Portfolio Selection
   1. 2 Asset-Case
   2. Multiple-Asset-Case
   3. Critique of Portfolio Theory
2. Capital Asset Pricing Model
   1. Assumptions and Derivation
   2. Implications
3. Empirical Aspects, Extensions and Alternatives

Intended learning outcomes

This module enables the students

(i) to explain and to determine the optimal capital market position of an investor given the different investment opportunities and individual utility function;

(ii) to understand and use the central CAPM propositions for valuating risky assets.

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 is creditable for bonus)

a) written examination (approx. 60 to 90 minutes) or b) term paper (approx. 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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title			Abbreviation
Risk Management and Corporate Finance			12-M-CF3-182-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Corporate Finance		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module deals with the valuation and use of classical derivatives in financial markets. In particular, futures, swaps and options are considered as well as their possible applications in the context of financial risk management. In particular, students will be introduced to the theory involved in pricing options, as well as important valuation parameters. In addition, some established risk measures such as value-at-risk are discussed.
1. Introduction
2. Futures & Forwards
3. Swaps
4. Options
5. Measures of risk

Intended learning outcomes

Upon completion of this module students will be able to,

(i) independently determine the fair value of the derivatives discussed, as well as

(ii) to understand and evaluate common capital market hedging strategies.

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 is creditable for bonus)

a) written examination (approx. 60 to 90 minutes) or b) term paper (approx. 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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)

Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)

Module title	Abbreviation
Risk measurement and risk valuation: Concepts and applications for banks	12-M-CF5-182-m01

Module coordinator	Module offered by
Holder of the Chair of Corporate Finance	Faculty of Business Management and Economics

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 augments the usual consideration of symmetric risk metrics by introducing metrics for downside risks and the concept of risk as a capital requirement. The focus for applications in banks lies in the treatment of risks with regard of supervisory regulations.

Intended learning outcomes

After completing the course "Risk measurement and risk valuation: Concepts and applications for banks" the students are able
1. to judge the appropriateness and problems of asymmetric risk measures,
2. to address essential risks in banks and to understand their handling by supervisory regulations as well as
3. to realize the concept of risk as a capital requirement being the systematic base for these aspects in the banking sector.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)

Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)

Module title			Abbreviation
Economics of Tax Planning			12-M-SP-161-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Business Taxation		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This course deals with tax effects on fundamental economic decisions. Taxes are integrated into standard models for investment decisions, financing decisions, firm valuation, dividend policy and remuneration of employees. Therefore, the interaction of corporate and personal income taxes is analysed.
A reading list in English is available on request.

Intended learning outcomes

This course enables students to
(i) combine their knowledge of tax law with microeconomic analyses in the areas of corporate and personal finance;
(ii) analyze the effect of taxes on fundamental economic decisions, e.g. investment and financing decisions, evaluation of investment, financial assets, forms of remuneration for employees including managing and assessing;
(iii) read and discuss research and policy papers in the field of taxation.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages) or c) 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

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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) Economathematics (2016)
Master's degree (1 major) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) International Economic Policy (2018)

Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Tax Accounting	12-M-STB-161-m01

Module coordinator	Module offered by
Holder of the Chair of Business Taxation	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

This module introduces the various methods of income recognition in the German Income Tax Code (*Einkommensteuergesetz*, EStG). It discusses the main reporting and valuation provisions as well as the specific problems and techniques of income calculation for partnerships.

Intended learning outcomes

Students have in-depth knowledge of tax accounting of companies and are able to solve moderate to complex problems of tax accounting in particular of sole proprietorships and partnerships using legal source.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages) or c) 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

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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) Economathematics (2016)
Master's degree (1 major) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)

Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title			Abbreviation
Incentives in Organizations			12-M-AO-182-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Human Resource Management and Organisation		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Based on the classical principal-agent theory, this course discusses methodological and empirical aspects of incentives in organisations. It uses contents from advanced text books and original (mainly empirical) research articles.

Outline of syllabus

1. Principal-agent theory

2. Do top managers earn too much? (application)

3. Performance-based payment

4. Implementation of performance-based payment in companies (application)

5. Seniority payment (with application)

6. Financial incentives to work after retirement (with application)

7. Efficiency wages (with case study)

8. Team incentives (with case study)

Intended learning outcomes

Students acquire a working knowledge of key incentive models models, selected empirical applications and the necessary econometric background. This enables them to identify the advantages and disadvantages of different incentive systems that are applied in the enterprise context, to make informed management analyses and to critically evaluate current controversies and developments as well as to conduct their own research.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
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
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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) Management (2018) Master's degree (1 major) International Economic Policy (2018) Master's degree (1 major) China Business and Economics (2019) Master's degree (1 major) China Language and Economy (2019) Master's degree (1 major) Information Systems (2019) Master's degree (1 major) China Business and Economics (2021) Master's degree (1 major) China Language and Economy (2021) Master's degree (1 major) Economathematics (2021) exchange program Business Management and Economics (2022)

Module title			Abbreviation
Human Resource Management and Industrial Relations			12-M-HRM-192-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Human Resource Management and Organisation		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

The lecture "Human Resource Management and Industrial Relations" introduces advanced theories, estimation techniques and empirical results from the areas of human resources management and institutional frameworks such as ithe different actors in ndustrial relations.

Syllabus

Introduction: Human Resource Management & Industrial Relationships

Chapter 1: The employment contract [formal model]

Chapter 2: Motivation [formal model]

Chapter 3: Employee resistance against reorganisations [empirical study]

Chapter 4: The role of works councils [formal model]

Chapter 5: Works councils and the employer wage structure [empirical study]

Chapter 6: The behaviour of labour unions [formal model]

Chapter7: Learning process of employers [formal model and empirical study]

Chapter8: Demographic challenges of HRM [formal model and empirical study]

Intended learning outcomes

The aim of the lectures is to enable students to understand and apply advanced theories, estimation techniques and empirical results in the area human resource management and industrial relations on the basis of scientifc literature.

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 is creditable for bonus)

a) Written examination (approx. 60 minutes) or
b) Term paper (approx. 15 pages)
Language of assessment: German and/or English

Allocation of places

There are no restrictions with regard to available places for students of the Master's degree programmes Management, International Economic Policy, Information Systems, Wirtschaftsmathematik (Mathematics for Economics) and Chinese and Economics as well as China Business and Economics. A total of 20 places will be allocated to students of other subjects; should the number of applications exceed the number of available places, these places will be allocated by lot.

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) Information Systems (2019) Master's degree (1 major) Political and Social Sciences (2020) Master's degree (1 major) China Business and Economics (2021) Master's degree (1 major) China Language and Economy (2021) Master's degree (1 major) Social Science Sustainability Studies (2021) Master's degree (1 major) Economathematics (2021)

Module title			Abbreviation
Advanced Seminar: Entrepreneurship and Management			12-M-SAS-182-m01

Module coordinator	Module offered by
Holder of the Chair of Entrepreneurship and Strategy	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Students develop seminar papers on varying topics in the domain of entrepreneurship, strategy, and innovation and present the key insights from their work.

Intended learning outcomes

Educational aims

- Enable students to position their research
- Enable students to critically review a substantial body of literature in short time
- Enable students to develop a sound theoretical framework
- Enable students to create a research paper fully meeting academic standards

Learning outcomes

On successful completion of this module students will be able to:

- Differentiate their research from previous work
- Adopt theoretical perspectives to understand complex phenomena
- Engage in comprehensive academic reasoning
- Articulate abstract and complex phenomena and relationships in written and oral form

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

term paper (approx. 20 pages) and presentation (15 to 30 minutes), weighted 2:1
Assessment offered: Once a year, winter semester
Language of assessment: German and/or English

Allocation of places

20 places. (1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects. (2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure. (3) A waiting list will be maintained and places re-allocated by lot as they become available.

Additional information

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Workload

300 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) Management (2018)

Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title			Abbreviation
Corporate Strategy			12-M-UGF2-182-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Entrepreneurship and Strategy		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This theory-led and application-oriented module provides you with critical knowledge and skills related to corporate strategy—essential for anyone aspiring to take on leadership roles in their future career, may it be in the private or public sector. The module goes beyond basic knowledge about strategic management provided by bachelor-level modules.

(1) Developing strategies in pursuit of competitive advantage

(2) Corporate diversification

(3) Vertical integration and outsourcing

(4) Mergers & acquisitions

(5) Dynamic strategies

(6) Cooperative strategies

(7) Corporate spin-offs and spin-outs

(8) Internationalization strategies (I)

(9) Internationalization strategies (II)

(10) Strategic change

(11) Corporate strategies and new technologies

(12) Corporate governance and corporate social responsibility

(13) Corporate communication and crisis management

(14) Wrap-up and Q&A

Intended learning outcomes

Educational aims

- Clarify the role of corporate strategy
- Explain theoretical concepts and mechanisms behind corporate strategy
- Enable students to critically appraise alternative approaches to corporate strategy
- Enable students to evaluate the boundaries and risks of corporate strategy

Learning outcomes

On successful completion of this module students will be able to:

- Assess the role of corporate strategy for creating and sustaining competitive advantage
- Create and evaluate concepts related to corporate strategy
- Make judgements about the organizational and managerial implications of corporate strategy

- Systematically choose between different routes of action

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 is creditable for bonus)

a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages) or c) oral examination of one candicate each (approx. 10 to 15 minutes) or oral examination in groups (groups of 2 approx. 20 minutes, groups of 3 approx. 30 minutes)
Language of assessment: English

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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Change Management	12-M-CHA-182-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management, Management Accounting and Control	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Within the module, theoretical basics of change management are covered. In addition, we present and jointly analyze existing change projects in detail. We try to answer related questions, too. For example, the module discusses how to involve stakeholders in change, what motivates them to embrace change, and whether participation is a universal principle. The module covers projects like merging two departments, restarting a department with team building, conducting an employee survey, or developing a new mission statement. The majority of the projects are taken from the social sector, but can be transferred to industry and SMEs.

Intended learning outcomes

After participating the lecture, students will be able to understand the occurrence of resistance and massive emotional reactions in change processes. Change processes can be critically analyzed and the use of typical instruments in change processes can be questioned. Students are able to identify the typical pitfalls and hurdles in these processes and are able to use their knowledge for own future projects as well as to create their own solutions in change processes.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Assessment offered: In the semester in which the course is offered
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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)

Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)

Module title	Abbreviation
Managerial Accounting in the Company Management	12-M-ClU-182-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management, Management Accounting and Control	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Within the module, theoretical basics of change management are covered. In addition, we present and jointly analyze existing change projects in detail. We try to answer related questions, too. For example, the module discusses how to involve stakeholders in change, what motivates them to embrace change, and whether participation is a universal principle. The module covers projects like merging two departments, restarting a department with team building, conducting an employee survey, or developing a new mission statement. The majority of the projects are taken from the social sector, but can be transferred to industry and SMEs.

Intended learning outcomes

After participating the lecture, students will be able to understand the occurrence of resistance and massive emotional reactions in change processes. Change processes can be critically analyzed and the use of typical instruments in change processes can be questioned. Students are able to identify the typical pitfalls and hurdles in these processes and are able to use their knowledge for own future projects as well as to create their own solutions in change processes.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Assessment offered: In the semester in which the course is offered
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) Management (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)

Module title	Abbreviation
Strategic Managerial Accounting	12-M-INST-182-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management, Management Accounting and Control	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

The module focuses on accounting instruments, which are applied in the context of strategic management of enterprises. First, it addresses important drivers of strategic decisions from a microeconomic perspective, such as the emergence of cost and quality advantages in competition as well as scale and experience curve effects. Second, the module covers analytical and heuristic techniques of planning and control. In the context of these techniques, instruments of target costing, life cycle cost analysis, benchmarking and business wargaming are discussed with regard to their theoretical foundation and fields of application.

Intended learning outcomes

Initially, knowledge about fundamental requirements concerning instruments of decision-making and behavior control within enterprises is acquired. What is more, the module conveys obtaining knowledge about the strengths and weaknesses and therewith fields of application and limits of prevalent instruments of strategic corporate management used by practitioners.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)

Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Coordination, Budgeting and Incentives in Organizations	12-M-KOBO-182-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management, Management Accounting and Control	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

This module focuses on accounting-based instruments to control behavior in decentralized enterprises. The course first discusses the role of accounting in the context of decision-making and behavioral controlling as well as informational analyses. Afterwards, the most common instruments of behavioral controlling (budgeting, value-oriented management, transfer prices) are discussed with regard to theory and practice.

Intended learning outcomes

This module aims to provide knowledge in the context of behavioral control in enterprises. Knowledge about requirements on instruments used for behavioral control are discussed and competences for deployment, structure and development of coordination tools are provided.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Econmathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)

Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Project Management and Control	12-M-PROM-182-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management, Management Accounting and Control	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

The module focuses on the discussion and critical examination of instruments and methods used in the context of project management and control within enterprises. Both classic and agile approaches to project management are considered. It covers characteristic features and structures of projects, their possible success factors, methods and instruments of control and management of projects in various project phases. The theoretical basis as well as potential applications of these instruments are discussed.

Intended learning outcomes

Initially, knowledge about fundamental requirements concerning instruments of project management and control is acquired. What is more, the module conveys knowledge about strengths and weaknesses and therewith fields of application and limits of commonly used instruments and methods of practitioners. Competences within the configuration and development of the project management and control as well as skills within the practical use are obtained.

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

written examination (approx. 60 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

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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) Management (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)

Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Accounting and Capital Markets	12-M-REKA-182-m01

Module coordinator	Module offered by
Holder of the Chair of Business Management, Management Accounting and Control	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

The module focuses on financial and management accounting, their functions, possible configurations as well as their impact on internal and external recipients under consideration of the institutional setting. In this context, an economic perspective has priority over detailed legal arrangements and regulations by the standard setters. Based on the theoretical foundations of information economics as well as decision-making and balance sheet theories, typical issues concerning cost and managerial accounting as well as financial accounting and publicity are discussed.

Intended learning outcomes

Initially, a fundamental knowledge about the conception and impact of management and financial accounting as information systems is acquired. In the following, the module mainly sharpens the understanding of the economic impacts of the configuration of management and financial accounting. What is more, extensive knowledge about possible impacts of changes in institutional general frameworks is covered. For example, changes in valuation standards, publicity rules or regulations about the distribution of profits in enterprises and on capital markets are considered.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)

Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Managerial Analytics & Decision Making	12-M-MADM-182-m01

Module coordinator	Module offered by
Holder of the Chair of Logistics and Quantitative Methods in Business Administration	Faculty of Business Management and Economics

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 "Managerial Analytics & Decision Making" discusses quantitative methods to structure and solve a diverse set of management problems and demonstrates the application of modern methods with the help of multiple case studies.

Intended learning outcomes

After completing this course students can
(i) better understand and structure problems;
(ii) apply important theoretical and empirical frameworks to practical problems that evaluate good and bad decision making;
(iii) implement advanced analytical methods to support decision making under risk.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 to 20 pages)
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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)

Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Strategic Management of Global Supply Chains	12-M-SMGS-182-m01

Module coordinator	Module offered by
Holder of the Chair of Logistics and Quantitative Methods in Business Administration	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Description:
In the course "Strategic Management of Global Supply Chains", students will become familiar with the basic principles of building an efficient global supply chain and will apply what they have learned working on multiple case studies.

Intended learning outcomes

After completing this course students
(i) can apply the basic methods and concepts of supply chain management to practical settings and evaluate the results, and
(ii) understand the effects of global value chains onto strategic company decisions.

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 is creditable for bonus)

written examination (approx 60 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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)

Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title			Abbreviation
Strategic Decisions and Competition			12-M-SDC-182-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Industrial Economics		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

1. Strategic situations and decision making

2. Analyzing strategic situations with game theory

1. Noncooperative simultaneous move games
2. Nash equilibrium
3. Models of oligopoly markets

3. Dynamic Games

1. Two(-multi) stage games and subgame perfect equilibrium
2. Role of commitment in dynamic situations
3. Models of advertising
4. Wage bargaining and unions

4. Repeated Games

1. Emergence of coordination in long interactions
2. Collusion between competing firms
3. Time consistent monetary policy

5. Static games of incomplete Information

1. Bayesian Nash equilibrium
2. Auctions

6. Dynamic games of incomplete information

1. Moral hazard and nonlinear pricing
2. Perfect Bayesian equilibrium
3. Signalling games
4. Job-market signalling
5. Corporate investment and capital structure

Intended learning outcomes

After successful completion of this class, the students should be familiar with economic models that can be used to shape managerial strategy and aid in making decisions in strategic situations. Especially, by making use of simple two stage games, they should be able to formulate dynamic policies in a wide variety of strategic situations. The students will acquire an intuitive understanding of the underlying economic mechanisms which emerge from the analysis of game theoretic models for a wide variety of strategic situations arising in industrial economics, marketing, organization, finance, trade and labor. Moreover, they will acquire skills which enable them to make predictions in strategic situations by making use of simple mathematical models. By means of completing case based exercises, they will learn to transform real life business situations to an appropriate economic model. Based on an analysis of this model, they will be able to devise optimal strategies and derive the corresponding managerial implications.

The course will be taught in English.
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 is creditable for bonus)
a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages) Language of assessment: English creditable for bonus
Allocation of places
--
Additional information
--
Workload
150 h
Teaching cycle
--
Referred to in LPO I (examination regulations for teaching-degree programmes)
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Module appears in
Master's degree (1 major) Management (2018) Master's degree (1 major) International Economic Policy (2018) Master's degree (1 major) China Business and Economics (2019) Master's degree (1 major) China Language and Economy (2019) Master's degree (1 major) Information Systems (2019) Master's degree (1 major) China Business and Economics (2021) Master's degree (1 major) China Language and Economy (2021) Master's degree (1 major) Economathematics (2021) Master's degree (1 major) Information Systems (2022) Master's degree (1 major) International Economic Policy (2022) Master's degree (1 major) Management (2022) Master's degree (1 major) Economathematics (2022) exchange program Business Management and Economics (2022)

Module title			Abbreviation
Theory of Industrial Organization			12-M-TI1-182-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Industrial Economics		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Theory of industrial organisation:
1. Monopoly pricing
   - Nonlinear pricing and mechanism design
   - Dynamic pricing: experience goods, durable goods
2. Oligopoly pricing
   - Static price and quantity competition in homogeneous and differentiated goods markets
   - Comparative statics
   - Equilibrium market structure
3. Dynamic competition in oligopoly markets
   - Subgame perfect equilibrium and models of dynamic competition
   - Repeated games and collusion
4. Strategic behaviour by incumbent firms
   - Entry deterrence and predation
   - Signalling and reputation
5. Behavioral Industrial Organization
   - Reference Dependent Preferences and Framing Effects
   - Time inconsistent behavior

The course will be taught in English.

Intended learning outcomes

Students which complete this class will acquire a working knowledge of advanced theoretical models of competition in oligopoly markets as well as sophisticated pricing techniques in monopoly markets. They will learn the conditions under which the predictions of these models are valid. They will become familiar with applications of advanced game theoretic tools, such as dynamic models of competition, for studying interactions between firms in markets. By means of comprehensive exercises, they will apply the methods they learn in class to practically relevant problems. They will be in a position to read academic papers on related topics, assess the strengths and weaknesses of an approach, summarize and comment on these papers and suggest possible extensions.

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 is creditable for bonus)

a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages)
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
--
Referred to in LPO I (examination regulations for teaching-degree programmes)
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Module appears in
Master's degree (1 major) Management (2018) Master's degree (1 major) International Economic Policy (2018) Master's degree (1 major) China Business and Economics (2019) Master's degree (1 major) China Language and Economy (2019) Master's degree (1 major) Information Systems (2019) Master's degree (1 major) China Business and Economics (2021) Master's degree (1 major) China Language and Economy (2021) Master's degree (1 major) Economathematics (2021) Master's degree (1 major) Information Systems (2022) Master's degree (1 major) International Economic Policy (2022) Master's degree (1 major) Management (2022) Master's degree (1 major) Economathematics (2022) exchange program Business Management and Economics (2022)

Module title			Abbreviation
European Competition Policy			12-M-WPE-192-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Industrial Economics		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Outline of syllabus:
1. Legal environment, competition laws
2. Market definition
   - Qualitative methods
   - Simple quantitative methods
   - Hypothetical monopoly test
3. Horizontal agreements and collusion: repeated games and factors affecting likelihood of collusion
4. Horizontal mergers and collusion
   - Economic theory
   - Efficiency effects
   - Coordinated effects
5. Vertical relations and contracts
   - Economic analysis of contracts
   - "More economic approach"
6. Abuse of dominant position
   - Classification of abusive conduct
   - Economic analysis of abusive conduct and theory of harm

The course will be taught in English.

Intended learning outcomes

After completion of the module students can use the advanced concepts introduced in the lecture of competition policy, including the legal framework, the trace models and methods for the study of competition policy issues, as well as understand the approach of European competition policy in high profile cases. When they are confronted with practical problems, they can refer to these cases, and the same logic to practical examples apply by draining the relevant economic theories that identify variables to be measured and methodologies for assessing, and based on that adequate conclusions for appropriate cases. They will sufficiently understand the subject in order to open up that build upon literature in journals and being able to think critically.

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

V (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 is creditable for bonus)

a) Written examination (approx. 60 to 120minutes) or
b) Term paper (15 to 20 pages)
Creditable for bonus
Language of assessment: English

Allocation of places

There are no restrictions with regard to available places for students of the Master's degree programmes Management, International Economic Policy, Information Systems, Wirtschaftsmathematik (Mathematics for Economics) and Chinese and Economics as well as China Business and Economics. A total of 20 places will be allocated to students of other subjects; should the number of applications exceed the number of available places, these places will be allocated by lot.

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) Information Systems (2019) Master's degree (1 major) Political and Social Sciences (2020) Master's degree (1 major) China Business and Economics (2021) Master's degree (1 major) China Language and Economy (2021) Master's degree (1 major) Social Science Sustainability Studies (2021) Master's degree (1 major) Economathematics (2021) Master's degree (1 major) Information Systems (2022) Master's degree (1 major) International Economic Policy (2022) Master's degree (1 major) Management (2022) Master's degree (1 major) Economathematics (2022)

Module title	Abbreviation
Econometrics 1	12-M-OE1-182-m01

Module coordinator	Module offered by
Holder of the Chair of Econometrics	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Description:
This module deals with the basic concept and methodology of the ordinary least squares (OLS) regression model. In particular, model assumptions and properties are discussed and formally motivated. In addition, the module examines linear restrictions on the model's explanatory variables as well as dummy variables and introduces tests to verify simple and multiple linear restrictions.

Linear algebra is used as formal aid.

Outline of syllabus:
1. Random variables
2. Important distributions
3. Point estimates
4. Simple linear regression model
5. Model assumptions
6. Model properties
7. Simple hypothesis tests
8. Multiple linear regression model
9. Linear restrictions
10. Dummy variables
11. Multiple hypothesis tests

Intended learning outcomes

The students acquire knowledge of the basics, concepts and methods used in the classical linear regression model and understand the role of econometrics in science and data analysis. In particular, they learn how to analytically derive, calculate and interpret the coefficients, standard errors and p-values of a classic regression output of the multiple regression model. Furthermore, they are able to formally state and motivate the assumptions and properties of OLS and know how to deal with transformed and dummy variables. Additionally, students will be able to test multiple linear restrictions on the parameters and will be able to apply these tests to real economic, business and social science questions.
The competences acquired in this course serve as a prerequisite for "Econometrics II", "Econometrics III", "Microeconometrics" und "Financial Econometrics".

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

V (2) + Ü (2)
Module taught in: German (winter semester), English (summer semester)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 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
--
Referred to in LPO I (examination regulations for teaching-degree programmes)
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Module appears in
Master's degree (1 major) Management (2018) Master's degree (1 major) International Economic Policy (2018) Master's degree (1 major) China Business and Economics (2019) Master's degree (1 major) China Language and Economy (2019) Master's degree (1 major) Information Systems (2019) Master's degree (1 major) China Business and Economics (2021) Master's degree (1 major) China Language and Economy (2021) Master's degree (1 major) Economathematics (2021) Master's degree (1 major) Information Systems (2022) Master's degree (1 major) International Economic Policy (2022) Master's degree (1 major) Management (2022) Master's degree (1 major) Economathematics (2022)

Module title	Abbreviation
Advanced Microeconomics	12-M-AM-182-m01

Module coordinator	Module offered by
Holder of the Chair of Contract Theory and Information Economics	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

In a nutshell, microeconomic theory considers the behavior of individual economic agents and builds from this foundation to a theory of aggregate economic outcomes, which then can be applied for conducting welfare analysis and giving policy advice. This lecture addresses the core building block of this thought complex: individual decision making and behavior. Specifically, students will come to understand in detail the standard models of riskless consumer choice, choice under risk and intertemporal choice and learn about the empirical challenges and limitations of these models.

Throughout the lecture, we will work with precise mathematical formalizations of the ideas that we want to think and talk about. In consequence, a solid understanding of the mathematical toolbox of standard microeconomics (e.g., differential calculus and constrained optimization; basic set theory; integration by parts) will be helpful as it will allow to focus on the underlying economic intuition. However, every required mathematical concept will be introduced and explained along the way, such that a strong interest in formal economic analysis is more important than an advanced mathematical background.

The exposition is primarily based on the standard graduate textbooks

- Mas-Colell, Whinston and Green (1995): "Microeconomic Theory"
- Jehle and Reny (2001): "Advanced Microeconomic Theory"

Intended learning outcomes

After completing the course students will be able to
- explain essential findings of microeconomic theory,
- apply the involved methods to given stylized examples on their own,
- recognize in which real life situations and how the results can be applied.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Selected Topics in Business Management and Economics 1	12-M-APW1-161-m01

Module coordinator	Module offered by
Dean of the Faculty of Business Management and Economics	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

This module serves the purpose of transferring credits from
- courses taken at other German or non-German universities
- additional courses offered on a short-term basis
- courses offered by new Chairs that are yet to be included in the FSB (subject-specific provisions)

The holders of the respective Chairs will ensure that the courses are eligible for credit transfer.

Intended learning outcomes

As a result of accrediting multiple kinds of modules, a description of acquired skills cannot be given.

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 is creditable for bonus)

a) written examination (approx. 60 to 90 minutes) or b) written examination (questions concerning mathematical methodology; approx. 120 minutes) or c) term paper (approx. 15 to 20 pages) or presentation (approx. 30 to 45 minutes)
Assessment offered: In the semester in which the course is offered
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) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)

Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)

Module title			Abbreviation
Selected Topics in Business Management and Economics 2			12-M-APW2-161-m01
Module coordinator		**Module offered by**	
Dean of the Faculty of Business Management and Economics		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

This module serves the purpose of transferring credits from
- courses taken at other German or non-German universities
- additional courses offered on a short-term basis
- courses offered by new Chairs that are yet to be included in the FSB (subject-specific provisions)

The holders of the respective Chairs will ensure that the courses are eligible for credit transfer.

Intended learning outcomes

As a result of accrediting multiple kinds of modules, a description of acquired skills cannot be given.

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 is creditable for bonus)

a) written examination (approx. 60 to 90 minutes) or b) written examination (questions concerning mathematical methodology; approx. 120 minutes) or c) term paper (approx. 15 to 20 pages) or d) presentation (approx. 30 to 45 minutes)
Assessment offered: In the semester in which the course is offered
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) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)

Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)

Module title	Abbreviation
Selected Topics in Business Information Systems 1	12-M-AWI1-161-m01

Module coordinator	Module offered by
Dean of the Faculty of Business Management and Economics	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

This module serves the purpose of transferring credits from
- courses taken at other German or non-German universities
- additional courses offered on a short-term basis
- courses offered by new Chairs that are yet to be included in the FSB (subject-specific provisions)

The holders of the respective Chairs will ensure that the courses are eligible for credit transfer.

Intended learning outcomes

As a result of accrediting multiple kinds of modules, a description of acquired skills cannot be given.

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

V (2) + Ü (2)
Course type: alternatively S instead of V + Ü

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) written examination consisting entirely or partly of multiple/single choice questions (approx. 60 minutes) or c) presentation (15 to 20 minutes) with written elaboration (approx. 20 pages), weighted 1:2 or d) oral examination (one candidate each: approx. 10 to 15 minutes; groups of 2: approx. 20 minutes; groups of 3: approx. 30 minutes) or e) entirely or partly computerised written examination (approx. 60 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

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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) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) International Economic Policy (2018)

Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Selected Topics in Business Information Systems 2	12-M-AWI2-161-m01

Module coordinator	Module offered by
Dean of the Faculty of Business Management and Economics	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

This module serves the purpose of transferring credits from
- courses taken at other German or non-German universities
- additional courses offered on a short-term basis
- courses offered by new Chairs that are yet to be included in the FSB (subject-specific provisions)

The holders of the respective Chairs will ensure that the courses are eligible for credit transfer.

Intended learning outcomes

As a result of accrediting multiple kinds of modules, a description of acquired skills cannot be given.

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

V (2) + Ü (2)
Course type: alternatively S instead of V + Ü

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or b) written examination consisting entirely or partly of multiple/single choice questions (approx. 60 minutes) or c) presentation (15 to 20 minutes) with written elaboration (approx. 20 pages), weighted 1:2 or d) oral examination (one candidate each: approx. 10 to 15 minutes; groups of 2: approx. 20 minutes; groups of 3: approx. 30 minutes) or e) entirely or partly computerised written examination (approx. 60 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

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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) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) International Economic Policy (2018)

Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)

Module title	Abbreviation
Digital Marketing I	12-M-DM1-182-m01

Module coordinator	Module offered by
Holder of the Junior Professorship of Digital Marketing and E-Commerce	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Digitalization is rapidly changing our lives, including all types of business relationships. Therefore, new opportunities and approaches have emerged in all areas of the marketing mix: Managers can choose from a wide variety of new communication channels, such as social media networks, blogs, or messengers, and can engage in influencer marketing and search engine optimization. They increasingly rely on online customer co-creation or crowdsourcing and create a wide variety of new digital products and services, often related to completely new business models. Through price crawlers and price setting tools customers' price search behaviors have significantly changed, requiring new price setting techniques. Artificial intelligence enables managers to automize and optimize many of these marketing processes, thus offering new opportunities and challenges for companies. Overall, digital marketing offers a tremendous variety of concepts and approaches to seize respective opportunities and deal with related challenges, which will be largely highlighted and discussed in this course.

Intended learning outcomes

This course provides a broad overview about these new approaches of digital marketing. It explains the underlying concepts of digital marketing and illustrates these approaches and concepts along numerous case studies. After attending this course, students will have a broad as well as in-depth understanding of digital marketing and its tools. Morever, they will understand of how to implement these tools successfully in business practice.

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 is creditable for bonus)

a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages)
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

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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) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) International Economic Policy (2015)

Master's degree (1 major) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Digital Marketing II	12-M-DM2-182-m01

Module coordinator	Module offered by
Holder of the Junior Professorship of Digital Marketing and E-Commerce	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Students are required to put themselves in the following business situation:

A large corporation has just recruited you and your team members as the new heads of the marketing department in one of the firm's divisions in order to manage its general and digital marketing activities. Specifically, it is your task to manage the corporation's digital product portfolio, segmentation and positioning as well as its marketing mix strategy over a period of 10 years.

Structure of the class:

- Long-term business simulation game (details see below) that students will play in groups
- Lectures and discussion rounds on strategic approaches to succeed over a duration of 10 periods

Intended learning outcomes

Studierende lernen in diesem Kurs, zentrale Konzepte des Online- und Offline-Marketings gezielt und bezogen auf die jeweilige Unternehmenssituation anzuwenden. Der Kurs bildet somit die Brücke zwischen Theorievermittlung und entsprechende Anwendung in der Unternehmenspraxis.

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 is creditable for bonus)

a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages)
Assessment offered: In the semester in which the course is offered
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

--

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

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Module appears in

Master's degree (1 major) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) International Economic Policy (2015)

Master's degree (1 major) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
E-Commerce I	12-M-EC1-182-m01

Module coordinator	Module offered by
Holder of the Junior Professorship of Digital Marketing and E-Commerce	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

E-commerce is a highly relevant field for almost all types of companies. However, the ecommerce approaches and strategies applied by companies differ strongly depending on the respective firm context (e.g., in terms of industry, types of customers, types of products). In this seminar, students analyze the specific e-commerce strategy of a selected firm. In doing so, they evaluate the strategies' current and future potential and make suggestions for improvements and for addressing future trends. Furthermore, each lecture session will contain short presentations where the students (in groups) will either apply selected lecture topics to real-world business cases or present the core aspects of research articles dealing with e-commerce topics in general.

Intended learning outcomes

This class enables students to gain insights into real-life e-commerce strategies and to train their abilities in assessing business strategies.

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 is creditable for bonus)

a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages)
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

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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) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)

Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
E-Commerce II	12-M-EC2-182-m01

Module coordinator	Module offered by
Dean of the Faculty of Business Management and Economics	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

E-commerce is a highly relevant field for almost all types of companies. However, the ecommerce approaches and strategies applied by companies differ strongly depending on the respective firm context (e.g., in terms of industry, types of customers, types of products). In this seminar, students analyze the specific e-commerce strategy of a selected firm. In doing so, they evaluate the strategies' current and future potential and make suggestions for improvements and for addressing future trends. Furthermore, each lecture session will contain short presentations where the students (in groups) will either apply selected lecture topics to real-world business cases or present the core aspects of research articles dealing with e-commerce topics in general.

Intended learning outcomes

This class enables students to gain insights into real-life e-commerce strategies and to train their abilities in assessing business strategies.

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

V (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 is creditable for bonus)

a) written examination (approx. 60 to 120 minutes) or b) term paper (15 to 20 pages)
Assessment offered: In the semester in which the course is offered
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

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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) Management (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Real-Time Process Analytics	12-M-RTP-182-m01

Module coordinator	Module offered by
Dean of the Faculty of Business Management and Economics	Faculty of Business Management and Economics

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 advanced approaches to process analytics. Students will learn to model and measure processes and process execution based on past and present data.

Intended learning outcomes

After successfully completing the course, students should be able to
- Understand process modeling and process execution in an SOA
- OLAP analysis in a process warehouse
- Business Rules for BPM
- Complex Event Processing
- Event-driven BPM using CEP and Business Rules

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Assessment offered: In the semester in which the course is offered
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) Management (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Topics in Data Science	12-M-TDS-182-m01

Module coordinator	Module offered by
Holder of the Chair of Business Analytics	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Data science is concerned with extracting knowledge and valuable insights from data assets. It is an emerging field that is currently in high demand in both academia and industry. This course provides a practical introduction to the full spectrum of data science techniques spanning data acquisition and processing, data visualization and presentation, creation and evaluation of machine learning models.

The course focuses on the practical aspects of data science, with emphasis on the implementation and use of the above techniques. Students will complete programming homework assignments that emphasize practical understanding of the methods described in the course.

Intended learning outcomes

Topics covered include:
- Data acquisition and processing
- graph and network models
- text analysis
- working with geospatial data
- Usage of machine learning models (supervised and unsupervised)

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Assessment offered: In the semester in which the course is offered
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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)

Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Topics in Information Systems 1	12-M-TIF1-182-m01

Module coordinator	Module offered by
Dean of the Faculty of Business Management and Economics	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

This module serves the purpose of transferring credits from
- courses taken at other German or non-German universities
- additional courses offered on a short-term basis
- courses offered by new Chairs that are yet to be included in the FSB (subject-specific provisions)

The holders of the respective Chairs will ensure that the courses are eligible for credit transfer.

Intended learning outcomes

As a result of accrediting multiple kinds of modules, a description of acquired skills cannot be given.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) oral examination (one candidate each: 10 to 15 minutes; groups of 2: approx. 20 minutes; groups of 3: approx. 30 minutes) or c) term paper (approx. 15 to 20 pages)
Assessment offered: In the semester in which the course is offered
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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)

Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)

Module title	Abbreviation
Topics in Information Systems 2	12-M-TIF2-182-m01

Module coordinator	Module offered by
Dean of the Faculty of Business Management and Economics	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

This module serves the purpose of transferring credits from
- courses taken at other German or non-German universities
- additional courses offered on a short-term basis
- courses offered by new Chairs that are yet to be included in the FSB (subject-specific provisions)

The holders of the respective Chairs will ensure that the courses are eligible for credit transfer.

Intended learning outcomes

As a result of accrediting multiple kinds of modules, a description of acquired skills cannot be given.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) oral examination (one candidate each: 10 to 15 minutes; groups of 2: approx. 20 minutes; groups of 3: approx. 30 minutes) or c) term paper (approx. 15 to 20 pages)
Assessment offered: In the semester in which the course is offered
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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)

Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)

Module title	Abbreviation
Stochastic Models for Risk Analysis	12-RM-RA-192-m01

Module coordinator	Module offered by
Dean of Studies Mathematik (Mathematics)	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Point and interval estimation for the value at risk Point and interval estimation for the conditional value at risk Prediction of value at risk in time series Risk of forecasts in time series, in particular exponential smoothing under covariates Conditional heteroscedasticity: ARCH, GARCH, EGARCH, DVEC, BEKK, DCC Aggregated losses and their empirical analysis Empirical analysis of statistical distributions Nonparametric bounds for the value at risk and conditional value at risk Empirical estimation of nonparametric bounds for value at risk and conditional value at risk Market model: definition, derivation, parameters, empirical analysis Capital asset pricing model: definition, parameters, empirical analysis Asset portfolios: definition, risk parameters Estimation of portfolio parameters: variance, value at risk, conditional value at risk, shortfall Optimum portfolios: concepts, theory, numerical analysis

Intended learning outcomes

The student is able to estimate risk measures and the parameters of risk models from data. In particular, the student knows software packages and routines which enable empirical risk evaluation in a business context.

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

Ü (2) + V (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Written examination (approx. 60 minutes)

Allocation of places

30 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master's students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

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) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)

Module title	Abbreviation
Stochastic Models for Risk Assessment	12-RM-RW-192-m01

Module coordinator	Module offered by
Dean of Studies Mathematik (Mathematics)	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Etymological background of the risk concept Definitions of risk Basic concepts and terminology of stochastic risk modelling: risk phenomenon, risk object, risk variable, risk source, risk factor, risk cause, direct peril, indirect peril, loss under risk, profit under risk, loss variable, profit variable, risk distribution, risk indicator, risk parameter Classification of business risks Risk policy, risk management Risk analysis: risk identification, risk description, risk exploration, risk-relevant measurements, risk evaluation, risk assessment, risk modelling Risk management: risk minimisation, risk protection, risk avoidance, risk mitigation, bearing of risk, risk prevention Risk control, risk monitoring Norms and standards of risk management: ISO 31000, ONR 49000 -- 49004, IEC/ISO 31010, COSO II, AIRMIC, IRM, ALARM FMEA (Failure Mode and Effect Analysis) as a tool of risk analysis and risk assessment: historical and thematic background, methodology, discussion of the FMEA assessment methodology Risk matrix, risk diagram Score diagram Stochastic risk parameters and risk measures as distribution parameters Probability distributions: Gaussian, Laplace, Student's t, extreme value, logistic, exponential, Weibull, gamma, negative Gaussian, Burr, hyperbolic, generalised hyperbolic Elementary stochastic risk measures: variance, standard deviation, signal-to-noise ratio, coefficient of variation, Sharpe ratio, nonconformance probability, expected shortfall, shortfall probability, risk parameters under reference values, Stone family Value at Risk and Conditional Value at Risk: definition, formal representations, values under special probability distributions Axioms of risk measures: distribution invariance, subadditivity, superadditivity, additivity, comonotonous additivity, nonnegative homogeneity, translation invariance, convexity, continuity, coherence

Intended learning outcomes

The student knows the schemes and concepts of risk analysis, risk assessment, risk measurement, and the theoretical background. The student knows the concepts of advanced stochastic risk modeling. In a practical business situation, the student is able to identify an appropriate scheme of risk assessment and corresponding meaningful risk measures.

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 is creditable for bonus)

Written examination (approx. 60 minutes)

Allocation of places

30 places.
Should the number of applications exceed the number of available places, places will be allocated as follows:
(1) Master's students of Information Systems will be given preferential consideration.
(2) The remaining places will be allocated to students of other subjects.
(3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.

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) Information Systems (2019) Master's degree (1 major) China Business and Economics (2021) Master's degree (1 major) China Language and Economy (2021) Master's degree (1 major) Economathematics (2021)

Module title	Abbreviation
Communication in Business and Economics	12-M-BUC-182-m01

Module coordinator	Module offered by
Holder of the Professorship of Economic Journalism	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

The lecture names introductory relevant communication models. Furthermore, the theoretical models of PR are discussed. The added value of communication for companies, business, politics, and science is explained. The discrepancy between journalism and PR is discussed, as well as the basic elements, instruments, goals, and forms of PR. The preparation and implementation of press meetings, conferences, campaigns, and events will be systematically explained, and the central aspects of corporate communications will be outlined. The exercise deals with the practical implementation of journalistic styles in the various media and provides an overview of the possibilities and concepts of PR work across different media and target groups.

Intended learning outcomes

After participating in the module courses, students are able to understand and apply PR and its forms, elements as well as methods and in a holistic context. Students learn professional competencies in the field of (business) communication with regard to reflection, argumentation, and exchange as a PR consultant in different areas. In addition, students will be able to apply concrete PR instruments in practice and prepare them professionally.

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 is creditable for bonus)

written examination (approx. 60 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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)

Master's degree (1 major) Economathematics (2021)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Business Communication in Print, Online and Social Media	12-M-ECC-182-m01

Module coordinator	Module offered by
Holder of the Professorship of Economic Journalism	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

This module focuses on the relationship of offer characteristics with benefit aspects for the end consumer and the business models on the part of the providers. Starting from the basics of editorial work and professional text management, the new forms of communication management in social networks are presented. The focus of the lecture is on the use of social media in campaigns (Facebook, Twitter, Instagram, Tiktok). There will also be exercises on various Web 2.0 applications (e.g. online social networks) and on the collection and interpretation of online market research data. However, crisis communication of companies will also be covered in particular opinion-makers on the web as well as protest culture on the web.

Intended learning outcomes

By participating in the module courses, students acquire job-specific skills in research and interviewing. Students are able to collect and organize information according to criteria of topicality and relevance. In addition, students are taught journalistic expertise so that they are able to recognize the forms of presentation of news, reports, and background reports with their media characteristics and communicative functions in different media genres and create them themselves. Students will be able to prototype and design a social media campaign, describe the editorial and technical approach including feedback, response, and customer engagement. In addition, students will be able to design counter-strategies for corporate communication crises.

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 is creditable for bonus)

written examination (approx. 60 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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Media Communication (2019)

Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
Master's degree (1 major) Media Entertainment (2022)
Master's degree (1 major) Psychology of digital media (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Managerial Practice Lectures	12-M-VGP-202-m01

Module coordinator	Module offered by
Holder of the Professorship of Economic Journalism	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

In this lecture, we invite board members of publicly listed companies, SMEs and Startups to discuss contemporary challenges of corporate management.

Students gain sustainable insights into current management practices, challenges of corporate management in various industries, and discuss pressing managerial issues with C-level executives. In individual and group assignments, students are required to connect management theories with the managerial challenges of the speakers.

Managers of the different companies are required to address the following questions that will foster a detailed discussion at the end of each lecture:

- What are the current challenges facing your company?

- Which strategies do you employ to respond to these challenges?

- How have leadership concepts and approaches changed in your company?

Intended learning outcomes

After participating in this module, students should be able to combine theoretical approaches with current challenges in management. The students obtain a realistic insight into a cross-section of the German economy. Through discussions reports and group presentations students' social skills are trained in addition to professional skills.

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

portfolio (approx. 15 pages)
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

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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) Business Information Systems (2016)

Master's degree (1 major) Business Management (2015)
Master's degree (1 major) International Economic Policy (2015)
Master's degree (1 major) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Advanced Topics in Data Science	12-M-ATDS-211-m01

Module coordinator	Module offered by
Holder of the Chair of Business Analytics	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

In this course, students work on advanced data science projects. The course covers the entire data science workflow from data collection to data preparation to modeling, evaluation and deployment. By following a top-down teaching approach, students are enabled to apply complex machine learning models from the beginning.

Intended learning outcomes

As part of the course work, students will acquire knowledge and skills in the following areas:
1. Becoming familiar with the principles and frameworks in the research area of Data Science.
2. Apply machine learning and deep learning frameworks to structured and unstructured data
3. Design, implementation and evaluation of key algorithms within an end-to-end workflow in the field of Data Science
4. Application of Jupyter notebooks and their infrastructure (collection, storage, retrieval, and analysis of data)
5. Understanding of a data-driven & analytical approach to decision problems

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages)
Language of assessment: German and/or English
Assessment offered: Only when announced in the semester in which the courses are offered
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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
International Marketing Strategy	12-M-IMS-211-m01

Module coordinator	Module offered by
Dean of the Faculty of Business Management and Economics	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

The objective of this simulation course is to develop hands-on skills of how to make international marketing decisions. Emphasis is put on the computer simulation game Country Manager which focuses on the managerial issues arising when companies plan and execute market entry into new countries. This exercise allows students to experience the challenges pertaining to corresponding decisions by playing the role of a responsible manager for a major consumer products company. Students have to decide on the countries to enter, the mode of entry, the segments to target, and every aspect of the marketing mix (price, promotion, place and product) and will get immediate feedback on the consequences of their actions.

Intended learning outcomes

After completion of the course, participants should have gained a broad appreciation of critical decisions in international marketing.

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (40 to 60 minutes) or
b) term paper (15 to 20 pages) and presentation (approx. 20 minutes) (weighted 2:1) or
c) term paper (30 to 40 pages) or
d) portfolio (approx. 20 pages)
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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
exchange program Business Management and Economics (2022)

Module title	Abbreviation
Economist Practice Lectures	12-M-VWP-211-m01

Module coordinator	Module offered by
Holder of the Senior Professorship for Economics, Money and International Economic Relations	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

The content of the seminar is the active participation in as well as the follow-up of the lectures of economists from different national and international fields of activity, which are organized for the event.

The invitation of speakers from practice strengthens the practical orientation of the scientifically founded and at the same time internationally oriented education at the faculty of economics of the University of Würzburg.

In this way, students will gain lasting insights into the fields of activity of economists, gain an insight into practical activities, discuss these with high-ranking economists and combine them with theoretical economic knowledge gained during their studies.

Intended learning outcomes

By participating in the seminar, Master's students of the faculty of economics and business administration should get to know the different fields of activity of economists and the questions that determine the daily work of the speakers in the course of the lectures.

In addition, the participants of the seminar will have the opportunity to apply the knowledge of economics they have acquired during their studies. For this purpose, in addition to a discussion with the speakers following the respective lecture, a debating workshop is offered to the participants of the seminar, in which the students are to learn economic argumentation and debate management. The learned contents and competencies will be tested at the end of the semester.

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

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) oral examination (one candidate each: approx. 10 to 15 minutes, groups of 2: approx. 20 minutes, groups of 3: approx. 30 minutes) or
b) term paper (approx. 10 pages) and presentation (approx. 15 minutes); (weighted 2:1) or
c) 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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)

Module title			Abbreviation
Enterprise AI			12-M-EAI-221-m01
Module coordinator			**Module offered by**
Holder of the Chair of Business Management and Business Information Systems			Faculty of Business Management and Economics
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 (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or
b) term paper (approx. 15 pages) or
c) 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

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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) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)

Module title			Abbreviation
Information Systems and Artificial Intelligence 1			12-M-KI1-221-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Business Management and Business Information Systems		Faculty of Business Management and Economics	
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 (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or
b) oral examination in groups of up to 3 candidates (approx. 10 minutes per candidate) or
c) term paper (approx. 15 to 20 pages)
Language of assessment: German and/or English
Assessment offered: In the semester in which the course is offered
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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
exchange program Business Management and Economics (2022)

Module title			Abbreviation
Information Systems and Artificial Intelligence 2			12-M-KI2-221-m01
Module coordinator		**Module offered by**	
Holder of the Chair of Business Management and Business Information Systems		Faculty of Business Management and Economics	
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 (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

a) written examination (approx. 60 minutes) or
b) oral examination in groups of up to 3 candidates (approx. 10 minutes per candidate) or
c) term paper (approx. 15 to 20 pages)
Language of assessment: German and/or English
Assessment offered: In the semester in which the course is offered
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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)

Module title			Abbreviation
Vertical Storytelling			12-M-VS-221-m01
Module coordinator		**Module offered by**	
--		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	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)

S (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

portfolio (approx. 5 pages)
Assessment offered: every year, summer semester

Allocation of places

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Additional information

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Workload

300 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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)

Module title			Abbreviation
Organizational Economics and Digital Transformation			12-M-OEDT-231-m01
Module coordinator		**Module offered by**	
--		Faculty of Business Management and Economics	
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 (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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
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

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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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)

Module title	Abbreviation
Policy Evaluation Methods	12-M-PEM-182-m01

Module coordinator	Module offered by
Holder of the Chair of Labor Economics	Faculty of Business Management and Economics

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

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

This course offers an introduction to the fundamentals of causal inference and to widely used research designs in the social sciences. In the first part a framework for understanding causality is introduced. Specifically, the epistemological differences between association, intervention and counterfactuals are explained. Then it is shown why experiments are paramount in generating causal knowledge and which assumptions are needed for which level of the causal hierarchy. Finally, we will discuss two widely used approaches to causality in the social sciences, i.e. potential outcomes and directed acyclic graphs.

The second part is devoted to the research designs regressions analysis, difference-in-differences, instrumental variables, and regression discontinuity. The emphasis is how these research designs are for example applied to answer important questions in labour economics such as the effects of a minimum wage increase on employment or the effect of children on female labour supply and wages.

The assumptions each research design requires in order to identify a causal effect will be at center stage of the lecture. Therefore the emphasis is to teach students *what* one needs to estimate in order to answer a given question. Further, the research designs are discussed such that students will be able to evaluate and apply these research designs to other questions and fields.

Intended learning outcomes

At the end of the course, students should be able to understand basic concepts and methods of causal inference, as well as read, interpret, and assess the credibility of scientific publications. In addition, the course serves as preparation for advanced statistics and econometrics courses.

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 is creditable for bonus)

a) written examination (approx. 60 minutes) or b) term paper (approx. 15 pages)
Language of assessment: English
creditable for bonus

Allocation of places

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Additional information

Research track module in Master's programme IEP

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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) China Business and Economics (2021)
Master's degree (1 major) China Language and Economy (2021)
Master's degree (1 major) Social Science Sustainability Studies (2021)
Master's degree (1 major) Economathematics (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)
Master's degree (1 major) Economathematics (2022)
exchange program Business Management and Economics (2022)

Module title			Abbreviation
Topics in Empirical Economics			12-M-TE-231-m01
Module coordinator		**Module offered by**	
--		Faculty of Business Management and Economics	
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 (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 is creditable for bonus)

portfolio (approx. 50 hours)
Prüfungssprache: Englisch
Creditable for bonus

Allocation of places

12 *WA1(1) Should the number of applications exceed the number of available places, places will be allocated by lot among all applicants irrespective of their subjects.
(2) Places on all courses of the module with a restricted number of places will be allocated in the same procedure.
(3) A waiting list will be maintained and places re-allocated by lot as they become available.

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) Management (2018)
Master's degree (1 major) International Economic Policy (2018)
Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) International Economic Policy (2022)
Master's degree (1 major) Management (2022)

Module title			Abbreviation
Systems Benchmarking			10-I=SB-212-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		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 (2) + Ü (2)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for 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).
creditable for bonus
Language of assessment: German and/or English

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): SE,IT,ES,HCI,GE

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) Information Systems (2019)
Master's degree (1 major) eXtended Artificial Intelligence (xtAI) (2020)
Master's degree (1 major) Computer Science (2021)
Master's degree (1 major) Aerospace Computer Science (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)
Master's degree (1 major) Aerospace Computer Science (2023)

Module title	Abbreviation
Computer Vision	10-xtAI=CV-202-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

The lecture provides knowledge about current methods and algorithms in the field of computer vision. Important basics as well as the most recent approaches to image representation, image processing and image analysis are taught. Actual models and methods of machine learning as well as their technical backgrounds are presented and their respective applications in image processing are shown.

Intended learning outcomes

Students have fundamental knowledge of problems and techniques in the field of computer vision and are able to independently identify and apply suitable methods for concrete problems.

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 is creditable for 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

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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) Information Systems (2019)
Master's degree (1 major) eXtended Artificial Intelligence (xtAI) (2020)
Master's degree (1 major) Computer Science (2021)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)
Master's degree (1 major) Aerospace Computer Science (2023)

Module title			Abbreviation
Image Processing and Computational Photography			10-I=IP-222-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 (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 is creditable for 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

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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) Information Systems (2019)
Master's degree (1 major) eXtended Artificial Intelligence (xtAI) (2020)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)
Master's degree (1 major) Aerospace Computer Science (2023)

Module title			Abbreviation
Multilingual NLP			10-I=MNLP-232-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 (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 is creditable for 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

--

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

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Module appears in

Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)

Module title	Abbreviation
Statistical Network Analysis	10-I=SNA-232-m01

Module coordinator	Module offered by
holder of the Chair of Computer Science XV	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

Networks matter! This holds for technical infrastructures like communication or transportation networks, for information systems and social media in the World Wide Web, but also for various social, economic and biological systems. What can we learn from data that capture the interaction topology of such complex systems? What is the role of individual nodes and how can we discover significant patterns in the structure of networks? How do these structures influence dynamical process like diffusion or the spreading of epidemics? Which are the most influential actors in a social network? And how can we analyze time series data on systems with dynamic network topologies?
Addressing those questions, the course combines a series of lectures -- which introduce fundamental concepts for the statistical modelling of complex networks -- with weekly exercises that show how we can apply them to practical network analysis tasks. Topics covered include foundations of graph theory, centrality and modularity measures, aggregate statistical characteristics of large networks, random graphs and statistical ensembles of complex networks, generating function analysis of expected graph properties, scale-free networks, stochastic dynamics in networks, spectral analysis, as well as the modelling of time-varying networks. The course material consists of annotated slides for lectures as well as a accompanying git-Repository of jupyter notebooks, which implement and validate the theoretical concepts covered in the lectures. Students can test and deepen their knowledge through weekly exercise sheets. The successful completion of the course requires to pass a final written exam.

Intended learning outcomes

The course will equip participants with statistical network analysis techniques that are needed for the data-driven modelling of complex technical, social, and biological systems. Students will understand how we can quantitatively model the topology of networked systems and how we can detect and characterize topological patterns. Participants will learn how to use analytical methods to make statements about the expected properties of very large networks that are generated based on different stochastic models. They further gain an analytical understanding of how the structure of networks shapes dynamical processes, how statistical fluctuations in degree distributions influence the robustness of systems, and how emergent network features emerge from simple random processes.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits):

IN
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) Information Systems (2019) Master's degree (1 major) Information Systems (2022) Master's degree (1 major) Computer Science (2023) Master's degree (1 major) Aerospace Computer Science (2023)

Module title			Abbreviation
Operations Research			10-I=OR-232-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 (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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IN

Workload

150 h

Teaching cycle

--

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

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Module appears in

Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)

Module title			Abbreviation
Machine Learning for Networks 1			10-I=MLN1-232-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 (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 is creditable for 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

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): AT,IT,SE,KI,HCI,IN

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) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)

Module title			Abbreviation
Data Science			10-I=DM-232-m01
Module coordinator		**Module offered by**	
holder of the Chair of Computer Science IX		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

Foundations in the following areas: definition of data mining and knowledge discovery in databases, process model, relationship to data warehouse and OLAP data preprocessing, data visualisation, unsupervised learning methods (cluster- and association methods), supervised learning (e. g. Bayes classification, KNN, decision trees, SVM), learning methods for special data types, further learning paradigms.

Intended learning outcomes

The students possess a theoretical and practical knowledge of typical methods and algorithms in the area of data mining and machine learning. They are able to solve practical knowledge discovery problems with the help of the knowledge acquired in this course and by using the KDD process. They have acquired experience in the use or implementation of data mining algorithms.

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 is creditable for 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: German and/or English
creditable for bonus

Allocation of places

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Additional information

Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): IT,KI,HCI,GE,SEC

Workload

150 h

Teaching cycle

--

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

--

Module appears in

Master's degree (1 major) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)
Master's degree (1 major) Computer Science (2023)
Master's degree (1 major) Aerospace Computer Science (2023)

Thesis

(30 ECTS credits)

Module title			Abbreviation
Master Thesis Information Systems			12-WI-MA-192-m01
Module coordinator		**Module offered by**	
Dean of the Faculty of Business Management and Economics		Faculty of Business Management and Economics	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
30	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Students will complete their degree with a Master's thesis in which they will be required to independently research and write on a topic in the area of business management and economics, drawing on the subject-specific knowledge they have acquired and adhering to the principles of good scientific practice. This thesis may either take the form of an analysis and structured presentation of the existing literature on a certain topic or may, as is often the case, also include a presentation of the students' own original achievements, e. g. new algorithms developed by students, surveys, the prototypical demonstration of a concept they developed or the application and (further) development of a theoretical model.

Intended learning outcomes

In the master thesis students prove that they can plan and carry out a science-based work to solve a particular problem within a specified period autonomously and to document the results in accordance with the professional scientific standards in writing. Students are able to understand relevant contributions to research and professional practice, critically analyze and assess the relevance to their own specific questions. They can assess and recognize major lines of development and dynamics of the subject and therefore also the need to retrain continuously.

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

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Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Master's thesis (approx. 60 to 80 pages)
Language of assessment: German and/or English

Allocation of places

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Additional information

Time to complete: 6 months

Workload

900 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) Information Systems (2019)
Master's degree (1 major) Information Systems (2022)