Akzentsetzungsmodul der Informatik

inf006 - Software Engineering II

Module label: Software Engineering II
Modulkürzel: inf006
Credit points: 6.0 KP
Workload: 180 h

Verwendbarkeit des Moduls

- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Praktische Informatik
- Master's Programme Environmental Modelling (Master) > Mastermodule

Zuständige Personen

Winter, Andreas (Module responsibility)

Prerequisites

Skills to be acquired in this module

The objective of the module inf006 Software Engineering II is to deepen the subjects and skills of the module Software Engineering I. Special software engineering topics will be presented, deepened and discussed. The lecture deals with different software engineering methods and technology which will be discussed in the seminar. The discussions are contextualised by scientific research projects, practical projects and latest research findings. Professional competence: The students: - Deepen software engineering methods and techniques - Use specific software engineering methods and techniques - Differentiate developmental techniques of software systems - Discuss software engineering topics - Design software systems by using appropriate methods - Solve software engineering problems independently - Reflect self-designed software engineering solutions critically and present them appropriately Methodological competence: The Students: - Structure problems with modelling techniques - Develop actual methods of software engineering - Present software engineering solutions - Write scientific papers independently Social competence: The Students: - Explain and discuss software development solutions in their practical use - Accept criticism and see it as an asset Self-competence: The Students: - Reflect their problem-solving behaviour with regard to the possibilities of software technology - Internalize the presented developmental methods and integrate them in their own actions

Module contents

The following subjects are provided:

- Concept of systems
- Iterative and agile process models of software development
- System development and cost estimation
- Methods, techniques and tools to collect requirements
- Techniques to develop and describe software architecture
- Measurement and evaluation of software systems
- Extended techniques of modelling, meta-modelling, domain specific languages
- Model based development
- Methods and techniques of software evolution

Literaturempfehlungen

- Helmut Balzert: Lehrbuch der Software-Technik, Spektrum Akademischer Verlag, 3. Auflage 2009

and actual papers from IEEE Software, IEEE Transactions on Software-Engineering, Informatik-Spektrum and conferences (z.B. ICSE, ICSM, WCRE, CSMR, ICPC, SLE, u.a.)

Links

Language of instruction: German
Duration (semesters): 1 Semester
Module frequency: jährlich
Module capacity: unlimited
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<thead>
<tr>
<th>Modullevel / module level</th>
<th>AS (Akzentsetzung / Accentuation)</th>
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<th>Type of examination</th>
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<td>At the end of the lecture period</td>
<td>Portfolio (30-minute presentation, 1 paper (4 pages, IEEE) and oral exam)</td>
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Präsenzzeit Modul insgesamt

56 h
info08 - Information Systems II

Module label | Information Systems II
---|---
Modulkürzel | inf008
Credit points | 6.0 KP
Workload | 180 h

Verwendbarkeit des Moduls
- Bachelor's Programme Business Informatics (Bachelor) > Aufbaucurriculum-Wahlbereich Praktische Informatik
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Wirtschaftsinformatik
- Master Applied Economics and Data Science (Master) > Specialization
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Praktische Informatik)
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik

Zuständige Personen
- Grawunder, Marco (Module responsibility)
- Lehrende, Die im Modul (Prüfungsberechtigt)

Prerequisites
The Module “Information Systems II” enhances the knowledge and the concepts of “Information Systems I”.

Skills to be acquired in this module

Professional competence
- The students:
  - Know further concepts, languages and architectures of databases
  - Analyse advanced information processing tasks
  - Analyse complex requirements of information systems appropriately
  - Realize information requirements and gather relevant information

Methodological competence
- The students:
  - Propose concrete processing principles for special application classes
  - Reflect specific technologies’ consequences and proceedings

Social competence
- The students:

Self-competence
- The students:
  - Reflect their problem-solving behaviour with regard to extended information processing concepts

Module contents
- Implementation of databases (architecture, index structures, query processing and optimization)
- Data integration and data analysis (data integration, data warehouses, data mining)
- Information retrieval
- Parallel databases

Literaturempfehlungen
Suggested reading:
- Härder, T., Rahm, E.: Datenbanksysteme - Konzepte und Techniken der Implementierung, Morgan Kaufmann
- U. Leser, F. Naumann. Informationsintegration: Architekturen und Methoden zur Integration verteilter und heterogener Datenquellen. dpunkt
- Bauer/Günzel. Data-Warehouse-Systeme, dpunkt
- Han/Kamber/Pel. Data Mining: Concepts and Techniques, Morgan Kaufmann
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inf018 - Media Processing

Module label | Media Processing
---|---
Modulkürzel | inf018

Credit points | 6.0 KP

Workload | 180 h

Verwendbarkeit des Moduls

- Bachelor's Programme Biology (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Business Administration and Law (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor's Programme Business Informatics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Chemistry (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Bachelor's Programme Computing Science (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Economics and Business Administration (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Education (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Environmental Science (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Engineering Physics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Environmental Science (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Intercultural Education and Counselling (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Mathematics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Physics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Physics, Engineering and Medicine (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Social Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Sustainability Economics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Art and Media (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Biology (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Chemistry (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Praktische Vertiefung (60 KP)
- Dual-Subject Bachelor's Programme Dutch Linguistics and Literary Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Economics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Elementary Mathematics (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme English Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Gender Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme General Education (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme German Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme History (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Dual-Subject Bachelor's Programme Material Culture: Textiles (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
The students can explain the basics of image processing and know which algorithms exist for the basic tasks in image processing and how these are applied.

The students can apply basic methods of image processing they learned in the lecture to solve simple problems.

**Professional competence:**
The students can:
- name basic characteristics of digital media
- explain the most common methods for encoding and compressing images, video and audio
- describe basic procedures for image enhancement, feature extraction, feature description, image analysis and image comprehension

**Methodological competence:**
The students can:
- recognize and evaluate image properties and decide for suitable image processing methods
- select existing software packages for simple image processing problems, as well as use and customize them for their specific task
- implement simple image and media processing functions in a higher programming language (e.g., C++)

**Social competence**
The students:
- can plan, implement, and document a software project in team work
- can present the results of their work to an audience and adequately respond to criticism and questions

**Self competence**
The students:
- can accept and learn from mistakes made during the process of implementation
Module contents

The lecture covers the technologies of media processing. In particular, the lecture focuses on image processing
chain from digital imaging, through image pre-/and postprocessing, and image storage to image analysis. In
addition to compression techniques and color space theory (RGB, HSV, YUV, CIEXYZ, ...), the topics of the
lecture include image enhancement, feature extraction, feature description, image analysis and image
comprehension. The lecture furthermore discusses the encoding and analysis of video and audio.

Literature empfehlungen


Literatur im Handapparat der Abteilung in der Bibliothek. Linkliste im Lernmanagementsystem zu den einzelnen
Themen der Vorlesung.

Links

http://medien.informatik.uni-oldenburg.de/lehre

Language of instruction

German

Duration (semesters)

1 Semester

Module frequency

Annually

Module capacity

unlimited

Reference text

Useful previous knowledge: Solid programming skills in Java and/or C++, practical informatics. Interest in media
processing

Modul level / module level

AS (Akzentsetzung / Accentuation)

Module type / type of module

je nach Studiengang Pflicht oder Wahlpflicht

Teaching/Learning method

1V + 1Ü

Previous knowledge / Vorkenntnisse

Gute Programmierkenntnisse in Python, Java und/oder JavaC++, Interesse an Medienverarbeitung.

Examination

Prüfungszeiten

Type of examination

Final exam of module

Die Vorstellung des praktischen Projektes an einem
Projekttag aller Kleingruppen findet direkt im
Anschluss an die Vorlesungszeit statt. Die
mündliche Prüfung findet in den ersten beiden
Wochen nach Ende der Vorlesungszeit statt. Etwaige Nachprüfungen finden am Ende der
vorlesungsfreien Zeit statt. Der genaue Zeitplan
kann den Webseiten der Abteilung sowie den
Angaben im Lernmanagementsystem Stud.IP
entnommen werden.

Project and oral exam

The portfolio comprises two graded submodules:
• Practical group project which progress has
to be presented regularly during the
tutorials.
• Oral exam on the topics of the lecture.

Practical project and oral exam count 50% each to
the final grade. Both practical project and oral exam
must be passed individually.

Form of instruction

Comment

SWS

Frequency

Workload of compulsory
attendance

Lecture

2

WiSe

28

Project

2

WiSe

28

Präsenzzeit Modul insgesamt

56 h
**inf100 - Human Computer Interaction**

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<th>Human Computer Interaction</th>
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<td>Modulkürzel</td>
<td>inf100</td>
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<td>Credit points</td>
<td>6.0 KP</td>
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<tr>
<td>Workload</td>
<td>180 h</td>
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**Verwendbarkeit des Moduls**
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Praktische Informatik
- Master's Programme Engineering of Socio-Technical Systems (Master) > Embedded Brain Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems (Master) > Human-Computer Interaction

**Zuständige Personen**
Boll-Westermann, Susanne (Module responsibility)
Lehrrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**

**Skills to be acquired in this module**
With the help of suitable resources, the students can design, prototype, and evaluate a human-machine interface following the user-centered design process (HCD).

**Professional competence**
The students:
- can describe and explain the HCD process.
- can classify an unknown method into the HCD process when they are presented with a brief description.
- can select a suitable prototyping approach for a given application.
- can select a suitable prototyping method for a given application.
- can apply selected prototyping methods to create an interactive system.
- can name basic characteristics of human perception and motor skills and explain their importance for the development of interactive systems.
- can suggest and motivate improvement for a given user interface based on the gestalt laws.
- can explain the characteristics of human visual search and utilize it to improve given interfaces.
- can critically compare several variants of an interactive system’s concept based on the “Multiple Resource Theory”.

**Methoden competence**
The students:
- can critically compare and select methods for context of use and/or user requirements analysis.
- can apply methods for context of use and/or user requirements analysis to a real-world example.
- can retrospectively discuss and evaluate the use of a method for context of use and/or user requirements analysis.
- can plan, moderate and evaluate an ideation session.
- can formulate a precise research question based on a given problem description.
- can discuss the advantages and disadvantages of an experiment design.
- can select a suitable experiment design for a given research question.
- can define hypotheses and null hypotheses for a given experiment.

**Social competence**
The students:
- can work out solutions for a given design problem in group work.
- can present solutions to design problem in the plenum.
- can motivate their methodical approach to a design problem.
- can discuss their designs and results in an appropriate and professional manner with the plenum.
- can accept criticisms by their peer group as valuable contributions to their designs.

**Module contents**
The module covers research methods in the field of human-computer interaction. It discusses the core principles of human-computer interaction and the human-centered design process and its phases, context of use, requirements, and task analysis, prototyping and evaluation. Research methods used in the different phases of the process are introduced and discussed.

Available design options for human-machine interfaces are presented and discussed with regard to human perception capabilities and their limitations. The module discusses methods for user research, including surveys, diaries, case studies, interviews, and focus groups, as well as physiological measurements.

The module goes into further detail on evaluation methods, and introduces the foundations of experimental research in human-computer interaction, including types of research, research hypotheses, experimental design, and statistical analysis.

During the practical project, a concrete human-computer interface will be designed, developed and evaluated.
### Literaturempfehlungen

- Markus Dahm, Grundlagen der Mensch Computer-Interaktion. Pearson, 2006
- Literature in the reserve shelf in the university bibliography. Link list in Stud.IP.

### Links

| Links | medien.informatik.uni-oldenburg.de/lehre |

### Languages of instruction

| Languages of instruction | German, English |

### Duration (semesters)

| Duration (semesters) | 1 Semester |

### Module frequency

| Module frequency | once a year |

### Module capacity

| Module capacity | unlimited |

### Reference text

| Reference text | Useful previus knowledge: Interactive Systems |

### Module level / module level

| Module level / module level | AS (Akzentsetzung / Accentuation) |

### Modulart / typ of module

| Modulart / typ of module | V+P |

### Vorkenntnisse / Previous knowledge

| Vorkenntnisse / Previous knowledge | Grundkenntnisse Programmierung |

### Examination

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<th>Prüfungszeiten</th>
<th>Type of examination</th>
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<td>Final exam of module</td>
<td>The completed practical projects will be presented on a single project day, which will take place at the end of the lecture period. The oral exam takes place within the last two weeks of the lecture period. If necessary, re-examinations will take place at the end of the term. Details on the schedule can be found on the websites of the department and in Stud.IP.</td>
<td>Practical group project which progress has to be presented regularly during the tutorials. Oral exam on the topics of the lecture. Practical project and oral exam count 50% each to the final grade. Both practical project and oral exam have to be passed individually.</td>
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### Form of instruction

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### Präsenzzeit Modul insgesamt

| Präsenzzeit Modul insgesamt | 56 h |
inf108 - Requirements Engineering and Management

Module label | Requirements Engineering and Management
---|---
Modulkürzel | inf108
Credit points | 6.0 KP
Workload | 180 h

Verwendbarkeit des Moduls
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodulle der Informatik
- Master's Programme Computing Science (Master) > Praktische Informatik

Zuständige Personen
Winter, Andreas (Module responsibility)
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

Skills to be acquired in this module
The objective of the module "Requirements Engineering and Management" is to convey the core concepts and technology of the requirements engineering and of the requirements management. In the second half of the semester these methods and techniques will be carried out practically to develop an exemplary requirements definition.

Professional competence
The students:
- integrate the process of requirements engineering in the software engineering process
- name the methods and tools of requirements engineering and management
- select methods and tools from requirements engineering and management to solve given problems appropriately
- illustrate the key tasks of the requirements engineering and management
- name the essential concepts to develop and to structure ideas
- discuss the methods of determination requirements and develop validation concepts
- differentiate the software development core activities in greater detail

Methodological competence
The students:
- apply the methods of determination, documentation, validation and confirmation of requirements and
- create a comprehensive requirement document in group work

Social competence
The students:
- communicate with all stakeholders dealing with software development
- design project visions in groups
- collect requirements in interviews
- design requirements for software systems collaboratively

Self-competence
The students:
- reflect their problem-solving behaviour by applying requirements engineering and management capabilities

Module contents
The module deals with requirements analysis core concepts as well as methods and techniques of requirements engineering and management. Topics of this module are:

- the necessity of requirements engineering and management
- the requirements engineering process in the software development process
- requirements engineering process (participants, documents, activities)
- understanding the application domains (vision development, system environment documentation, domain model development, use case identification)
- requirements collection (functional and non-functional requirements, requirements collection, requirements documentation, requirements validation, requirements needs)
- requirements management

Literatureempfehlungen
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inf109 - Information Systems III

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<td>Grawunder, Marco (Module responsibility)</td>
</tr>
<tr>
<td>Lehrenden, Die im Modul (Prüfungsberechtigt)</td>
<td></td>
</tr>
</tbody>
</table>

**Prerequisites**

**Skills to be acquired in this module**

**Professional competence**

The students:

- describe concepts, languages and architectures of database systems
- discuss state-of-the-art database research topics
- analyse information processing tasks and implement solutions appropriately

**Methodological competence**

The students:

- propose concrete processing requirements for special application classes
- assess the consequences of techniques and approaches
- perform supervised research in the field of information systems
- analyse and reflect complex information system requirements
- realize information demands and accordingly gather aim-oriented information

**Module contents**

This module is a continuation of the content of information systems I and of information systems II. It deepens and extends the contents of the preceding modules and focuses mainly on current research questions. A special focus lies on concept of distributed data management.

**Literaturempfehlungen**

- Özsu, M. Tamer; Valduriez, Patrick, Principles of distributed database systems
- Rahm/Saake/Sattler: Verteiltes und Paralleles Datenmanagement, Springeer
- Paper from SIGMOD, VLDB or ICDE

**Links**

http://www.is.informatik.uni-oldenburg.de/lehre/lehre.html

**Language of instruction**

German

**Duration (semesters)**

1 Semester

**Module frequency**

jährlich

**Module capacity**

unlimited

**Modullevel / module level**

AS (Akzentsetzung / Accentuation)

**Modulart / typ of module**

je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning method**

**Vorkenntnisse / Previous knowledge**

- Informationssysteme I
- Informationssysteme II
- JAVA

**Examination**

<table>
<thead>
<tr>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Final exam of module</td>
</tr>
<tr>
<td>At the end of the lecture period</td>
<td>Written exam, oral exam or term paper</td>
</tr>
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</table>

**Form of instruction**

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td>WiSe</td>
<td>28</td>
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</table>

<table>
<thead>
<tr>
<th>Exercises</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>WiSe</td>
<td>28</td>
</tr>
</tbody>
</table>

**Präsenzzeit Modul insgesamt**

56 h
<table>
<thead>
<tr>
<th>Module label</th>
<th>Advanced Database Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf111</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
<tr>
<td>Verwendbarkeit des Moduls</td>
<td>Master's Programme Business Informatics (Master) &gt; Akzentsetzungsmodul der Informatik</td>
</tr>
<tr>
<td></td>
<td>Master's Programme Computing Science (Master) &gt; Praktische Informatik</td>
</tr>
<tr>
<td>Zuständige Personen</td>
<td>Grawunder, Marco (Module responsibility)</td>
</tr>
<tr>
<td>Lehrenden Die im Modul (Prüfungsberechtigt)</td>
<td></td>
</tr>
<tr>
<td>Prerequisites</td>
<td>- Informationssysteme I</td>
</tr>
<tr>
<td>Skills to be acquired in this module</td>
<td>Objective of the module/skills:</td>
</tr>
<tr>
<td></td>
<td>The module enhances the previous knowledge of databases and information systems. In the context of a professional database system the students realize, implement, install and optimize the system. Theoretical and mathematical approaches are additional contents. Additionally the course provides the capability both to describe the differences between NoSQL Databases and (Object-)Relational Databases and how to use them.</td>
</tr>
<tr>
<td></td>
<td>Professional competence</td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>- name realisation techniques, implementations und programming of database systems</td>
</tr>
<tr>
<td></td>
<td>- program and implement database oriented system routines</td>
</tr>
<tr>
<td></td>
<td>- administer a professional database system - identify database system performance problems and solve them appropriately</td>
</tr>
<tr>
<td></td>
<td>Methodological competence</td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>- make optimisation decisions during the modelling phase</td>
</tr>
<tr>
<td></td>
<td>- construct optimisation strategies mathematically</td>
</tr>
<tr>
<td></td>
<td>Social competence</td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>- develop appropriate implementations for given problems in a team</td>
</tr>
<tr>
<td></td>
<td>Self-competence</td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>- acknowledge the limits of their ability to cope with pressure during the implementation of database specific solutions</td>
</tr>
<tr>
<td>Module contents</td>
<td>Content of the Module:*</td>
</tr>
<tr>
<td></td>
<td>The module is a practical course. It is a continuation of the modules Information Systems I and Information Systems II. This module especially deals with the technical and theoretical concepts of database systems. Practical database implementation approaches and optimisation concepts are additional content of the module. In detail the module provides: low-level database management programming, aspects of catalogue systems implementation, optimisation strategies based on different parallelisation and partitioning strategies, query concepts and modification.</td>
</tr>
<tr>
<td>Literatureempfehlungen</td>
<td>Suggested reading:</td>
</tr>
<tr>
<td></td>
<td>- Held Andrea (2007), Oracle 10g Addison-Wesley.</td>
</tr>
<tr>
<td></td>
<td>- Oracle 10g, Das Programmierhandbuch, Galileo Computing</td>
</tr>
<tr>
<td></td>
<td>- Oracle Database 11g, DBA-Handbuch, Oracle Press-Hanser Verlag</td>
</tr>
<tr>
<td></td>
<td>- NoSQL (2011) Hanser Verlag</td>
</tr>
<tr>
<td>Links</td>
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<tr>
<td>Language of instruction</td>
<td>German</td>
</tr>
<tr>
<td>Duration (semesters)</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Module frequency</td>
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</tr>
<tr>
<td><strong>Module capacity</strong></td>
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<tr>
<td>---------------------</td>
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<td><strong>Modullevel / module level</strong></td>
<td>AS (Akzentsetzung / Accentuation)</td>
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<tr>
<td><strong>Modulart / typ of module</strong></td>
<td>je nach Studiengang Pflicht oder Wahlpflicht</td>
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<tr>
<td><strong>Lehr-/Lernform / Teaching/Learning method</strong></td>
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<tr>
<td><strong>Vorkenntnisse / Previous knowledge</strong></td>
<td>- Betriebssystemkenntnisse</td>
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<tr>
<td><strong>Examination</strong></td>
<td>Prüfungszeiten</td>
</tr>
<tr>
<td><strong>Final exam of module</strong></td>
<td>at the end of the lecture period</td>
</tr>
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<td><strong>Form of instruction</strong></td>
<td>Practical training</td>
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<td><strong>SWS</strong></td>
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<td><strong>Frequency</strong></td>
<td>SoSe</td>
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<tr>
<td><strong>Workload Präsenzzeit</strong></td>
<td>56 h</td>
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</tbody>
</table>
inf112 - Modern Programming Technologies

Module label
Modern Programming Technologies

Modulkürzel
inf112

Credit points
6.0 KP

Workload
180 h

Verwendbarkeit des Moduls
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Praktische Informatik

Zuständige Personen
Boles, Dietrich (Module counselling)
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

Skills to be acquired in this module
The objective of the module is to provide the students with modern programming technologies. After the course, the students are able to use these technologies during the development and implementation of complex applications.

Professional competence
The students:
- name modern programming technologies
- appropriate use modern programming technologies to solve complex problems

Methodological competence
The students:
- search for solutions to specific problems in the internet independently

Social competence
The students:
- develop software in teams
- discuss own and someone else's solutions

Self-competence
The students:
- reflect their problem-solving behaviour and take up new solutions, e.g. from the internet

Module contents
The module enhances the students' programming skills. It focuses on modern programming technologies. Among others, these are .NET-Framework, Java Server Technologies like Java EE or Spring, Android App development or the development of skills for digital voice assistants. The new technologies are presented in the lecture part. In the exercises, the students develop their own larger applications in groups of 2 or 3 students in reference to the lecture content.

Literaturempfehlungen
list of links in the learning management system

Links
Language of instruction
German
Duration (semesters)
1 Semester
Module frequency
jährlich
Module capacity
unlimited
Reference text
Useful previous knowledge: good programming skills

Modullevel / module level
AS (Akzentsetzung / Accentuation)
Modulart / typ of module
Wahlmodul / Opportunity
Lehr-/Lernform / Teaching/Learning method
VL+Ü
Vorkenntnisse / Previous knowledge
- gute Programmierkenntnisse
Examination
Prüfungszeiten
Type of examination
practical exercises and oral exam

Final exam of module
The presentation of developed solutions takes place weekly during the exercises. Final delivery of the final software application is one week after the end of the lecture period. The oral exam take place in the second or third week after the end of the lecture
Examining period. Any re-examinations take place at the end of the semester break. The exact timetable can be found in the learning management system.

<table>
<thead>
<tr>
<th>Examination</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
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</thead>
<tbody>
<tr>
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<td>Exercises</td>
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<td>Workload Präsenzzeit</td>
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</table>
### inf113 - Operating Systems II

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Modulkürzel</td>
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<tr>
<td>Credit points</td>
<td>6.0 KP</td>
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<tr>
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</table>

**Verwendbarkeit des Moduls**
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodul der Informatik
- Master's Programme Computing Science (Master) > Praktische Informatik

**Zuständige Personen**
- Theel, Oliver (Module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

### Prerequisites
**Skills to be acquired in this module**
The aim of the module "Operating Systems 2" is to convey further knowledge and skills regarding the conception, implementation, and evaluation of operating systems.

**Professional competence:**
The Students:
- assess in detail what an operating system is able do
- recognize the problems in the implementation of operating systems
- identify and evaluate implementations of further subproblems and apply them

**Methodological competence:**
The Students:
- transfer implementation concepts to other contexts
- critically question different solutions with regard to their properties

**Social competence:**
The Students:
- solve problems partly in small groups
- present own potential solutions to the exercise group
- discuss their different potential solutions within the exercise group

**Self-competence:**
The Students:
- accept criticism
- reflect their own potential solutions taking into account the methods taught

### Module contents
The module conveys the following contents:
1. additional aspects of file systems
2. Input/output control
3. User representation
4. Advanced synchronization concepts
5. User interfaces
6. Job scheduling
7. Architectures of operating systems
8. Examples of operating systems

### Literatureempfehlungen
- Grundlagen moderner Betriebssysteme, dpunkt-verlag

### Links
**Language of instruction**
- German

**Duration (semesters)**
- 1 Semester

**Module frequency**
- Alle 2 Jahre
<table>
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<tr>
<td><strong>Modulart / typ of module</strong></td>
<td>je nach Studiengang Pflicht oder Wahlpflicht</td>
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<tr>
<td><strong>Lehr-/Lernform / Teaching/Learning method</strong></td>
<td>V+Ü</td>
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<tr>
<td><strong>Vorkenntnisse / Previous knowledge</strong></td>
<td>- Betriebssysteme I</td>
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<th>Prüfungszeiten</th>
<th><strong>Type of examination</strong></th>
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<tbody>
<tr>
<td><strong>Final exam of module</strong></td>
<td>written or oral exam</td>
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<th><strong>Comment</strong></th>
<th><strong>SWS</strong></th>
<th><strong>Frequency</strong></th>
<th><strong>Workload of compulsory attendance</strong></th>
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<tbody>
<tr>
<td>Lecture</td>
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<td>2</td>
<td>WiSe</td>
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<tr>
<td>Exercises</td>
<td></td>
<td>2</td>
<td>WiSe</td>
<td>28</td>
</tr>
</tbody>
</table>

**Präsenzzeit Modul insgesamt** 56 h
inf131 - Advanced Topics in Human Computer Interaction

Module label | Advanced Topics in Human Computer Interaction
---|---
Modulkürzel | inf131
Credit points | 6.0 KP
Workload | 180 h

Verwendbarkeit des Moduls
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodul der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Computing Science (Master) > Praktische Informatik
- Master's Programme Engineering of Socio-Technical Systems (Master) > Human-Computer Interaction

Zuständige Personen
Boll-Westermann, Susanne (Module responsibility)
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
Skills to be acquired in this module

This course aims to provide a sample of some of the most recent and significant advances in this exciting area. Topics may include: situational awareness, designing for attention, ambient/peripheral interaction, computer support cooperative work and social computing (CSCW), ubiquitous and context-aware computing, haptic and gestural interaction, audio interaction, gaze-based interaction, biometric interfaces, and embedded, physical and tangible computing, mobile and wearable interfaces.

This course is explicitly not focused on the methods used in HCI practice (i.e., user-centered design cycle), but rather focuses on (recent) research.

Professional competences:
The students:
- demonstrate a systematic understanding of knowledge and critical awareness of a selection of the recent research advances in the area of HCI
- evaluate and critique recent developments in the field of HCI on scientific and technological grounds
- develop ability to conceptualize, design, implement, and evaluate user-centered systems and techniques.
- plan and implement exploratory projects directed at envisioning and prototyping novel interactive artifacts

Methodological competences:
The students:
- analyze, review and critique research papers
- carry out original research from start to finish
- summarize and present research findings
- work in a team to produce and evaluate prototypes of novel interactive artifact

Social competences:
The students:
- work collaboratively in groups to analyze and review research papers
- summarize and present research findings to rest of class
- discuss how HCI concepts and methods can be applied in analysis, design, and evaluation of interactive technologies.
- discuss social and ethical implications of interactive technologies

Self-competences:
The students:
- are comfortable tackling original research questions
- show aptitude in conceptualizing and running both qualitative and quantitative HCI experiments
- acquire the ability to summarize, analyze, and critique published (peer-review) research papers

Module contents

HCI is a fast-growing field, where scientific research in this area crosses multiple disciplines. The body of theoretical and empirical knowledge that can inform the design of effective systems is rapidly developing, which underscores the importance of current research in the field.

This course aims to provide a sample of some of the most recent and significant advances in this exciting area.
Topics may include: situational awareness, designing for attention, ambient/peripheral interaction, computer support cooperative work and social computing (CSCW), ubiquitous and context-aware computing, haptic and gestural interaction, audio interaction, gaze-based interaction, biometric interfaces, and embedded, physical and tangible computing, mobile and wearable interfaces.

The course will consist of lectures and lab sessions. Lab sessions will cover assignments (writing paper reviews, presentations, and peer assessment). In addition to assignments and a final exam, a small part of the course includes a mini group-based HCI project.

**Literature recommendations**


**Links**

[http://www.medien.informatik.uni-oldenburg.de/lehre](http://www.medien.informatik.uni-oldenburg.de/lehre)

**Language of instruction**

English

**Duration (semesters)**

1 Semester

**Module frequency**

semi-annual

**Module capacity**

24

**Reference text**

Useful previous knowledge: Interactive Systems

**Module level / module level**

AS (Akzentsetzung / Accentuation)

**Modulart / typ of module**

je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning method**

V+Ü

**Vorkenntnisse / Previous knowledge**

Interaktive Systeme

**Examination**

Prüfungszeiten

**Type of examination**

Final exam of module

At the end of the lecture period

Missing the exam
If you cannot attend the exam with valid reasons (medical reason, exam schedule conflicts), you need to inform us before the exam, and submit a scanned copy of the evidence (medical certificate, course registration, boarding passes) within 5 days after the exam.

- If the reason for missing the exam is valid, you will do your first try of the exam for the parts that you missed on the same date as the second chance exam.
- If the reason is not valid, you will not get any score from that exam. If your overall score passed the course, you will not have a chance to take the exam again.

**Grading:**
Your grade will be calculated as follows:

<table>
<thead>
<tr>
<th>Scored Items</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final</td>
<td>40</td>
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<tr>
<td>Assignments A01–03</td>
<td>20</td>
</tr>
<tr>
<td>Mini HCI research project</td>
<td>40</td>
</tr>
<tr>
<td>Form of instruction</td>
<td>Comment</td>
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<tr>
<td>---------------------</td>
<td>---------</td>
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<tr>
<td>Lecture</td>
<td></td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
</tr>
<tr>
<td><strong>Präsenzzeit Modul insgesamt</strong></td>
<td></td>
</tr>
</tbody>
</table>
inf501 - Environmental Information Systems

Module label: Environmental Information Systems

Modulekürzel: inf501

Credit points: 6.0 KP

Workload: 180 h

Verwendbarkeit des Moduls
- Master Applied Economics and Data Science (Master) > Data Science
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Environmental Modelling (Master) > Mastermodule
- Master's Programme Sustainability Economics and Management (Master) > Additional Modules

Zuständige Personen
Vogel-Sonnenschein, Ute (Module responsibility)

Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
Skills to be acquired in this module
- The module gives an overview of the phases and important aspects of the environmental information processing. **Professional competence** The students: - apply basic processing algorithms to classify and process data - compare, evaluate and design data structures to store spatial data efficiently - apply basic functions of a geo-information system - describe, evaluate and apply basic processes of data mining - describe, evaluate and apply basic geostatistics processes - evaluate and apply multicriteria decision making processes
- **Methodological competence** The students: - use geoinformation systems for environmental application - use data mining tools for data analysis **Social competence** The students: - present and discuss their solutions in class **Self-competence** The students: - reflect their own behaviour with regard to the methods of environmental informatics

Module contents
Content of the Module: Environmental information systems make information about the general environmental state available for public management and public facilities, enterprises or interested citizens. The collection, storage and evaluation of this information is interesting for computer science. Within the scope of the lecture we will examine the processing of environmental information step-by-step, this means: - problems of data acquisition and data processing - data structures and database concepts for an efficient access to (usually) spatial data, - introduction of data analysis (in particular from geostatistics and data mining), - introduction of multicriteria decision processes, as well as - the supply of data supported by meta data. The module "Umweltinformationssysteme" is accompanied by the module "Modellbildung in Simulation ökologischer Systeme". The subjects of "Modellbildung in Simulation ökologischer Systeme" represent the dynamic aspects of environmental systems (mainly of ecological systems). Nevertheless, the modules can be taken independently from each other.

Literaturempfehlungen

Links

Language of instruction: German

Duration (semesters): 1 Semester

Module frequency: jährlich

Module capacity: unlimited

Reference text
Associated with the module: - inf500 Modellbildg. und Sim. ökol. Systeme

Modullevel / module level

Modulart / typ of module

Vorkenntnisse / Previous knowledge
- Datenbanken
- Grundlagen der Statistik/Stochastik

Examination
Prüfungszeiten
Type of examination

Final exam of module
Second and third week after the end of the lecture period - retake before the upcoming lecture period
Practical exercises and oral examination or portfolio

Form of instruction
Comment
SWS
Frequency
Workload of compulsory attendance
Lecture
3
SoSe
42
Exercises
1
SoSe
14

Präsenzzeit Modul insgesamt
56 h
inf502 - Simulation

Module label: Simulation

Modulkürzel: inf502

Credit points: 6.0 KP

Workload: 180 h

Verwendbarkeit des Moduls:
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Engineering of Socio-Technical Systems (Master) > Systems Engineering

Zuständige Personen:
- Hahn, Axel (Module responsibility)
- Sauer, Jürgen (Module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites:

Skills to be acquired in this module:
Simulation is a major tool for gaining knowledge about systems and their behavior. It can be used to gain system understanding and prediction future system status. The module covers mathematical basic as well a basic simulation technology. The module completes itself by addressing application examples. By seminar and practical work, the students get hands on experience of simulation technologies.

Professional competence:
The students:
- get an overview on methods, tools and application areas of simulation. They know what simulation can do and what are its limitation. Covered application are mainly in transportation and production domain.

Methodological competence:
The students:
- know simulation technologies and model building basics. They understand the handling of time and problems of discretization. After lecture students can solve problems with simulation. This includes modelling, use of simulation environment and evaluation of results. Cause of practical use, the independent handling of research questions and the use of simulation as research method will be learned.

Social competence:
The students:
- gain team and social skills by self-organized development of simulation.

Self-competence:
The students:
- can apply simulation technologies on scientific research questions.

Module contents:
In lectures the students get background information and simulation basics. Then they apply their knowledge by developing an own simulation by using state of the art simulation environments.

Literaturempfehlungen:

Links:
Languages of instruction: German, English
Duration (semesters): 1 Semester
Module frequency: annually
Module capacity: unlimited
Modulelevel / module level: AS (Akzentsetzung / Accentuation)
<table>
<thead>
<tr>
<th>Modulart / typ of module</th>
<th>je nach Studiengang Pflicht oder Wahlpflicht</th>
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<tbody>
<tr>
<td>Lehr-/Lernform / Teaching/Learning method</td>
<td>V+S+P</td>
</tr>
<tr>
<td>Vorkenntnisse / Previous knowledge</td>
<td>Programmierkenntnisse vornehmlich in Java sind zwingend erforderlich</td>
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<td>Examination</td>
<td>Prüfungszeiten</td>
</tr>
<tr>
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<td>Anmeldung 2 Wochen nach Vorlesungsbeginn</td>
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| Präsenzzeit Modul insgesamt | 56 h |
inf510 - Energy Information Systems

Module label | Energy Information Systems
---|---
Modulkürzel | inf510
Credit points | 6.0 KP
Workload | 180 h

Verwendbarkeit des Moduls
- Master Applied Economics and Data Science (Master) > Specialization
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Environmental Modelling (Master) > Mastermodule

Zuständige Personen
Lehnhoff, Sebastian (Module responsibility)
Lehrende, Die im Modul (Prüfungsberechtigt)

Prerequisites
The students will learn different approaches to integrate distributed facilities, the regulatory framework, relevant standards and architecture concepts of energy management systems and will be able to apply this knowledge.

Professional competence
The students:
- develop and evaluate IT-architectures for energy management systems
- model objects of this domain appropriately
- model energy information systems
- realise and differentiate advanced tasks of decentralised energy management systems

Methodological competence
The students:
- identify problems of energy management, analyse these problems systematically and provide solutions
- apply different simulation approaches of decentralised plants and consumers

Social competence
The students:
- discuss solutions for energy management systems in the group
- develop use cases in teams
- present self-developed solutions

Self-competence
The students:
- reflect their actions with regard to structuring and decomposing systems
- reflect their own use of power as a limited resource

Module contents
This module provides the computer science basics for energy management. It provides the requirements of energy supply information systems with the focus on technical components and the requirements of decentralised and renewable energy plants.

These are:
- Architectures for energy information systems, e.g. SOA, Seamless Integration Architecture (IEC TC 57), OPC-UA
- Norms and standards of energy industry data models (CIM, 61850)
- Systematisation of energy information system requirements based on ontologies
- Development, analysis and adaption of energy industry reference models and processes
- Methods and technologies to support energy industry processes
- Methods and algorithms to support decision processes of the decentralised energy plants control
- Smart Grid plant communication, particularly for load management
- Methods for modelling and simulation of power supply system dynamics

Literaturempfehlungen
- Crastan V.: "Elektrische Energieversorgung II", Springer 2004
<table>
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# inf511 - Smart Grid Management

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## Verwendbarkeit des Moduls
- Master's Programme Business Informatics (Master) > Akzentsetzungenmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Engineering Physics (Master) > Schwerpunkt: Renewable Energies
- Master's Programme Environmental Modelling (Master) > Mastermodule
- Sustainable Renewable Energy Technologies (Master) > Mastermodule

## Zuständige Personen
- Lehnhoff, Sebastian (Module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

## Prerequisites

### Skills to be acquired in this module

After successful completion of the course the students should be able to understand the existing structures and technical basis of energy systems to produce, transfer and distribute electricity and their interaction and dependency on each other. They should have developed an understanding for necessary IT- and process control technology components, methods and processes to control and operate electrical energy systems. The students are able to estimate and evaluate the requirements and challenges of ICT and computer science which are caused by the development and integration of unforeseeable fluctuations of decentralised plants. The students will be able to estimate the influence of distributed control concepts and algorithms for decentralised plants and consumers in the so called Smart Grid energy systems. Regarding the requirements the students will be able to analyse the safety, reliability, realtime capability and flexibility of Smart Grid energy systems.

### Professional competence

The students:

- understand the existing structures and the technical basis of energy systems producing, transferring and distributing electricity and their interaction and dependency on each other.
- develop an understanding for necessary IT- and process control technology components, methods and processes to control and operate electrical energy systems.
- estimate and evaluate the requirements and challenges of ICT and computer science which are caused by the development and integration of unforeseeable fluctuations of decentralised plants.
- estimate the influence of distributed control concepts and algorithms for decentralised plants and consumers in the so called Smart Grid energy systems.

### Methodological competence

The students:

- analyse the safety, reliability, realtime capability and flexibility of Smart Grid energy systems
- use advanced mathematical methods to calculate networks

### Social competence

The students:

- create solutions in small teams
- discuss their solutions

### Self-competence

The students:

- reflect their own use of electricity as a limited resource

## Module contents

Content of the Module: In this course information technology, economical energy industry and technical basic knowledge and methods are analysed by using concrete Smart Grid approaches. The basic calculation methods for an intelligent grid management are introduced.

This module deals with the technical and economical framework for a permissable electrical network as well as mathematical modelling and calculation methods to analyse conditions of electrical energy networks (in stationary conditions). These are:
- The organisation of the EU energy market (regulatory framework, responsibility in liberalisation of electrical energy systems)
- Establishment and operation of electrical energy supply networks (network topology, statutory duties of supply, supply quality/system services, malfunctions and protection systems)
- Intelligent network management (Smart Grids), aggregation forms, machine learning approaches

Literaturempfehlungen

Suggested reading:

- Crastan V.: "Elektrische Energieversorgung II", Springer 2004

Links

Language of instruction: English

Duration (semesters): 1 Semester

Module frequency: jährlich

Module capacity: unlimited

Modullevel / module level: AS (Akzentsetzung / Accentuation)

Modulart / typ of module: je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning method: V+Ü

Vorkenntnisse / Previous knowledge

Examination: Prüfungszeiten

Type of examination: Final exam of module
At the end of the semester
Oral exam

Form of instruction

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Präsenzzeit Modul insgesamt: 56 h
**inf513 - Simulation-based Smart Grid Engineering and Assessment**

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<tr>
<td>Workload</td>
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| Verwendbarkeit des Moduls | Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik  
|               | Master's Programme Computing Science (Master) > Angewandte Informatik |
| Zuständige Personen | Lehnhoff, Sebastian (Module responsibility) |

**Prerequisites**
Programming with JAVA

**Skills to be acquired in this module**
Successfully completing this lecture will enable the students to mathematically model simple controllable electrical generators and consumers and to simulate them together with appropriate control algorithms within smart grid scenarios. To achieve this goal, students will start with deriving computational models from physical models and evaluate them. In order to manage the integration of control algorithms, students are taught the principles of cosimulation using the “mosaik” smart grid co-simulation framework as an example.

Students will be able to understand and apply distributed, agent-based control schemes to decentralized energy generators and/ or consumers. As a result, students are able to analyze the requirements for successful application to real power balancing regarding capacity utilization, robustness, and flexibility. In addition, students learn the foundations of planning and conducting simulation based experiments as well as the interpretation of the results. Special attention will be paid on establishing a balance between the results’ precision and robustness and the necessary effort (design of experiments) in order to gain as much insight into interdependencies with as few experiments as possible.

**Professional competence**
The students:

- derive and evaluate computational models from physical models
- use the “mosaik” smart grid co-simulation framework
- analyze the requirements for successful applications to real power balancing regarding capacity utilization, robustness, and flexibility
- name the foundations of planning and conducting simulation based experiments as well as the interpretation of the results
- are aware of the balance between the results’ precision and robustness and the necessary effort (design of experiments) in order to gain as much insight into interdependencies with as few experiments.

**Methodological competence**
The students:

- model simple controllable electrical generators and consumers
- simulate simple controllable electrical generators and consumers with appropriate control algorithms within smart grid scenarios
- apply distributed agent-based control schemes to decentralized energy generators and/ or consumers
- evaluate simulation results
- search information and look into methods to implement models
- propose hypothesis and check their validity with design of experiments methods

**Social competence**
The students:

- apply the pair programming development technique
- discuss design decisions
- identify work packages and are responsible for it

**Self-competence**
The students:

- reflect on their own use of power as a limited resource
- accept and use criticism to develop their own behaviour

**Module contents**
In this practical course students:
model controllable, modulating electrical energy generators and consumers,
- put their hands on mosaik (installation, description and configuration of scenarios, conduction of simulations),
- learn the principles of agent-based heuristics for optimization problems in future smart grid scenarios,
- learn about the challenges of implementing agent-based mechanisms (multi-criticality, convergency, quality) on the training,
- learn the foundations for choice and design of simulation based experiments.

Literaturempfehlungen Suggested reading:

Smart Grids:

Multiagentensysteme:

Co-Simulation

Versuchsplanung:
- Klein, B.: "Versuchsplanung - DoE", Oldenbourg, 2011

Links
http://mosaik.offis.de

Language of instruction
German

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Reference text
Elective module in the master specialization area (energy computer science). Associated with the modules:
- Energieinformationssysteme
- Smart Grid Management

Modullevel / module level
AS (Akzentsetzung / Accentuation)

Modulart / typ of module
je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning method

Vorkenntnisse / Previous knowledge
- Programmierung mit Java
- Programmierung mit Python

Examination
Prüfungszeiten Type of examination
Final exam of module
At the end of the semester Oral exam

Form of instruction
Practical training

SWS
4

Frequency
SoSe

Workload Präsenzzeit
56 h
inf520 - Management of Information Systems in Health Care

**Module label**
Management of Information Systems in Health Care

**Modulkürzel**
inf520

**Credit points**
6.0 KP

**Workload**
180 h

**Verwendbarkeit des Moduls**
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik

**Zuständige Personen**
Marx Gomez, Jorge (Module responsibility)
Fatikow, Sergej (Module responsibility)
Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**

**Skills to be acquired in this module**

**Professional competence**
The students:
- know healthcare information systems and their functions
- know clinical software architectures and apply their IT strategies
- know and apply system integration standards, methods (including medical technology) and risk management
- know and apply clinical information systems and maintain them
- know the legal and regulatory framework (including data privacy) for the operation of healthcare IT systems
- implement simple data analyses on care data
- know and apply procurement processes and changes

**Methodological competence**
The students:

**Social competence**
The students:
- reflect on and become more familiar with the different hospital roles (IT-manager, IT-employer, hospital supervisors, clinician, manager) and their interests

**Self-competence**
The students:
- reflect their solutions by using methods learned in this course and present them appropriately

**Module contents**

- Basics of the healthcare system
- Basics of the medical documentation
- Healthcare information systems / clinical information systems / intensive care information systems (PDMS)
- PDMS parameters, including interface terminology and semantic standards
- Data privacy and security
- System integration and interoperability (HL7 …)
- Hospital financing / DRG-System: regulatory framework and implementation
- Care data analyses
- Requirements engineering
- Procurement project and risk management

**Literaturempfehlungen**
Wird im Modul bekannt gegeben

**Links**

**Language of instruction**
German

**Duration (semesters)**
1 Semester

**Module frequency**
jährlich

**Module capacity**
unlimited
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| Vorkenntnisse / Previous knowledge | - Medizin für Informatiker  
- Informationssysteme / Datenbanken |
| Examination | Prüfungszeiten | Type of examination |
| Final exam of module | At the end of the lecture periode | Written or oral exam |
| Form of instruction | Comment | SWS | Frequency | Workload of compulsory attendance |
| Lecture | 3 | SoSe | 42 |
| Exercises | 1 | SoSe | 14 |
| Präsenzzzeit Modul insgesamt | 56 h |
inf533 - Probabilistic Modelling I

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<td>Master's Programme Engineering of Socio-Technical Systems (Master) &gt; Embedded Brain Computer Interaction</td>
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<td>Master's Programme Engineering of Socio-Technical Systems (Master) &gt; Systems Engineering</td>
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Zuständige Personen

- Fatikow, Sergej (Module responsibility)
- Marx Gomez, Jorge (Module responsibility)
- Boll-Westermann, Susanne (Module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

Skills to be acquired in this module

Probabilistic Bayesian models are generated with special tools (e.g. BUGS, JAGS, STAN) or domain specific programming languages (WebPPL, PyMC3, …etc.). If they mimic cognitive processes of humans (e.g. pilots, drivers) or animals they could be used as cooperative assistance systems in technical or financial systems like cars, robots, or recommenders.

Professional competence

The students:

- learn to map problem to model classes to come up with practical solutions

Methodological competence

The students:

- acquire basic skills in the design, implementation, and identification of probabilistic models with Bayesian methods
- acquire knowledge about alternative non-Bayesian machine learning methods

Social competence

The students:

- learn to present and discuss probabilistic theories, methods, and models.

Self-competence

The students:

- reflect and evaluate chances and limitations of probabilistic approaches
- learn to deliberate on machine-learning alternatives

Module contents

Theories, methods, and examples of Bayesian models with practical applications

Literaturempfehlungen

Recent eBooks, eTutorials

Links

http://www.uni-oldenburg.de/en/computingscience/lcs/probabilistic-programming/

Languages of instruction

German, English

Duration (semesters)

1 Semester

Module frequency

jährlich

Module capacity

unlimited

Reference text

Associated with the module:

- inf534 Probabilistic Modelling II

Modullevel / module level

AS (Akzentsetzung / Accentuation)
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inf534 - Probabilistic Modelling II

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**Verwendbarkeit des Moduls**
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Engineering of Socio-Technical Systems (Master) > Embedded Brain Computer Interaction

**Zuständige Personen**
- Boll-Westermann, Susanne (Module responsibility)
- Marx Gomez, Jorge (Module responsibility)
- Fatikow, Sergej (Module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**

**Skills to be acquired in this module**
- Probabilistic models are generated with special tools (e.g. BUGS, JAGS, STAN) or domain specific programming languages (WebPPL, PyMC3, …, etc.). If they mimic cognitive processes of humans (e.g. pilots, drivers) or animals they could be used as cooperative assistance systems in technical or financial systems like cars, robots, or recommenders. In this part of the seminar we read, present, and discuss recent research papers.

**Professional competence:**
- The students:
  - learn to connect problem- with model classes to come up with practical solutions

**Methodological competence**
- The students:
  - acquire advanced skills in the design, implementation, and identification of probabilistic models with Bayesian methods
  - acquire knowledge about alternative machine learning methods

**Social competence**
- The students:
  - learn to present and discuss probabilistic theories, methods, and models

**Self-competence**
- The students:
  - reflect and evaluate chances and limitations of probabilistic approaches
  - learn to deliberate on machine-learning alternatives

**Module contents**
- Theories, methods, and examples of Bayesian models with practical applications

**Literaturempfehlungen**
- Recent publications

**Links**

**Language of instruction**
- German

**Duration (semesters)**
- 1 Semester

**Module frequency**
- halbjährlich

**Module capacity**
- unlimited

**Reference text**
- Associated with the module:
  - inf533 Probabilistische Modellierung I

**Modulelevel / module level**
- AS (Akzentsetzung / Accentuation)
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inf535 - Computational Intelligence I

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Verwendbarkeit des Moduls
- Master Applied Economics and Data Science (Master) > Data Science
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodul der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Engineering of Socio-Technical Systems (Master) > Embedded Brain Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems (Master) > Human-Computer Interaction
- Master's Programme Environmental Modelling (Master) > Mastermodule

Zuständige Personen
- Kramer, Oliver (Module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

Skills to be acquired in this module

Professional competence:
The students:
- recognise optimisation problems
- implement simple algorithms of heuristic optimisation
- critically discuss solutions and selection of methods
- deepen previous knowledge of analysis and linear algebra

Methodological competence
The students:
- deepen programming skills
- apply modelling skills
- learn about the relation between problem class and method selection

Social competence
The students:
- cooperatively implement content introduced in lecture
- evaluate own solutions and compare them with those of their peers

Self-competence
The students:
- evaluate own skills with reference to peers
- realize personal limitations
- adapt own problem solving approaches with reference to required method competences

Module contents
Computational Intelligence comprises intelligent and adaptive methods for optimisation and learning. The module “Computational Intelligence I” concentrates on methods for evolutionary optimisation and heuristic approaches. The exercises introduce and deepen practical aspects of the implementation and algorithmic design, also taking into account application aspects.

Overview of Content:
- foundations of optimisation
- genetic algorithms and evolution strategies
- parameter control and self-adaptation
- runtime analysis
- swarm algorithms
- constrained optimisation
- multi-objective optimisation
- meta-modelling

Literaturempfehlungen

Links

Languages of instruction: English, German

Duration (semesters): 1 Semester

Module frequency: jährlich

Module capacity: unlimited

Modullevel / module level: AS (Akzentsetzung / Accentuation)

Modulart / typ of module: je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning method

Vorkenntnisse / Previous knowledge: - Grundlagen der Statistik

Examination: Prüfungszeiten

Type of examination: Type of examination

Final exam of module: At the end of the lecture period

Form of instruction: Written or oral exam

Präsenzzeit Modul insgesamt: 56 h

<table>
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<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
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<td>WiSe</td>
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<td>Exercises</td>
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<td>WiSe</td>
<td>28</td>
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</table>
**Skills to be acquired in this module**

In the lecture "Convolutional Neural Networks" you will learn the basics of Convolutional Neural Networks, from methodological understanding to implementation.

**Professional competence**
Students will learn Deep Learning expertise, which are essential qualifications as AI experts and Data Scientists.

**Methodological competence**
Students learn the methods mentioned as well as the implementation in Python, NymPy and Keras.

**Social competence**
Students are encouraged to discuss the taught content in groups and work together to implement the programming tasks in the exercises.

**Self-competence**
Students are guided to conduct independent research on advanced methods as the teaching field changes dynamically.

**Module contents**
Students learn the basics of machine learning and in particular the topics of dense layers, cross-entropy, backpropagation, SGD, momentum, Adam, batch normalization, regularization, convolution, pooling, ResNet, DenseNet, and convolutional SOMs.

**Literaturempfehlungen**

Deep Learning by Aaron C. Courville, Ian Goodfellow und Joshua Bengio

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**Prerequisites**

- inf535 Computational Intelligence I
- Statistik
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<th>Type of examination</th>
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### inf537 - Intelligent Systems

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<td>Workload</td>
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#### Verwendbarkeit des Moduls
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Engineering of Socio-Technical Systems (Master) > Embedded Brain Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems (Master) > Human-Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems (Master) > Systems Engineering

#### Zuständige Personen
- Sauer, Jürgen (Module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

### Prerequisites

**Skills to be acquired in this module**
- **Professional competence** The students:
  - name the structure of agent-based systems
  - use problem-solving methods for complex problems
  - characterise the application area of process planning
  - evaluate the suitability of processes regarding to specific problems
- **Methodological competence** The students:
  - assign problem-solving methods to different problems
- **Social competence** The students:
  - implement selected methods in small teams
- **Self-competence** The students:
  - develop own solutions for given problems

**Module contents**
A lot of application areas use “intelligent” problem-solving methods. These are the main focus of this lecture. They will be illustrated by examples in order to enhance the students' problem-solving abilities. These include:
- A brief introduction into AI
- Agent systems
- Solution methods of AI like heuristics, meta-heuristics, soft computing methods.
To apply and foster the contents of the lecture, an intelligent planning system is implemented in practical exercises.

### Literaturempfehlungen
Suggested reading:
- Ghallab/Nau/Traverso: Automated Planning, Morgan Kaufman, 2004

### Links
www.wi-ol.de

### Languages of instruction
German, English

### Duration (semesters)
1 Semester

### Module frequency
once a year

### Module capacity
unlimited

### Reference text
Dieses Modul ist im Rahmen der Projekte FiIF und FoL konzipiert worden

### Modullevel / module level
AS (Akzentsetzung / Accentuation)

### Modulart / typ of module
je nach Studiengang Pflicht oder Wahlpflicht

### Lehr-/Lernform / Teaching/Learning method
V+Ü

### Vorkenntnisse / Previous knowledge
Produktionsorientierte Wirtschaftsinformatik

### Examination
Prüfungszeiten

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### Präsenzzeit Modul insgesamt
56 h
Module label: Management of IT-Services

Module code: inf538

Credit points: 6.0 KP

Workload: 180 h

Verwendbarkeit des Moduls:
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik

Zuständige Personen:
Sauer, Jürgen (Module responsibility)

Lehrrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites:

**Professional competence** The students: - characterise problems that occur during the operation of large-scale operating systems - characterise conceptional, technical, economical and organizational problem-solving processes - use these concepts to solve problems validly

**Methodological competence** The students: - describe a current problem area based on information from the internet and literature

**Social competence** The students: - present their findings on a problem area - discuss their results regarding a specific application area

**Self-competence** The students: - reflect actual concepts with regard to specific application areas

Module contents:

**Content of the Module:** "Adaptive Computing" deals with the field of concepts and solutions to manage large scale application systems or dynamic data centers. Technically oriented solutions like the configuration of data centers such as the hard- and software virtualization, the high availability, the storage management and the identity management are not the only contributions of Adaptive Computing. Others are organisational aspects of companies, such as personnel planning and service agreements. This module provides and compiles current topics of Adaptive Computing. The module also presents and evaluates several Adaptive Computing technologies. Current HW-/SW-concepts of large-scale application systems, strategies, service management and security concepts are specifically included. The lecture introduces current concepts and solutions for the management of dynamic data centers. Among others, the following subjects are provided: - IT-Strategy, -Organisation - ITIL (overview) - Service-Management Tools (e.g. OTRS) - Outsourcing - Security (policies, privacy, data security, safety) - Spatial design of data centers - HW-Strategies: Cluster, Storage, ... - Virtualization - IdM - Portals - Configuration management - Accounting, performance calculation and evaluation, performance indicators - SQA, EAI - Controlling tools, Monitoring - Solutions: SAP Adaptive Computing

Literatureempfehlungen:


Links:

Language of instruction: German

Duration (semesters): 1 Semester

Module frequency: jährlich

Module capacity: unlimited

Modullevel / module level: AS (Akzentsetzung / Accentuation)

Modulart / typ of module: je nach Studiengang Pflicht oder Wahlpflicht

Vorkenntnisse / Previous knowledge:

Examination:

Prüfungszeiten: at the end of the semester

Type of examination: Portfolio

Final exam of module:

Form of instruction: Vorlesung und Seminar, Exercises

Comment: SWS, Frequency: SoSe, Workload of compulsory attendance: 28

Vorlesung und Seminar: 2, SoSe: 28

Exercises: 2, SoSe: 28

Präsenzzeit Modul insgesamt: 56 h
inf541 - Data Challenge

Module label
Data Challenge

Modulkürzel
inf541

Credit points
6.0 KP

Workload
180 h

Verwendbarkeit des Moduls
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik

Zuständige Personen
Marx Gomez, Jorge (Module responsibility)
Lehrenden, Die im Modul (Module responsibility)

Prerequisites

Skills to be acquired in this module


Fachkompetenzen
- Die Studierenden: erlernen den Umgang mit strukturierten und unstrukturierten Datenquellen.
- erarbeiten praktisches Wissen über verschiedene Methoden der Data Science.
- erlernen grundlegende Vorgehensweisen in der Durchführung von Data Science-Projekten.
- verfolgen und verfeinern die Umsetzung des praxisnahen Lernens durch ein z.T. vorgegebenes, aber auch durch Eigeninitiative ausgestaltetes Modellszenario.

Methodenkompetenzen
Die Studierenden:
- sind in der Lage Datensätze zu explorieren und zu analysieren
- erkennen Zusammenhänge in großen Datensätzen
- bilden ein Hypothesen zur Lösung einer unternehmerischen Problemstellung.

Sozialkompetenzen
Die Studierenden:
- arbeiten in Gruppen und müssen so Arbeitspakete identifizieren und Verantwortlichkeiten wahren.
- präsentieren und diskutieren die eigenen (Teil-) Ergebnisse auf fachlicher Ebene

Selbstkompetenzen
Die Studierenden:
- reflektieren ihr Vorgehen anhand von selbst gesteckten Zielen.
- erfassen benötigte Informationen und analysieren diese.
- bereiten die erfassten Informationen zielgruppengerecht auf.

Module contents
Soll die Methodenkompetenz im Bereich Data Science erlernt und ausgebaut werden, dann geht dies meist nur mithilfe von frei verfügbaren, idealisierten Datensätzen und beispielhaften Aufgabenstellungen. Grundsätzliche Programmierkenntnisse können so erlangt werden, der Umgang mit echten unternehmerischen Problem und deren Lösung mithilfe von Data Science-Verfahren kann allerdings nur durch die Übung in der Praxis erlernt. Im Rahmen dieses Moduls wird eine reale Problemstellung eines Praxispartners vorgestellt, dieser Partner stellt Daten und Domänenwissen bereit und im Anschluss muss selbstständig eine datenzentrierte Lösung für dieses Problem entworfen und umgesetzt werden.

Innerhalb des Moduls werden darauf aufbauend folgende Themenkomplexe behandelt:
- Exploration und Analyse von Daten
- Methoden der Data Science (z.B. Deep Learning)
- Umgang mit Programmiersprachen und Entwicklungsframeworks (R, Python, Tensorflow)
- Hypothesenbildung und Data Storytelling
**Literaturempfehlungen**


**Links**

http://www.vlba.wi-ol.de

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inf551 - Maritime Systems

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Workload 180 h

Verwendbarkeit des Moduls
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodul der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Engineering of Socio-Technical Systems (Master) > Embedded Brain Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems (Master) > Human-Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems (Master) > Systems Engineering

Zuständige Personen
Hahn, Axel (Prüfungsberechtigt)
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
Skills to be acquired in this module
The module deals with the economic aspects and synergy effects of maritime sub-areas. In addition to the basic knowledge of the maritime sub-areas, current approaches from research are taught. The basic ship parameters are examined with regard to their economic efficiency, stability calculations and ship dynamics are derived and effects of the ship hull, propellers and systems on the economic efficiency of a ship are considered. The focus here is on understanding economic thinking and the interaction of the sub-areas. Furthermore, future-oriented solutions and trends will be discussed. **Professional competence** The students - name the basics of planning and control of operational logistics in a shipyard - name the basics of planning of economic design - recognise the application possibilities of simulation in design, construction and dynamics - identify the basic maritime sub-areas and their synergies **Methodological competence** The students - Link relations with tree structures - Illustrate the questions and concepts of the design process **Social competence** The students - Present computational problem solving to groups - Discuss their outcomes appropriately - Implement solutions of given problems in teams - Accept criticism of their peer group as valuable contributions **Self-competence** The students - reflect their self-image and their actions of their results

Module contents

Literaturempfehlungen

Links
http://www.wi-ol.de

Languages of instruction
German, English

Duration (semesters)
1 Semester

Module frequency
annually in winterterm

Module capacity
unlimited

Module / module level
AS (Akzentsetzung / Accentuation)

Modulart / type of module
Wahlmodul / Opportunity

Lehr-/Lernform / Teaching/Learning method
V+Ü

Vorkenntnisse / Previous knowledge
Transportsysteme, Analysis, Differentialgleichungen, lineare Algebra, Mechanik

Examination
Prüfungszeiten

Type of examination
Final exam of module at the end of the lecture period practical exercises and oral examination

Form of instruction
Comment
SWS
Frequency
Workload of compulsory attendance

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Präsenzzeit Modul insgesamt
56 h
Inf604 - Business Intelligence I

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**Verwendbarkeit des Moduls**
- Master Applied Economics and Data Science (Master) > Data Science
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Akzentsetzungsbereich
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Engineering of Socio-Technical Systems (Master) > Embedded Brain Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems (Master) > Human-Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems (Master) > Systems Engineering

**Zuständige Personen**
Marx Gomez, Jorge (Prüfungsberechtigt)
Lehrrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**
Objective of the module/skills:
Current module provides basics of business intelligence with focus on enterprises and strong emphasis on data warehousing technologies. Students of the course are provided with knowledge, which reflects current research and development in a data analytic domain.

**Professional competence**
The students:
- name and recognize the role of business intelligence as part of daily business process
- being able to analyse advantages and disadvantages of different approaches and methods of the data analytics and being able to apply them in simple case studies
- obtain theoretical knowledge about data collection and modelling processes, including most applicable approaches and best practices

**Methodological competence**
The students:
- being able to execute typical tasks of business intelligence, and also being able to deepen knowledge on different approaches and methods
- gain a hands on experience and being able to understand advantages and disadvantages of different methods and being able to use obtained knowledge in most efficient ways

**Social competence**
The students:
- build solutions based on case studies given to the group, for example solving the issue of a factless fact table
- discuss solutions on a technical level
- present obtained case studies solutions as part of the exercises

**Self-competence**
The students:
- critically review provided data and information

**Module contents**
Data warehouse technology together with business intelligence are increasingly being used by business in order to get better decision support and enrich ongoing rocesses with data-rich decisions. Data warehouse technology enables an integration of data from heterogeneous sources, whether business intelligence builds data rocessing on top of it. For instance, business intelligence allows to build reporting on very large volumes of data (including historical) coming primary from data warehouse.

As part of the current module following contents are taught:
- Definition and scope of business intelligence.
- Procedures and objectives of data warehousing.
- Process of extracting, transforming and loading (ETL) of data.
- Phases of data modelling, data capturing and reporting in conjunction with a plausible case studies/scenarios.
- Prospects for further and evolving topics for business intelligence (e.g. Adaptive Business Intelligence, In-Memory Computing, etc.)
- Introduction to Data Mining.
- Case studies based practical exercises and assessments in order to impart practical knowledge.

**Literaturempfehlungen**

- Marx Gómez, Rautenstrauch, Cissek (2008): Einführung in die Business Intelligence mit SAP NetWeaver 7.0.

**Links**

http://www.wi-ol.de

**Languages of instruction**

German, English

**Duration (semesters)**

1 Semester

**Module frequency**

jährlich

**Module capacity**

unlimited

**Modullevel / module level**

AS (Akzentsetzung / Accentuation)

**Modulant / typ of module**

Wahlpflicht / Elective

**Lehr-/Lernform / Teaching/Learning method**

V + Ü

**Vorkenntnisse / Previous knowledge**

**Examination**

Prüfungszeiten

Type of examination

**Final exam of module**

At the end of the lecture period

Written exam max. 120 minutes

**Form of instruction**

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**Präsenzzeit Modul insgesamt**

56 h
inf607 - Business Intelligence II

Module label: Business Intelligence II
Modulkürzel: inf607
Credit points: 6.0 KP
Workload: 180 h

Verwendbarkeit des Moduls
- Master Applied Economics and Data Science (Master) > Data Science
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodul der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Engineering of Socio-Technical Systems (Master) > Embedded Brain Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems (Master) > Human-Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems (Master) > Systems Engineering

Zuständige Personen
Marx Gomez, Jorge (Prüfungsberechtigt)
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

Skills to be acquired in this module
Current module provides advanced business intelligence, data science with focus on enterprises and strong emphasis on big data and data analytics. Students of the course are provided with knowledge, which reflects current research and development in a data analytics domain.

Professional competence
The students:
- name and recognize the role of data analytics / data science as part of a daily business process in a particular company
- able to organize from management perspective data analysis project
- being able to analyze advantages and disadvantages of different approaches and methods of the data analytics and being able to apply them in simple case studies
- obtain theoretical knowledge about data collection and modeling processes, including state of the art approaches and available best practices

Methodological competence
The students:
- being able to execute typical tasks of data analysis, and also being able to proceed deeper with respect to different approaches and methods
- gain a hands on experience and being able to understand advantages and disadvantages of different methods and being able to use obtained knowledge

Social competence
The students:
- build solutions based on case studies given to the group, for example design of regression model based on provided dataset
- discuss solutions on a technical level
- present obtained case studies solutions as part of the exercises

Self-competence
The students:
- critically review provided offered information

Module contents
After current course students will get advanced knowledge in the domains such as business intelligence and data analytics. Besides that, students will have a chance to have a deeper look into related technical fields such as InMemory Computing, Data Mining and Machine Learning, Big Data Processing with Distributed Systems (e.g. Apache Hadoop / Spark) from both, research and practical, perspectives. Students will be provided with real-world experience gather from business intelligence and data science related projects. Materials of the course are believed to be justified with current demands of data analytics market. Thus, providing students with relevant knowledge in order to give them advantages in future job.

Literatureempfehlungen
- Jürgen Cleve, Uwe Lämmel (2014): "Data mining" (Deutsch)
- Max Bramer (2013): "Principles of data mining" (English)
- Ian Witten, Eibe Frank, Mark Hall (2011): "Data mining : practical machine learning tools and
techniques" (English)

- Jure Leskovec, Anand Rajaraman, Jeffrey Ullman (2014): "Mining of massive datasets" (English)

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inf650 - Transport Systems

Module label
Transport Systems

Modulkürzel
inf650

Credit points
6.0 KP

Workload
180 h

Verwendbarkeit des Moduls
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodul der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Engineering of Socio-Technical Systems (Master) > Embedded Brain Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems (Master) > Human-Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems (Master) > Systems Engineering

Zuständige Personen
Sauer, Jürgen (Module responsibility)
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

Skills to be acquired in this module
Objective of the module/skills:
The Module Transport systems deals with planning and controlling systems of internal and external company logistics as well as public transport. It provides basic knowledge and recent research topics. The focus is on a resource orientated holistic view of company logistics as well as the planning of transport infrastructure. Furthermore, trends such as autonomous vehicles and intelligent transport systems are discussed.

Professional competence
The students:
- name the basics of planning and controlling company logistics
- assess transport systems of companies
- name methods and approaches of computer aided transport systems and classify them
- characterise software to plan complex logistics

Methodological competence
The students:
- display topics and concepts of transport systems
- simulate transport and its systems with appropriate methods

Social competence
The students:
- work in groups
- discuss their results appropriately

Self-competence
The students:
- realise their limits while working on a project containing aspects of modelling and implementation
- question the presentation of their results

Module contents

- Transport and logistics concepts
- Data acquisition of company logistics
- Planning- and simulation software for complex logistics- and transport processes
- Energy- and resource efficient transport systems
- Resource oriented transport cost calculations (e.g. CO2, noise pollution)
- Planning models for transport infrastructure

Literatureempfehlungen
Suggested reading:
- Produktion und Logistik (Springer-Lehrbuch) von Hans-Otto Günther und Horst Tempelmeier von
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<tr>
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inf651 - Environmental Management Information Systems I

Module label: Environmental Management Information Systems I
Modulkürzel: inf651
Credit points: 6.0 KP
Workload: 180 h

Verwendbarkeit des Moduls:
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule
  NM - interdisziplinär
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Environmental Modelling (Master) > Mastermodule
- Master's Programme Sustainability Economics and Management (Master) > Additional Modules

Zuständige Personen:
Marx Gomez, Jorge (Module responsibility)
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites:

Skills to be acquired in this module:
This module completes the knowledge and abilities gained in the field of Environmental Informatics and it creates a strong reference to up to date topics in the field of sustainability. The content taught in this module can directly be applied in an upcoming study and professional career.

Professional competence
The students:
- are able to classify and explain the sustainability paradigm
- are aware of the current status of sustainability reporting
- are able to define and to model material flows
- have obtained know-how in the field of corporate environmental management information systems (CEMIS)

Methodological competence
The students:
- implement CEMIS
- apply different techniques and methods to case studies
- develop new case studies in teams

Social competence
The students:
- are supposed to work in teams and therefore have to identify working packages and have to take on responsibility for the jobs assigned to them
- present and discuss their own results with the team and the other members of the course

Self-competence
The students:
- learn about their own limitations and learn to accept criticism in order to strengthen their own abilities

Module contents:
This course teaches methods, approaches and techniques in the field of information processing in order to support solutions to problems that arise from companies' impact on the environment. In particular, ICT supported approaches of production-integrated environmental protection, environmental controlling and reporting are introduced and discussed. In order to enable the integration of such approaches into environmental protection, environmental management and its systems are taught as well.

The content in detail:
- environmental management as a basis for sustainability
- sustainability and material flow management
- strategic environmental management
- eco-controlling life cycle
- characteristics and system architectures of CEMIS
- standard software systems
- environmental accounting systems
Literaturempfehlungen


Links

- http://www.wi-ol.de

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Präsenzzeit Modul insgesamt 56 h
## inf652 - Production-oriented Business Informatics

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<td>Workload</td>
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### Prerequisites

The module deepens the contents of the modules „Wirtschaftsinformatik“ and „Wirtschaftsinformatik/Informationsmanagement“. The students will be able to contextualise IT systems and their functions in companies. They are able to participate in the implementation of IT systems in companies. The students know the essential tasks of materials management, production planning and controlling, warehousing, acquisition and supply chain management.

#### Professional competence

The students:

- name and differentiate the basics of business informatics and information management
- classify IT systems and their functions in companies
- name and characterise the the essential tasks of materials management, production planning and controlling, warehousing, acquisition and supply chain management

#### Methodological competence

The students:

- transfer a holistic development process of production planning and control
- implement IT systems in businesses

#### Social competence

The students:

- participate in implementing IT systems in companies
- construct and present computational solutions to groups and within their work group
- integrate professional and objective criticism in their own and others’ results

#### Self-competence

The students:

- recognize the planning horizon for IT systems
- reflect their role and skills to implement IT systems in businesses

### Module contents

The module “Production-oriented Business Informatics“ deals especially with production planning and control processes affected by process planning tasks, as well as classic problems of industrial production. The lecture is focussed on the application of information systems in industrial production companies. Priorities are order flow business processes and PPS-/ERP-Systems. Case studies and demonstrations illustrate the application of these systems.

### Literatureempfehlungen

- Kurbel, Karl: Produktionsplanung und -steuerung im Enterprise Resource Planning und Supply Chain Management, Oldenbourg Verlag, 2005
- Further literature will be announced in the lecture

### Links

- **Language of instruction**
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- **Duration (semesters)**
  - 1 Semester
- **Module frequency**
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- **Module capacity**
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| Präsenzzeit Modul insgesamt | 56 h |

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| Präsenzzeit Modul insgesamt | 56 h |
inf653 - ERP Technologies

Module label
ERP Technologies

Modulkürzel
inf653

Credit points
6.0 KP

Workload
180 h

Verwendbarkeit des Moduls
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Akzentsetzungsbereich
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodul der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik

Zuständige Personen
Marx Gomez, Jorge (Module responsibility)
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
Skills to be acquired in this module
Learning objectives:
- Generation of understandings into the working approaches and tasks of ERP systems
- Examining components of ERP systems
- Generating knowledge about important aspects of the operation processes of ERP systems, such as data storage and processing, user management, and system maintenance.

Professional competence
The students:
- describe ERP systems in compliance with functions and technologies
- identify state-of-the-art and future architectures of ERP systems
- discuss the usage of core technologies (also in practical case studies, for example with SAP NetWeaver)

Methodological competence:
The students:
- categorize fundamental technologies in combination with other enterprise-wide information systems
- apply the presented methods in practical contexts

Social Competence:
The students:
- construct solutions to given problems in groups
- present solutions to computing science problems before groups

Self-competence:
The students:
- recognize the limits of their capacity in implementing and customizing of business application systems

Module contents
The module provides the following content:
- Overview of the components of ERP systems and their functionality and administration
- In-depth analysis of ERP system architecture under consideration of surface structures and user management in ERP systems, with focus on of data storage, particularly the used data models and database structures, backup and recovery strategies
- Deployment of ERP applications in form of application service providing, including the technical characteristics of this business model, especially Special Administration, delimitation and monitoring tasks for systems, which at the same time be provided several customers
- Lecture will be accompanied by SAP case studies.

Literaturempfehlungen
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inf654 - Mobile Commerce

Module label | Mobile Commerce
---|---
Modulkürzel | inf654
Credit points | 6.0 KP
Workload | 180 h

Verwendbarkeit des Moduls
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Akzentsetzungsbereich
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik

Zuständige Personen
Marx Gomez, Jorge (Module responsibility)
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
Skills to be acquired in this module

Professional competence
The students:
- define and encompass MC
- explain the development stages of MC
- are aware of the current developments within MC and are able to classify them
- get to know technical essentials, functionalities and standards of wireless ICT
- assess the fields of application and limitations of wireless ICT
- examine the relevant mobile devices and their respective operating systems, know their characteristics and evaluate their fields of application
- examine market participants, assess business models, optimize business processes
- gain insight into specifics via examples and exercises

Methodological competence
The students:
- get to know security aspects and specifics of mobile application design
- prototypically develop an Android application
- prepare and give presentations
- develop a concept of a business model for an Android application

Social competence
The students:
- work on their project in groups of three

Self-competence
The students:
- reflect their own group-dynamic activities in respect of a mutual goal (successfully finish their project)

Module contents
See above

Literaturempfehlungen
- Also all materials provided within the lecture

Links
http://vlba.wi-ol.de

Language of instruction
German

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Modullevel / module level
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| Präsenzzzeit Modul insgesamt | 56 h |
This module emphasizes the importance of IT-Controlling within an enterprise. The students gain knowledge on practically orientated technologies in order to leave a better understanding for the application and conversion possibilities of IT-Controlling.

**Professional competence**

The students:

- name general tasks and functions of IT-Controlling.
- recognize the importance strategical IT-Controlling applications.
- learn strategies and methods of IT-Controlling.
- identify the existence of an IT-Strategy as a pre condition of IT-Controlling.
- know about the risks of IT-Outsourcing.
- use IT-Controlling tools (e.g. information systems, portfolio analysis, benchmarking IT-Reporting).

**Methodological competence**

The students:

- use their knowledge by independently compiled presentations on recent IT-Controlling subjects.

**Social competence**

The students:

- discuss their results essentially and appropriately in this subject.
- present their subjects to the group.

**Self-competence**

The students:

- understand and analyse their own state of knowledge.
- reflect their own effects on groups.

The employment of information technologies for enterprises is usually a key factor. By the change of our society to an information society, information gains more and more importance and takes a central role within ICT systems. The specifics of the ICT area cannot be supported by the classical economic controlling. The application of a strategical IT-Controlling becomes more and more important. The result of a study shows that in the meantime in about 80% of the German enterprises an ICT strategy was compiled. However, the study makes also clear, that about two out of three enterprises use no methods of strategical IT-Controlling. The new discipline of IT-Controlling provides plans and methods to avoid isolated applications.

**Literaturempfehlungen**

- Gadatsch, A: IT-Controlling: Praxiswissen für IT-Controller und Chief-InformationOfficer. Springer Verlag, 2012
- Gadatsch, A, Mayer, E: Masterkurs IT-Controlling: Grundlagen und Praxis für ITController und CIOs- Balanced Scorecard- Portfoliomanagement- Wertbeitrag der ITProjektcontrolling-Kennzahlen
- IT-Sourcing- IT-Kosten und Leistungsrechnung. 5 Auflage. Springer Vieweg, 2014

**Links**

http://www.wi-ol.de

**Language of instruction**

German

**Duration (semesters)**

1 Semester

**Module frequency**

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| Präsenzzeit Modul insgesamt | 56 h |
inf657 - Product Engineering

Module label
Product Engineering

Modulkürzel
inf657

Credit points
6.0 KP

Workload
180 h

Verwendbarkeit des Moduls
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Engineering of Socio-Technical Systems (Master) > Human-Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems (Master) > Systems Engineering

Zuständige Personen
Sauer, Jürgen (Module responsibility)
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

Skills to be acquired in this module
Focus of this module is to learn and apply the product engineering process. A project will enable the students to design a product from the idea to the prototype. More specifically, a systematic, partial domain-specific, approach to solve technical problems and aspects of project management will be learned. Regular meetings are used to train the presentation capabilities of the students and to schedule working packages within the teams.

Professional competence
The students:
- learn and try out the handling of virtual and physical prototypes
- learn and try out the construction and validation of virtual prototypes with the aid of CAD-applications
- learn and combine different basic development concepts from the mechanical engineering, microelectronics, control engineering and software engineering

Methodological competence
The students:
- learn and try out project management concepts
- learn and recognise the connections of different development concepts from different fields, e.g. mechanical engineering, control engineering, microelectronics and software engineering
- develop own products with creativity techniques
- schedule and organise the product development supported by project management techniques independently
- learn the systematic refining of their own product idea with SysML
- design and test products with state-of-the-art CAD-applications

Social competence
The students:
- impart their structure and mode of action to other people
- develop their own products in small teams
- present their solutions to groups
- integrate criticism to their solutions
- support other groups by giving appropriate criticism

Self-competence
The students:
- recognise and reflect their own limitations to get familiar and to plan a project in an unknown field (e.g. maritime construction/industries)

Module contents
This module is a lecture accompanied by a hands-on project. The students work on one product development task. The product development starts with the idea-finding/brainstorming process which is used to create a digital product concept. During the semester a digital prototype will be created and validated by its initial requirements. Finally, a physical prototype is produced with a 3D-Printer (Rapid Prototyping). The progress of the project has to be documented and presented at different milestones.

Literaturempfehlungen
- Ehrlenspiel (2003): Integrierte Produktentwicklung

Links
www.wi-ol.de
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This course aims at examining emerging research questions in the field of corporate environmental management information systems (CEMIS). After finishing this course, the students will have extensive knowledge regarding Business Environmental Informatics. In addition, they will be aware of recent research topics and challenges as well as relevant software solutions and practical projects.

**Professional competence**

The students:

- will obtain extensive knowledge in the field of CEMIS
- know emerging research questions and challenges as well as software solutions and projects

**Methodological competence**

The students:

- find their own solutions or apply already existing approaches to new and unsolved questions in the field of CEMIS
- capture required data, analyse it and present it to their team or the whole group

**Social competence**

The students:

- are supposed to work in teams and therefore have to identify working packages and have to take on responsibility for the jobs assigned to them
- present and discuss their own results with the team and the other members of the course

**Self-competence**

The students:

- learn about their own limitations and learn to accept criticism in order to strengthen their own abilities

**Module contents**

A strong social pressure forces enterprises to question their current way of implementing their business and to include different aspects of sustainability into their strategies and operational actions. Such a rethinking of one's business is supported by corporate environmental management information systems. Such systems aim at optimising the energy and resource usage, emission and waste minimisation as well as production integrated environmental protection. Of course they support the fulfillment of legal requirements such as waste management or hazardous material handling.

The module will cover:

- recent and emerging research questions and topics related to the field of CEMIS as well as Business Environmental Informatics.
- discussion and hands-on experience of standard software systems and newly established solutions.
- applying the knowledge obtained to the definition of new as well as on solving new case studies.

**Literaturempfehlungen**


Hershey (PA), London


Rautenstrauch, C. (1999), Betriebliche Umweltinformationssysteme, Springer-Verlag

Links
http://www.wi-ol.de

Languages of instruction
German, English

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Reference text
Type and language of program will be announced prior to the beginning of the course

Modullevel / module level
AS (Akzentsetzung / Accentuation)

Modulart / typ of module
je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning method
V (2 SWS), Ü (2 SWS) oder SE
Nach Ankündigung zu Beginn der Veranstaltung (2SWS V + 2 SWS Ü oder Blockseminar)

Vorkenntnisse / Previous knowledge

Examination
Prüfungszeiten
Type of examination

Final exam of module
Usually 2 weeks after the end of the lecture period
Sesimnar paper and presentation or term paper

Form of instruction
Comment
SWS
Frequency
Workload of compulsory attendance

Lecture
2
WiSe
28

Exercises
2
WiSe
28

Präsenzzeit Modul insgesamt
56 h

Languages of instruction
German, English

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Reference text
Type and language of program will be announced prior to the beginning of the course

Modullevel / module level
AS (Akzentsetzung / Accentuation)

Modulart / typ of module
je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning method
V (2 SWS), Ü (2 SWS) oder SE
Nach Ankündigung zu Beginn der Veranstaltung (2SWS V + 2 SWS Ü oder Blockseminar)

Vorkenntnisse / Previous knowledge

Examination
Prüfungszeiten
Type of examination

Final exam of module
Usually 2 weeks after the end of the lecture period
Sesimnar paper and presentation or term paper

Form of instruction
Comment
SWS
Frequency
Workload of compulsory attendance

Lecture
2
WiSe
28

Exercises
2
WiSe
28

Präsenzzeit Modul insgesamt
56 h
inf660 - Sustainability Informatics

Module label: Sustainability Informatics  
Modulkürzel: inf660  
Credit points: 6.0 KP  
Workload: 180 h

Type and language of program will be announced prior to the beginning of the course. The course is recognised as a practical project in the Master’s programme Sustainability Economics and Management.

Verwendbarkeit des Moduls
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodul der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik

Zuständige Personen
Marx Gomez, Jorge (Module responsibility)  
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

Skills to be acquired in this module
After finishing this course, students should be able to set up a sustainability report tailormade for different target groups for any kind of organization. The students will be enabled to know and apply different available standards and guidelines as well as to estimate the influence of data defects and the feasibility of recent information and communication technology. This course emphasizes the importance of sustainability reporting as a means of an organization’s communication (internal and external) and provides an overview on relevant indicators, standards and guidelines. Based on that the handling of data defects and missing data as well as different approaches of reporting will be discussed. In addition, the specific requirements of different target groups regarding content and presentation of a report will be discussed as well.

Professional competence
The students:
- are aware of different indicators, standards and guidelines and know when to apply which.
- know different approaches of data capturing, interpolation of missing or corrupt data as well as the influence of each of these issues on the validity of a report.
- implement concepts for tailormade target group orientation.

Methodological competence
The students:
- prepare a small sustainability report based on their decision which standard or guideline to use.
- capture existing data and analyse it.
- prepare a tailormade target oriented presentation of their results.

Social competence
The students:
- are supposed to work in teams and therefore have to identify working packages and have to take on responsibility for the jobs assigned to them.
- present and discuss their own results with the team and the other members of the course

Self-competence
The students:
- learn about their own limitations and learn to accept criticism in order to strengthen their own abilities.

Module contents
The following topics will be covered in this module:
- different definitions of the term sustainability.
- the importance of sustainability reporting as a means of an organisation’s communication.
- LCA, environmental accounting, supply chain management as data sources.
- semantic, comparability and transformation of indicators, standards and guidelines.
- interpolation and interpretation of data defects.
- how to report (e.g. knowledge management, document engineering, integrated reporting, different target groups).
Literaturempfehlungen


Links
http://vlba.wi-ol.de

Languages of instruction
German, English

Duration (semesters)
1 Semester

Module frequency
unlimited

Reference text
Die Lehrveranstaltung wird im Masterstudiengang Sustainability Economics and Management als practical project anerkannt.

Modullevel / module level
AC (Aufbaucurriculum / Composition)

Modulart / typ of module
je nach Studiengang Pflicht oder Wahlpflicht

Vorkenntnisse / Previous knowledge

Final exam of module
Prüfungszeiten Seminar paper and presentation or exercises and exam

Form of instruction Comment SWS Frequency Workload of compulsory attendance
Lecture 2 SoSe 28
Übung oder Praktikum 2 SoSe 28

Präsenzzeit Modul insgesamt 56 h
inf661 - Digital Transformation

<table>
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<tr>
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Verwendbarkeit des Moduls
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodul der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik

Zuständige Personen
Marx Gomez, Jorge (Module responsibility)
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
Skills to be acquired in this module
After successful completion of the lecture, the students should be able to define enabler and actors of a digital transformation within the context of a model company. Furthermore, key competences such as Cloud Computing or IoT are used to make potential exploitation by new digital business models visible. The results will be evaluated.

The lecture explains basic properties of a digital transformation for companies and shows specific development potential. By forming and building a model company, students are able to create a realistic and practical scenario. A final documentation reveals the degree of fulfilment and the students point of view on the scenario.

Professional competence
The students:
- recognize basic properties and facts of a digital transformation for companies
- devise different terms of digital transformation
- expose actual introduction projects
- compile practical knowledge by dividing goals of enabler and acteurs of a digital transformation
- obtain basic knowledge of key competences such as IT-Security, Data Analytics, Big Data, Cloud Computing
- identify digital business models within the specific development potential

Methodological competence
The students:
- determine and analyse required information
- prepare the given information for specific target groups
- establish an analytical understanding of digital enterprise structures within key competences and applications

Social competence
The students:
- work in groups, identify work packages and take on responsibility for the jobs assigned to them
- discuss and introduce the results on a functional level

Self-competence
The students:
- reflect their actions on the basis of self defined objectives
- analyse their own state of knowledge

Module contents
Within the lecture the upcoming topics are discussed:
- definition and introduction of digital transformation
- success factors, market changes and introductory projects
- enabler of a digital transformation (competences, applications and structures)
- digital business models and networks
- actors of a digital transformation
- industry 4.0 in the context of a digital transformation

Literatureempfehlungen

<table>
<thead>
<tr>
<th>Links</th>
<th><a href="http://www.wi-ol.de">http://www.wi-ol.de</a></th>
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**inf690 - Special Topics in 'Business Informatics' I**

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| Verwendbarkeit des Moduls     | • Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik  
                                   • Master's Programme Computing Science (Master) > Angewandte Informatik |
| Zuständige Personen           | Marx Gomez, Jorge (Module responsibility)  
                                   Sauer, Jürgen (Module responsibility)  
                                   Lehrenden, Die im Modul (Prüfungsberechtigt) |
| Prerequisites                 | This module integrates current developments in the field in adequate study courses. |
| Skills to be acquired in this module | **Professional competences**  
                                          The students:  
                                          - define and contrast a computer science part, in which they are specialised, in detail or evaluate computer science in general  
                                          - recognise and evaluate applied techniques and methods of their subject and are aware of their limits  
                                          - identify, structure and solve problems/tasks, also in new or developing subject areas  
                                          - apply state of the art and innovative methods to solve problems, if necessary from other disciplines  
                                          - are aware of the current limits and contribute to the development of computer science research and technology  
                                          discuss and evaluate recent computer science developments  
                                          **Methodological competences**  
                                          The students:  
                                          - evaluate and apply tools, technology and methods sophisticatedly  
                                          - combine new and original approaches and methods creatively  
                                          - evaluate problems/tasks, including new or developing subject areas of their discipline and  
                                          - apply computer science methods for solutions and research  
                                          **Social competences**  
                                          The students:  
                                          - support team process by their abilities  
                                          **Self-competences**  
                                          The students:  
                                          - pursue the overall and special computer science development critically  
                                          - implement innovative professional activities effectively and independently |
| Module contents               | See assigned course description             |
| Literatureempfehlungen         | As announced in course                     |
| Links                         |                                            |
| Language of instruction       | German                                     |
| Duration (semesters)          | 1 Semester                                 |
| Module frequency              | unregelmäßig                               |
| Module capacity               | unlimited                                  |
| Modulelevel / module level    | AS (Akzentsetzung / Accentuation)          |
| Modulart / typ of module      | je nach Studiengang Pflicht oder Wahlpflicht |
| Lehr-/Lernform / Teaching/Learning method | 2 Veranst. aus V, S, Ü, P, PR  
                                          VA-Auswahl |
| Vorkenntnisse / Previous knowledge |                                       |
| Examination                   | Prüfungszeiten                             | Type of examination |
| Final exam of module          | At the end of the lecture period           | Portfolio or presentation or oral exam |
| Form of instruction           | VA-Auswahl                                 |
| SWS                           | 2                                          |
| Frequency                     | SoSe oder WiSe                           |
| Workload Präsenzzeit          | 28 h                                       |
### inf691 - Special Topics in 'Business Informatics' II

<table>
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| **Verwendbarkeit des Moduls** | - Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik  
- Master's Programme Computing Science (Master) > Angewandte Informatik |
| **Zuständige Personen** | Marx Gomez, Jorge (Module responsibility)  
Sauer, Jürgen (Module responsibility)  
Lehrenden, Die im Modul (Prüfungsberechtigt) |

#### Prerequisites

This module integrates current developments in the field, especially with a focus on corporate environmental management information systems, in adequate study courses.

**Professional competences**
The students:
- define and contrast a computer science part, in which they are specialised, in detail or evaluate computer science in general
- recognise and evaluate applied techniques and methods of their subject and are aware of their limits
- identify, structure and solve problems/tasks, also in new or developing subject areas
- apply state of the art and innovative methods to solve problems, if necessary from other disciplines
- are aware of the current limits and contribute to the development of computer science research and technology
- discuss and evaluate recent computer science developments

**Methodological competences**
The students:
- evaluate and apply tools, technology and methods sophisticatedly
- combine new and original approaches and methods creatively
- evaluate problems/tasks, including new or developing subject areas of their discipline and
- apply computer science methods for solutions and research

**Social competences**
The students:
- support team process by their abilities

**Self-competences**
The students:
- pursue the overall and special computer science development critically
- implement innovative professional activities effectively and independently

#### Module contents
See assigned course description

#### Literaturempfehlungen
As announced in course

#### Links

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#### Vorkenntnisse / Previous knowledge

**Examination**

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**Final exam of module**

At the end of the lecture period

**Portfolio or presentation or oral exam**

**Form of instruction**

VA-Auswahl

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### inf692 - Special Topics in 'Business Informatics' III

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| **Verwendbarkeit des Moduls** | • Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik  
• Master's Programme Computing Science (Master) > Angewandte Informatik |
| **Zuständige Personen** | Marx Gomez, Jorge (Module responsibility)  
Sauer, Jürgen (Module responsibility)  
Lehrenden, Die im Modul (Prüfungsberechtigt) |

**Prerequisites**

Skills to be acquired in this module

This module integrates current developments in the field, especially with a focus on business intelligence, in adequate study courses.

**Professional competences**

The students:
- define and contrast a computer science part, in which they are specialised, in detail or evaluate computer science in general
- recognise and evaluate applied techniques and methods of their subject and are aware of their limits
- identify, structure and solve problems/tasks, also in new or developing subject areas
- apply state of the art and innovative methods to solve problems, if necessary from other disciplines
- are aware of the current limits and contribute to the development of computer science research and technology
- discuss and evaluate recent computer science developments

**Methodological competences**

The students:
- evaluate and apply tools, technology and methods sophisticatedly
- combine new and original approaches and methods creatively
- evaluate problems/tasks, including new or developing subject areas of their discipline and apply computer science methods for solutions and research

**Social competences**

The students:
- support team process by their abilities

**Self-competences**

The students:
- pursue the overall and special computer science development critically
- implement innovative professional activities effectively and independently

**Module contents**

See assigned course description

**Literaturempfehlungen**

As announced in course

**Links**

Language of instruction: German

Duration (semesters): 1 Semester

Module frequency: unregelmäßig

Module capacity: unlimited

Modulart / typ of module: je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning method: 2 Veranst. aus V, S, Ü P, PR

**Vorkenntnisse / Previous knowledge**

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Form of instruction: VA-Auswahl

SWS: 2

Frequency: SoSe oder WiSe

Workload Präsenzzzeit: 28 h
### inf693 - Special Topics in 'Business Informatics' IV

<table>
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<tr>
<td>Zuständige Personen</td>
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</tr>
<tr>
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<td>Sauer, Jürgen (Module responsibility)</td>
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</table>

**Prerequisites**

Skills to be acquired in this module

This module integrates current developments in the field in adequate study courses.

**Professional competences**

The students:
- define and contrast a computer science part, in which they are specialised, in detail or evaluate computer science in general
- recognise and evaluate applied techniques and methods of their subject and are aware of their limits
- identify, structure and solve problems/tasks, also in new or developing subject areas
- apply state of the art and innovative methods to solve problems, if necessary from other disciplines
- are aware of the current limits and contribute to the development of computer science research and technology
- discuss and evaluate recent computer science developments

**Methodological competences**

The students:
- evaluate and apply tools, technology and methods sophisticatedly
- combine new and original approaches and methods creatively
- evaluate problems/tasks, including new or developing subject areas of their discipline and
- apply computer science methods for solutions and research

**Social competences**

The students:
- support team process by their abilities

**Self-competences**

The students:
- pursue the overall and special computer science development critically
- implement innovative professional activities effectively and independently

**Module contents**

See assigned course description

**Literaturempfehlungen**

As announced in course

**Links**

Language of instruction: German

Duration (semesters): 1 Semester

Module frequency: unregelmäßig

Module capacity: unlimited

Modulelevel / module level: AS (Akzentsetzung / Accentuation)

Modulart / typ of module: je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning method: 2 Veranst. aus V, S, Ü, P, PR (4SWS)

**Vorkenntnisse / Previous knowledge**

Examination: Prüfungszeiten

Final exam of module: At the end of the lecture period

Form of instruction: VA-Auswahl

**SWS**

4

**Frequency**

SoSe oder WiSe

**Workload Präsenzzeit**

56 h
inf694 - Current Topics in 'Business Informatics' I

<table>
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|               | Master's Programme Computing Science (Master) > Angewandte Informatik |
| Zuständige Personen | Marx Gomez, Jorge (Module responsibility) |
|                | Sauer, Jürgen (Module responsibility)    |
|                | Lehrenden, Die im Modul (Prüfungs berechtigt) |

**Skills to be acquired in this module**

This module integrates current developments in the field in adequate study courses.

**Professional competences**

The students:
- define and contrast a computer science part, in which they are specialised, in detail or evaluate computer science in general
- recognise and evaluate applied techniques and methods of their subject and are aware of their limits
- identify, structure and solve problems/tasks, also in new or developing subject areas
- apply state of the art and innovative methods to solve problems, if necessary from other disciplines
- are aware of the current limits and contribute to the development of computer science research and technology
- discuss and evaluate recent computer science developments

**Methodological competences**

The students:
- examine tasks with technical and research literature, write an academic article and present their solutions academically
- evaluate problems/tasks, including new or developing subject areas of their discipline and apply computer science methods for solutions and research
- schedule time processes and resources

**Social competences**

The students:
- communicate with users and experts convincingly

**Self-competences**

The students:
- pursue the overall and special computer science development critically
- develop and reflect self-developed hypotheses to theories independently

**Module contents**

See assigned course description

**Literaturempfehlungen**

As announced in course

**Links**

**Language of instruction**

German

**Duration (semesters)**

1 Semester

**Module frequency**

unregelmäßig

**Module capacity**

unlimited

**Modulart / typ of module**

je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning method**

S oder V (2 SWS)

**Vorkenntnisse / Previous knowledge**

**Examination**

Prüfungszeiten

**Type of examination**

Final exam of module

At the end of the lecture period

Presentation or oral exam

**Form of instruction**

Course or seminar

**SWS**

2

**Frequency**

SoSe oder WiSe

**Workload Präsenzzzeit**

28 h
**inf695 - Current Topics in 'Business Informatics' II**

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</table>
| Verwendbarkeit des Moduls | • Master's Programme Business Informatics (Master) > Akzentsetzungsmodulle der Informatik  
• Master's Programme Computing Science (Master) > Angewandte Informatik |
| Zuständige Personen | Marx Gomez, Jorge (Module responsibility)  
Sauer, Jürgen (Module responsibility)  
Lehrenden, Die im Modul (Prüfungsberechtigt) |

**Prerequisites**

Skills to be acquired in this module

This module integrates current developments in the field, especially with a focus on corporate environmental management information systems, in adequate study courses.

**Professional competences**

The students:
- define and contrast a computer science part, in which they are specialised, in detail or evaluate computer science in general
- recognise and evaluate applied techniques and methods of their subject and are aware of their limits
- identify, structure and solve problems/tasks, also in new or developing subject areas
- apply state of the art and innovative methods to solve problems, if necessary from other disciplines
- are aware of the current limits and contribute to the development of computer science research and technology
- discuss and evaluate recent computer science developments

**Methodological competences**

The students:
- examine tasks with technical and research literature, write an academic article and present their solutions academically
- evaluate problems/tasks, including new or developing subject areas of their discipline and apply computer science methods for solutions and research
- schedule time processes and resources

**Social competences**

The students:
- communicate with users and experts convincingly

**Self-competences**

The students:
- pursue the overall and special computer science development critically
- develop and reflect self-developed hypotheses to theories independently

**Module contents**

See assigned course description

**Literaturempfehlungen**

As announced in course

**Links**

Language of instruction: German

Duration (semesters): 1 Semester

Module frequency: unregelmäßig

Module capacity: unlimited

Modulelevel / module level: AS (Akzentsetzung / Accentuation)

Modulart / typ of module: je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning method: S oder V (2 SWS)

**Vorkenntnisse / Previous knowledge**

Examination: Prüfungszeiten
Type of examination: Presentation or oral exam

Final exam of module: At the end of the lecture period

Form of instruction: Course or seminar

SWS: 2

Frequency: SoSe oder WiSe
| Workload Präsenzzzeit | 28 h |
### Module Information

**inf696 - Current Topics in 'Business Informatics' III**

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**Verwendbarkeit des Moduls**
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik

**Zuständige Personen**
- Marx Gomez, Jorge (Module responsibility)
- Sauer, Jürgen (Module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**

**Skills to be acquired in this module**

This module integrates current developments in the field, especially with a focus on business intelligence, in adequate study courses.

**Professional competences**

The students:
- define and contrast a computer science part, in which they are specialised, in detail or evaluate computer science in general
- recognise and evaluate applied techniques and methods of their subject and are aware of their limits
- identify, structure and solve problems/tasks, also in new or developing subject areas
- apply state of the art and innovative methods to solve problems, if necessary from other disciplines
- are aware of the current limits and contribute to the development of computer science research and technology
- discuss and evaluate recent computer science developments

**Methodological competences**

The students:
- examine tasks with technical and research literature, write an academic article and present their solutions academically
- evaluate problems/tasks, including new or developing subject areas of their discipline and apply computer science methods for solutions and research
- schedule time processes and resources

**Social competences**

The students:
- communicate with users and experts convincingly

**Self-competences**

The students:
- pursue the overall and special computer science development critically
- develop and reflect self-developed hypotheses to theories independently

**Module contents**

See assigned course description

**Literaturempfehlungen**

As assigned in course

**Links**

**Language of instruction**

German

**Duration (semesters)**

1 Semester

**Module frequency**

unregelmäßig

**Module capacity**

unlimited

**Modulart / module level**

AS (Akzentsetzung / Accentuation)

**Modulart / typ of module**

je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning method**

S oder V (2 SWS)

**Vorkenntnisse / Previous knowledge**

**Examination**

Prüfungszeiten

**Type of examination**

Final exam of module

At the end of the lecture period

Presentation or oral exam

**Form of instruction**

Course or seminar

**SWS**

2

**Frequency**

WiSe
| Workload Präsenzzzeit | 28 h |
## Current Topics in 'Business Informatics' IV

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**Verwendbarkeit des Moduls**  
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodul der Informatik  
- Master's Programme Computing Science (Master) > Angewandte Informatik

**Zuständige Personen**  
- Marx Gomez, Jorge (Module responsibility)  
- Sauer, Jürgen (Module responsibility)  
- Lehrende, Die im Modul (Prüfungsberechtigt)

**Prerequisites**  
This module integrates current developments in the field in adequate study courses.

**Skills to be acquired in this module**

### Professional competences
The students:
- define and contrast a computer science part, in which they are specialised, in detail or evaluate computer science in general  
- recognise and evaluate applied techniques and methods of their subject and are aware of their limits  
- identify, structure and solve problems/tasks, also in new or developing subject areas  
- apply state of the art and innovative methods to solve problems, if necessary from other disciplines  
- are aware of the current limits and contribute to the development of computer science research and technology  
- discuss and evaluate recent computer science developments

### Methodological competences
The students:
- examine tasks with technical and research literature, write an academic article and present their solutions academically  
- evaluate problems/tasks, including new or developing subject areas of their discipline and apply computer science methods for solutions and research  
- schedule time processes and resources

### Social competences
The students:
- communicate with users and experts convincingly

### Self-competences
The students:
- pursue the overall and special computer science development critically  
- develop and reflect self-developed hypotheses to theories independently

**Module contents**  
See assigned course description

**Literaturempfehlungen**  
As assigned in course

**Links**

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**Vorkenntnisse / Previous knowledge**

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**Form of instruction**  
Course or seminar

| SWS | 2 |
| Frequency | WiSe |
| Workload Präsenzzeit | 28 h |
inf810 - Special Topics in Computer Science I

Module label: Special Topics in Computer Science I

Modulkürzel: inf810

Credit points: 6.0 KP

Workload: 180 h

Verwendbarkeit des Moduls:
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Environmental Modelling (Master) > Mastermodule

Zuständige Personen:
Lehrenden, Die im Modul (Prüfungsberechtigt)
Marx Gomez, Jorge (Module responsibility)

Prerequisites:
Skills to be acquired in this module:

This module integrates current computer science developments into the business informatics program by appropriate study courses.

Professional competence:
The students:
- Know recent technological or scientific computer science developments
- Transfer computer science methods and development models to IT application area requirements
- Evaluate the possibilities and limitations of computer science methods and tools and apply them appropriately

Methodological competence:
The students:
- Review problems, formulate them with formal models and explore them appropriately
- Identify and present (one or more) computer science problem solutions
- Select and evaluate appropriate tools and methods
- Examine problems with technical and scientific literature

Social competence:
The students:
- work in a team

Self-competence:
The Students:
- Plan their informatical actions independently

Module contents:
According to the assigned task

Literaturempfehlungen:
According to the assigned task

Links:

Language of instruction: German

Duration (semesters): 1 Semester

Module frequency: Sommer und Winter

Module capacity: unlimited

Modullevel / module level: AS (Akzentsetzung / Accentuation)

Modulart / typ of module: Wahlmodul / Opportunity

Lehr-/Lernform / Teaching/Learning method:
4 aus V, Ü, S, P, PR

Vorkenntnisse / Previous knowledge:

Examination:
Prüfungszeiten
Type of examination:
Exercises or presentation or oral exam or written exam

Form of instruction: VA-Auswahl

SWS:
4

Frequency:
SoSe oder WiSe

Workload Präsenzzeit:
56 h
inf811 - Special Topics in Computer Science II

Module label: Special Topics in Computer Science II
Modulkürzel: inf811
Credit points: 6.0 KP
Workload: 180 h

Verwendbarkeit des Moduls
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Environmental Modelling (Master) > Mastermodule

Zuständige Personen
Marx Gomez, Jorge (Module responsibility)
Fränzle, Martin Georg (Module responsibility)
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
Skills to be acquired in this module
This module integrates current computer science developments into the business informatics program, especially considering the selected focus area, by appropriate study courses.

Professional competence
The students:
- Know recent technological or scientific computer science developments
- Transfer computer science methods and development models to IT application area requirement
- Evaluate the possibilities and limitations of computer science methods and tools and apply them appropriately

Methodological competence
The students:
- Review problems, formulate them with formal models and explore them appropriately
- Identify and present (one or more) computer science problem solutions
- Select and evaluate appropriate tools and methods
- Examine problems with technical and scientific literatur

Social competence
The students:
- work in a team

Self-competence:
The Students:
- Plan their informatical actions independently

Module contents
According to the assigned task

Literaturempfehlungen
According to the assigned task

Links
Language of instruction: German
Duration (semesters): 1 Semester
Module frequency: Sommer und Winter
Module capacity: unlimited
Modulelevel / module level: AS (Akzentsetzung / Accentuation)
Modulart / typ of module: Wahlmodul / Opportunity
Lehr-/Lernform / Teaching/Learning method: 4 aus V, Ü, S, P, PR

Vorkenntnisse / Previous knowledge

Examination
Prüfungszeiten
Type of examination
Final exam of module
Exercises or presentation or oral exam or written exam

Form of instruction
VA-Auswahl

SWS
2
Frequency
SoSe oder WiSe
Workload Präsenzzeit
28 h
inf812 - Current Topics in Computer Science I

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| Verwendbarkeit des Moduls | - Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Environmental Modelling (Master) > Mastermodule |
| Zuständige Personen | Lehrenden, Die im Modul (Prüfungsberechtigt)
Marx Gomez, Jorge (Module responsibility)
Fränzle, Martin Georg (Module responsibility) |

Prerequisites

This module integrates current computer science developments into the business informatics program by appropriate study courses.

**Professional competence**
The students:
- Know recent technological or scientific computer science developments
- Transfer computer science methods and development models to IT application area requirements
- Evaluate the possibilities and limitations of computer science methods and tools and apply them appropriately

**Methodological competence**
The students:
- Review problems, formulate them with formal models and explore them appropriately
- Identify and present (one or more) computer science problem solutions
- Select and evaluate appropriate tools and methods
- Examine problems with technical and scientific literature

**Social competence**
The students:
- work in a team

**Self-competence:**
The Students:
- Plan their informatical actions independently

Module contents

According to the assigned task

Literaturempfehlungen

According to the assigned task

Links

Language of instruction | German |
Duration (semesters) | 1 Semester |
Module frequency | Sommer und Winter |
Module capacity | unlimited |
Modulelevel / module level | AS (Akzentsetzung / Accentuation) |
Modular / typ of module | Wahlmodul / Opportunity |
Lehr-/Lernform / Teaching/Learning method | 2 aus V, Ü, S, P, PR |

Vorkenntnisse / Previous knowledge

Exam | Prüfungszeiten | Type of examination |
Final exam of module | Exercises or presentation or oral exam or written exam |
Form of instruction | VA-Auswahl |

| Frequency | SoSe oder WiSe |
| Workload Präsenzeit | 28 h |
### inf813 - Current Topics in Computer Science II

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**Verwendbarkeit des Moduls**
- Master's Programme Business Informatics (Master) > Akzentsetzungsmodule der Informatik
- Master's Programme Computing Science (Master) > Angewandte Informatik
- Master's Programme Environmental Modelling (Master) > Mastermodule

**Zuständige Personen**
- Marx Gomez, Jorge (Module responsibility)
- Fränzle, Martin Georg (Module responsibility)

**Prerequisites**
This module integrates current computer science developments into the business informatics program, especially considering the selected focus area, by appropriate study courses.

**Professional competence**
The students:
- Know recent technological or scientific computer science developments
- Transfer computer science methods and development models to IT application area requirements
- Evaluate the possibilities and limitations of computer science methods and tools and apply them appropriately

**Methodological competenc**
The students:
- Review problems, formulate them with formal models and explore them appropriately
- Identify and present (one or more) computer science problem solutions
- Select and evaluate appropriate tools and methods
- Examine problems with technical and scientific literature

**Social competence**
The students:
- work in a team

**Self-competence:**
The Students:
- Plan their informatical actions independently

**Module contents**
According to the assigned task

**Literaturempfehlungen**
According to the assigned task

**Language of instruction**
German

**Duration (semesters)**
1 Semester

**Module frequency**
Sommer und Winter

**Module capacity**
unlimited

**Modulelevel / module level**
AS (Akzentsetzung / Accentuation)

**Modulart / typ of module**
Wahimodul / Opportunity

**Lehr-/Lernform / Teaching/Learning method**
2 aus V, Ü, S, P, PR

**Vorkenntnisse / Previous knowledge**

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**Form of instruction**
VA-Auswahl

**SWS**
2

**Frequency**
SoSe oder WiSe

**Workload Präsenzzeit**
28 h
inf340 - Control-Oriented Modeling of Uncertainty: Stochastic and Set-Based Techniques

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Zuständige Personen
Rauh, Andreas (Module responsibility)
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
Skills to be acquired in this module

Competencies:
The students identify fundamentals of uncertainty modeling in control systems as well as problem-specific methods for the consideration of uncertainty during simulation and observer synthesis.

Professional Competences:
The students identify fundamentals of uncertainty modeling in control systems, characterize problem-specific solution techniques for systems with stochastic and set-based uncertainty, and are aware of software implementations in simulation, control, and state estimation.

Methodological competences:
The students analyze problems of control-oriented uncertainty modeling, analyze fundamental solution techniques on a theoretical basis as well as transfer and generalize them independently toward novel research-oriented application scenarios.

Social competences:
The students analyze problems of control-oriented uncertainty modeling, analyze fundamental solution techniques on a theoretical basis as well as transfer and generalize them independently toward novel research-oriented application scenarios.

Self competences:
The students critically reflect the achieved results of their project work and acknowledge limitations of various approaches for a control-oriented uncertainty modeling.

Module contents

1. Mathematical modeling of uncertainty in linear and nonlinear dynamic systems
2. Stochastic modeling approaches
   - Probability distributions
   - Bayesian state estimation for discrete-time systems (linear/nonlinear) and for continuous-time systems (linear)
   - Linear estimation techniques in an extended state-space (Carleman linearization for special system classes)
   - Monte-Carlo methods
3. Estimation of states, parameters and simulation of uncertain processes
   - Outlook: Markov models
   - Outlook: Bayesian networks
4. Set-based approaches
   - Set-based algorithms: Forward-backward contractor and bisection techniques
   - Interval methods for a verified solution of ordinary differential equations and for a stability proof of uncertain systems
   - Estimation of states and parameters as well as simulation of uncertain processes
5. Outlook: Synthesis of controllers and state observers under an explicit description of uncertainty

Literaturempfehlungen

3. Rauh, A. Folien/ Skript zur Vorlesung „Regelungsorientierte Unsicherheitsmodellierung“.
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| Präsenzzeit Modul insgesamt | 4 h |
inf341 - Robust Control and State Estimation

Module label  Robust Control and State Estimation

Modulkürzel inf341

Credit points 6.0 KP

Workload 180 h

Verwendbarkeit des Moduls

- Master's Programme Business Informatics (Master) > Akzentsetzungsmodul der Informatik
- Master's Programme Computing Science (Master) > Technische Informatik

Zuständige Personen

Rauh, Andreas (Module responsibility)

Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

Skills to be acquired in this module

Competencies:
The students identify fundamentals of robust control and state estimation as well as problem-specific solution techniques and their corresponding software implementation.

Professional competences

The students identify fundamentals of robust control and state estimation, characterize problem-specific solution techniques for different classes of uncertainty and are aware of reliable software implementations.

Methodological competences

The students analyze problems of robust control and state estimation for dynamic systems, analyze fundamental solution techniques on a theoretical basis, and transfer as well as generalize those independently to new fields of applications.

Social competences

The students develop solution ideas for real-life control problems within an accompanying project in small teams and explain the obtained results in short presentations.

Self competences

The students critically reflect the achieved results of their project work and acknowledge limitations of various approaches for robust control and state estimation.

Module contents

1. Robustness of linear systems/ system analysis
   - Boundary crossing theorem of Frazer and Duncan
   - Mikhailov criterion
   - Kharitonov criterion
   - Frequency response approaches

2. Selected control design techniques/ control synthesis
   - Parameter-space approach of Ackermann and Kaesbauer
   - Eigenvalue and eigenvalue domain assignment
   - H-infinity control
   - Frequency response approaches (Sensitivity function approaches in the frequency domain)

3. Robust LMI-based control techniques
   - Lyapunov stability
   - Polytopic uncertainty modeling
   - Optimality of solutions

4. Duality between control and observer synthesis
   - Robust state estimation
   - Sliding mode observers

5. Interval methods: Solution of static and dynamic problems (Enclosing function values, Branch-and-bound techniques, Verification techniques for differential equations)

6. Fundamentals: Fault detection and fault-tolerant control

Literaturempfehlungen

4. Rauh, A. Folien/ Skript zur Vorlesung „Robuste Regelung und Zustandsschätzung“. 
### Links

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<td>V, Ü, P</td>
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### Form of instruction

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</table>

| Präsenzzeit Modul insgesamt | 4 h |

5. Weinmann, A. Uncertain Models and Robust Control, Springer-Verlag, 1991
Module der Wirtschafts- und Rechtswissenschaften (Master)

wir032 - Managerial Accounting

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<tr>
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</table>

Verwendbarkeit des Moduls
- Bachelor's Programme Business Administration and Law (Bachelor) > Aufbaubereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Wirtschaftswissenschaften
- Bachelor's Programme Economics and Business Administration (Bachelor) > Basismodule
- Bachelor's Programme Mathematics (Bachelor) > Nebenfachmodule
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > Basismodule
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)

Zuständige Personen
Lehrenden, Die im Modul (Prüfungsberechtigt)

Skills to be acquired in this module
This course is an introduction to the use of accounting information by managers for decision-making, planning and control. It is designed to equip students with the concepts and techniques of management accounting for identifying and resolving strategic issues faced by managers in various business contexts.

Module contents
See leading textbook

Literaturempfehlungen
Seal et al., Management Accounting, McGraw-Hill Education Ltd, 5. Edition

Links
http://www.uni-oldenburg.de/accounting/

Language of instruction
English

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Reference text
Vorlesung auf Englisch

Modullevel / module level
je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning method

Vorkenntnisse / Previous knowledge
Erste Erfahrungen mit Konzepten der Kostenrechnung.

Examination
Prüfungszeiten
Type of examination
written exam

Final exam of module
end of term

Form of instruction
Comment SWS Frequency Workload of compulsory attendance

<table>
<thead>
<tr>
<th>Lecture</th>
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<tbody>
<tr>
<td>Tutorial</td>
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</table>

Präsenzzeit Modul insgesamt
56 h
Module label: Introduction to economics

Module label: wir041

Credit points: 6.0 KP

Workload: 180 h

Verwendbarkeit des Moduls
- Bachelor's Programme Business Administration and Law (Bachelor) > Basiscurriculum Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Wahlpflichtbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Computing Science (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Economics and Business Administration (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Economics and Business Administration (Bachelor) > Basismodule
- Bachelor's Programme Mathematics (Bachelor) > Nebenfachmodule
- Bachelor's Programme Sustainability Economics (Bachelor) > Grundlagen-/Basismodule
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > Basismodule
- Bachelor's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)

Zuständige Personen
- Rahmeyer Seyffarth, Anelise (Module counselling)
- Böhringer, Christoph (Module responsibility)

Prerequisites
- none

Skills to be acquired in this module
- Students: acquire a basic understanding of economics
- know elementary economic terms and theories
- learn to analyze economic problems graphically and/or mathematically
- are able to grasp both micro- and macroeconomic relationships based on theory
- understand basic economic models and are able to apply them to current economic problems
- place current economic and political events and debates in economic contexts
- understand under which conditions market interventions by policy makers are justified from an economic perspective
- are able to assess possible effects of economic policy instruments (for example: taxes, subsidies, minimum and maximum prices, etc.).

Module contents
- The course introduces students to economic thinking and gives an elementary overview of the fundamental themes in economics. Key causal relationships will be verbally, analytically and graphically elucidated and underpinned with real-world examples. Main contents: - Introduction to economic thinking; - Explanation of basic concepts of economic theory; - Economic cycle and national product; - Interdependence and trade; - Functioning and efficiency of markets; - Market failures and government activity; - Firms behavior in markets with diverse structures; - Foundations of game theory.

Literaturempfehlungen
- The CORE Team: The Economy (free, open access text for introductory undergraduate courses; continuous updates), URL: https://www.core-econ.org

Links
- http://www.vwl.uni-oldenburg.de/

Language of instruction: German

Duration (semesters): 1 Semester

Module frequency: jährlich

Module capacity: unlimited
The module consists of lectures and tutorials. The contents of the course will be taught in the lecture. The tutorial sessions are aimed at solving problem sets or exercises to deepen students' understanding. Lecture notes and other relevant materials will be uploaded to the learning management system (StudIP).

### Modullevel / module level
---

### Modulant / typ of module
je nach Studiengang Pflicht oder Wahlpflicht

### Lehr-/Lernform / Teaching/Learning method

### Vorkenntnisse / Previous knowledge

<table>
<thead>
<tr>
<th>Examination</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
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<td>written exam; voluntary contributions that improve grades may undertaken as 'portfolio-presentations' during tutorials</td>
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### Präsenzzeit Modul insgesamt

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<table>
<thead>
<tr>
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<tr>
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### wir060 - Financial Accounting

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**Verwendbarkeit des Moduls**
- Bachelor's Programme Business Administration and Law (Bachelor) > Aufbaubereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Wirtschaftswissenschaften
- Bachelor's Programme Economics and Business Administration (Bachelor) > Aufbaumodule
- Bachelor's Programme Mathematics (Bachelor) > Nebenfachmodule
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > Aufbaumodule
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)

**Zuständige Personen**
Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**
none

**Skills to be acquired in this module**
- The students obtain knowledge on IFRS accounting in general and specific topics such as financial instruments, intangible assets and provisions;
- understand the framework of IFRS;
- understand the international focus and necessity of IFRS;
- obtain knowledge on IFRS from both a legal and economic perspective.

**Module contents**
This module is based on accounting and annual financial statement, while focusing exclusively on the international financial reporting standards (IFRS). In terms of content, the course covers subjects such as the most important concepts, tangible and intangible assets as well as liability items on the basis of the fundamental standards and case studies.

**Literaturempfehlungen**
Lecture notes with additional references will be provided via the e-learning platform Stud.IP.

**Links**
http://www.uni-oldenburg.de/accounting/

**Language of instruction**
English

**Duration (semesters)**
1 Semester

**Module frequency**
jährlich

**Module capacity**
unlimited

**Reference text**
Lectures are held in English; tutorials are held in English or German.

**Modulart / module level**
je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning method**

**Vorkenntnisse / Previous knowledge**
Buchhaltung und Abschluss

**Examination**
Prüfungszeiten

**Final exam of module**
At the end of the semester; a midterm exam might be held during the semester.

**Form of instruction**
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<tr>
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**Präsenzzeit Modul insgesamt**
56 h
**wir070 - Principles of Marketing**

<table>
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### Verwendbarkeit des Moduls
- Bachelor's Programme Business Administration and Law (Bachelor) > Basiscurriculum Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Computing Science (Bachelor) > Wahlpflichtbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Economics and Business Administration (Bachelor) > Aufbaumodule
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > Aufbaumodule
- Master of Education Programme (Vocational and Business Education) Economics and Business Administration (Master of Education) > Mastermodule
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)

### Zuständige Personen
Lehrende, Die im Modul (Prüfungsberechtigt)

### Prerequisites
keine

### Skills to be acquired in this module
Upon completion of the module, students will be able to:
- recognize and provide solutions to challenges in market-oriented business management
- reflect on market-oriented business management with regard to practise, as well as related societal and ethical implications
- actively participate in scholarly marketing discourse
- build their own capacities to acquire knowledge and skills within the discipline

### Module contents
The module focuses on the fundamentals of marketing in the sense of market-orientated management by linking philosophy and theoretical connections, as well as the necessary analytical and methodical knowledge with concrete case studies.

### Literaturempfehlungen

### Links
www.uni-oldenburg.de/marketing

### Language of instruction
German

### Duration (semesters)
1 Semester

### Module frequency
jährlich

### Module capacity
unlimited

### Modullevel / module level
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### Modulart / typ of module
je nach Studiengang Pflicht oder Wahlpflicht

### Lehr-/Lernform / Teaching/Learning method

### Vorkenntnisse / Previous knowledge

### Examination
<table>
<thead>
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<th>Type of examination</th>
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<td>written exam; voluntary contributions that improve grades may undertaken as 'portfolio-presentations' during tutorials</td>
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### Form of instruction
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### Präsenzzeit Modul insgesamt
56 h
**wir090 - Human Resource Management**

<table>
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</table>

**Verwendbarkeit des Moduls**

- Bachelor's Programme Business Administration and Law (Bachelor) > Aufbaubereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Computing Science (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Economics and Business Administration (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Financial Management (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Master of Education Programme (Vocational and Business Education) Economics and Business Administration (Master of Education) > Mastermodule
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)

**Zuständige Personen**

- Junker-Michel, Mareike (Module counselling)
- Breisig, Thomas (Module counselling)

**Lehrenden, Die im Modul (Prüfungsberechtigt)**

- Breisig, Thomas (Module responsibility)

**Prerequisites**

keine

**Skills to be acquired in this module**

Upon completion of the module (two complementary lectures), students will be able to:

- understand the complex issues, challenges and fields of action in organisational Human Resource (HR) Management;
- analyse, interpret and manage HR issues within heterogeneous fields of stakeholders and environments;
- effectively analyse and apply HR instruments according to the specific practical context;
- develop skills to self-reflection by dealing with theoretical as well as practical issues in HR Management and are able to press their point within the scientific discussion;
- are able to locate a specific research question within the scientific discussion in the field of Human Resource Management and to interlink, reflect and evaluate it accordingly.

By attending the non-compulsory tutorials and participating in lecture discussions, students can develop their own position on the inter-linkages between theoretical approaches and practical courses of action. Students will thus be able to identify problems, analyse them critically, and develop solutions. As they have the opportunity to work in small groups within the tutorials and to participate during lecture discussions, students may also learn to handle different points of view and discuss constructively. Overall they will be prepared for the specific requirements faced in the field of HR Management.

**Module contents**

Students develop theoretical as well as practical insights into the backgrounds and specific characteristics of "Human Resource" Management, in particular the following:
- origins and theoretical basis
- development and framework requirements
- workforce planning
- recruitment and selection
- work organisation
- working time organisation
- leadership
- performance reviews
- training and development
- compensation
- staff reduction

**Literaturempfehlungen**

Further literature will be announced during the semester according to the particular lecture/seminar content.

<table>
<thead>
<tr>
<th>Links</th>
<th><a href="http://www.uol.de/orgpers">www.uol.de/orgpers</a></th>
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<tbody>
<tr>
<td>Language of instruction</td>
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<td>Duration (semesters)</td>
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<tr>
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<td>Module capacity</td>
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<td>Module level / module level</td>
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<td>Modulart / typ of module</td>
<td>je nach Studiengang Pflicht oder Wahlpflicht</td>
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<td>Lehr-/Lernform / Teaching/Learning method</td>
<td>Vorlesung</td>
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<td>Vorkenntnisse / Previous knowledge</td>
<td>Praktische Erfahrungen im Personalbereich; Grundkenntnisse der Betriebswirtschaftslehre</td>
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<td>Examination</td>
<td>Prüfungszeiten</td>
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<td>At the end of the lecture period and at the end of the semester</td>
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Präsenzzeit Modul insgesamt 84 h
### wir082 - Corporate Finance

<table>
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</table>

#### Workload
- **180 h**

#### Verwendbarkeit des Moduls
- Bachelor's Programme Business Administration and Law (Bachelor) > Aufbaubereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Wirtschaftswissenschaften
- Bachelor's Programme Economics and Business Administration (Bachelor) > Akzentsetzungsmodul
- Bachelor's Programme Mathematics (Bachelor) > Nebenfachmodule
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich mehr...
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > Aufbaumodule
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > Schwerpunkt Management und Ökonomie
- Master of Education Programme (Vocational and Business Education) Economics and Business Administration (Master of Education) > Mastermodule
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Computing Science (Master) > Nicht Informatik

#### Zuständige Personen
- Prokop, Jörg (Module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

#### Prerequisites
**Skills to be acquired in this module**
- Students
  - understand the role corporate finance plays in today’s business environment,
  - are able to make consistent investment decisions based on established financial models both under certainty and under uncertainty,
  - are able to place these models in within the broader context of economic theory, including both neoclassical theory and principal-agent theory,
  - are able to assess the limitations of these models,
  - analyze firm’s main sources of (long-term) financing.

#### Module contents
**Course outline:**
1. Introduction
2. Valuation and Capital Budgeting
3. Risk and Return
4. Long-Term Financing

This course is an introduction to corporate finance. It covers typical tools and techniques used in making investment and financing decisions, and it provides insights into their theoretical foundations. The concept of time value of money and net present value is discussed in detail, first under certainty, and then in the presence of uncertainty. We will examine the relationship between an investment's risk and its return, and discuss ways to derive risk-adjusted cost of equity capital. In addition, the course provides insights into firms’ main sources of (long-term) financing.

The topics covered in this course are relevant for financial decision-making in various areas of business management, including operations management, marketing, and in particular corporate strategy.

#### Literatureempfehlungen
- Main textbook:
  Hillier, Ross, Westerfield, Jaffe & Jordan, Corporate Finance, current edition, McGraw-Hill (especially chapters 1, 2, 4-10, 14).
- Supplementary readings:
  Berk & DeMarzo, Corporate Finance, current edition, Boston (Mass.).
  Brealey, Myers & Allen, Principles of Corporate Finance, current edition, Boston (Mass.).

#### Links
- [http://www.uni-oldenburg.de/fiwi_bbl/](http://www.uni-oldenburg.de/fiwi_bbl/)

#### Language of instruction
- English

#### Duration (semesters)
- 1 Semester

#### Module frequency
- jährlich

#### Module capacity
- unlimited

#### Modullevel / module level
- ---

#### Modulart / typ of module
- je nach Studiengang Pflicht oder Wahlpflicht

#### Lehr-/Lernform / Teaching/Learning
### Vorkenntnisse / Previous knowledge

- Financial Accounting (wir060)
- Statistik I (wir150)
- Managerial Accounting (wir032)
- Einführung in die VWL (wir041)
- Mikroökonomische Theorie (wir120)

### Examination

<table>
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<th>Prüfungszeiten</th>
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<td>Präsenzzeit Modul insgesamt</td>
<td></td>
<td></td>
<td></td>
<td>56 h</td>
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**wir100 - Corporate Strategy**

<table>
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<tr>
<td>Workload</td>
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**Verwendbarkeit des Moduls**
- Bachelor's Programme Business Administration and Law (Bachelor) > Aufbaubereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Betriebswirtschaftslehre
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Wirtschaftswissenschaften
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich Aufbaumodule
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich Aufbaumodule
- Master of Education Programme (Vocational and Business Education) Economics and Business Administration (Master of Education) > Mastermodule
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)

**Zuständige Personen**
Lehrenden, Die im Modul (Prüfungsberechtigt)
Hoppmann, Jörn (Module responsibility)

**Prerequisites**
**Skills to be acquired in this module**
The goal of the course is that students are able to
- know and understand basic concepts, instruments, and theories of strategic management
- analyze company strategies by applying conceptual frameworks
- understand the advantages and disadvantages of common instruments and models and critically evaluate their applicability
- independently develop strategic options and derive recommendations for their implementation in real-life settings

**Module contents**
The course offers a comprehensive overview of the models and instruments of strategic management. The first part of the course introduces important concept and models of strategic management and discusses their application using examples from corporate practice. Central topics that are being discussed in this context are the relation between firm strategies and competitive advantage, strategy analysis, strategy formulation, strategy implementation, and strategies in the context of internationalization and innovation. In the second part of the course, students apply and deepen their knowledge by writing a thesis that analyzes the strategy of a specific company.

**Literaturempfehlungen**

**Links**
**Language of instruction**
German

**Duration (semesters)**
1 Semester

**Module frequency**
jährlich

**Module capacity**
unlimited

**Modullevel / module level**
---

**Modulart / typ of module**
je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning method**
Vorlesung mit begleitendem Tutorium

**Vorkenntnisse / Previous knowledge**

**Examination**

**Type of examination**
Final exam of module
Thesis to be handed in at the end of semester
Thesis

**Form of instruction**

<table>
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**Präsenzzeit Modul insgesamt**
56 h

102 / 147
wir130 - Civil Law and Commercial Law

Module label: Civil Law and Commercial Law
Modulkürzel: wir130
Credit points: 6.0 KP
Workload: 180 h

Verwendbarkeit des Moduls:
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Wirtschaftswissenschaften
- Bachelor's Programme Economics and Business Administration (Bachelor) > Akzentsetzungsmodul
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > Schwerpunkt Berufliche Bildung
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > Schwerpunkt Management und Ökonomie
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)

Zuständige Personen:
- Rott, Peter (Module responsibility)
- Louven, Sebastian (Module counselling)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites:
The students:
- are familiar with the legal working methods, basic concepts of law in general and of civil law and commercial law in particular,
- are familiar with the law of obligation and law of property, in particular with contract law, as well as with commercial law, which are the main fields of interest in the future professional practice,
- are able to solve legal cases in a goal-oriented way,
- are able to find approaches for legal problems as well as recognize liability risks and how to deal with them,
- are in case of contract negotiations able to recognize the requirements for regulations and to evaluate consequences of regulation.

Module contents:
In this module students will learn the basic concepts of civil law, commercial law and company law. The main focus are the first two books and to some extent the third book of the BGB. After an introduction to the legal system and the legal sources of private law, the course will deal with the persons and objects of legal relations (legal subjects and objects). An introduction into general contract law (among others: transaction doctrine, representation, termination of obligations, arrears, defaults) follows then. Subsequently, the lecture will handle the main types of contracts of civil law, commitment and performance of transactions and ownership. The focus of the commercial law will be the determination of traits of merchandiser, the company law, the commercial register and legal liability issues as well as cross-border trade. This is followed by an introduction into company law.

Subjects of the module: Introduction into legal studies, basic principles of law, private law / public law, legal sources, general part of the civil code, law of obligations (without law of torts): contracts, type of contracts, defaults / breaches, law of terms and conditions; parts of property law. Traits of merchandiser, company; commercial register; Representation in commercial law (procuration, action and charging power of attorney); commercial transactions; forms and consequences of the change of the owner; commercial agents and brokers; customary law / trade terms; CISG; partnership / corporate law.

The module will enable students to evaluate complex legal relationships in the economy discretely.

Literaturempfehlungen:

Links:
- http://www.privatrecht.uni-oldenburg.de/

Language of instruction: German
Duration (semesters): 2 Semester
Module frequency: jährlich
Module capacity: unlimited
Modulart / typ of module: je nach Studiengang Pflicht oder Wahlpflicht
Lehr-/Lernform / Teaching/Learning method: keine
Vorkenntnisse / Previous knowledge
Examination: Prüfungszeiten
Type of examination: written exam
Final exam of module: end of semester
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wir160 - Entrepreneurship

Module label: Entrepreneurship
Modulkürzel: wir160
Credit points: 6.0 KP
Workload: 180 h

Verwendbarkeit des Moduls
- Bachelor's Programme Business Administration and Law (Bachelor) > Aufbaubereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Computing Science (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Betriebswirtschaftslehre
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlbereich Bereiche
- Master of Education Programme (Vocational and Business Education) Economics and Business Administration (Master of Education) > Mastermodule
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Computing Science (Master) > Nicht Informatik

Zuständige Personen
Lehrenden, Die im Modul (Prüfungsberechtigt)
Nicolai, Alexander (Module responsibility)

Prerequisites
none

Skills to be acquired in this module
The module introduces to the basics of Entrepreneurship
Upon completion of the module, students will be able to:
- understand the challenges of launching an enterprise,
- strategically analyse the structure of market
- understand how employees are able to behave like an entrepreneur in established enterprises
- develop innovative business ideas
- shape the key factors for realizing a business idea
- demonstrate a knowledge of the entrepreneurial process
- demonstrate a knowledge of cost accounting (especially break-even analysis, etc.) and will be able to calculate costs by themselves
- analyse and evaluate business models

Module contents
The module combines the lecture "Strategie und Entrepreneurship" with a tutorial. It investigates the challenges of launching enterprises and entrepreneurial behaviour in large companies as well. The content of the module follows the process of an entrepreneur. It starts with business ideas, their perception, and evaluation. In addition, it deals with the most important questions of development and management of new business models. The contents of the courses include the following topics:
- historical, institutional, and theoretical context
- development, evaluation, and pitching ideas
- business models
- building entrepreneurial teams
- entrepreneurship in large enterprises
- resources and finance
- management of growth

Literaturempfehlungen

Links
http://www.uni-oldenburg.de/wire/entrepreneurship/lehrangebot/veranstaltungen/lehrangebot-wise-20162017/

Language of instruction: German
Duration (semesters): 1 Semester
Module frequency: jährlich
Module capacity: unlimited
The lecture “Strategie und Entrepreneurship” must be attended in combination with the “Tutorium”.

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<thead>
<tr>
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**Teaching/Learning method**

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**Präsenzzeit Modul insgesamt**

| 56 h |
wir200 - Principles of Organisation

Module label | Principles of Organisation
---|---
Modulkürzel | wir200
Credit points | 6.0 KP
Workload | 180 h

Verwendbarkeit des Moduls
- Bachelor's Programme Business Administration and Law (Bachelor) > Aufbaubereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Akzisentzügungsbereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Wahlpflichtbereich Informat. Kultur und Gesellschaft
- Bachelor's Programme Computing Science (Bachelor) > Wahlpflichtbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Betriebswirtschaftslehre
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich Master of Education Programme (Vocational and Business Education) Economics and Business Administration (Master of Education) > Mastermodule
- Bachelor's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)

Zuständige Personen
Lehrenden, Die im Modul (Prüfungsberechtigt)
- Bartel, Teodora (Module counselling)
- Breisig, Thomas (Module counselling)
- Prokop, Jörg (Module responsibility)

Prerequisites
Keine

Skills to be acquired in this module
Upon completion of the module, students will be able to:
- explain and apply the approaches and instruments of organisational sciences;
- demonstrate a familiarity with the basic assumptions, strategies, and core themes of organisational theories and are able to compare and reflect upon them;
- know different forms of organisational design and are able to differentiate them;
- know how to identify and predict issues and developments within operational and organisational structures and processes;
- demonstrate an awareness of the relevance of organisational culture, can describe its characteristics and discuss different analytical techniques;
- describe and analyse processes of organizational change, can point out their influences on strategy, organisational culture, operational and organisational structure, and estimate the relevance of change process initiation;
- work cooperatively and self-dependant within teams and to present complex professional contents precisely and with profound arguments (if chosen to present a topic within the seminar).

Furthermore, the students are able:
- to locate a specific research question within the scientific discussion in this research area and to interlink, reflect and evaluate it accordingly;
- to press their point within the scientific discussion in this research area.

Module contents
The module contents are arranged in the following way:
- Basic concepts and conceptual demarcation
- Objectives of an organisation
- Dimensions in formal organisation
- Organisational culture
- Organisational structure
- Operational structure and processes
These basic principles of organisation are presented and discussed within the lectures. Current economic and business developments are included. Seminars and tutorials are offered to deepen the lecture presentations and to relate them to examples and cases.

Literaturempfehlungen

Links
www.uol.de/orgpers

Language of instruction
German

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Modulart / typ of module
Wahlpflicht / Elective

Lehr-/Lernform / Teaching/Learning method
Einführung in die BWL (wir011)

Vorkenntnisse / Previous knowledge

Examination
Prüfungszeiten

Type of examination

Final exam of module
Written exam: end of the lecture period Presentation: During the lecture period Portfolio: During the lecture period portfolio (group seminar paper and online test)
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### wir210 - Corporate Environmental Management

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**Verwendbarkeit des Moduls**

- Bachelor's Programme Business Administration and Law (Bachelor) > Aufbaubereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Computing Science (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Betriebswirtschaftslehre more...
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Ökologie und Nachhaltigkeit
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich
- Master of Education Programme (Vocational and Business Education) Economics and Business Administration (Master of Education) > Mastermodule
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Computing Science (Master) > Nicht Informatik

**Zuständige Personen**

Siebenhüner, Bernd (Module responsibility)

Lehrenden, Die im Modul (Module counselling)

**Prerequisites**

**Skills to be acquired in this module**

- understand the goals and concepts of sustainable development;
- discuss the importance of sustainability for companies;
- know basic strategies and instruments that enable companies to achieve sustainable development;
- acquire conceptual and practical skills using case studies, in particular about which instruments can be used to prepare companies for the challenges of sustainable development.

**Module contents**

The module consists of a lecture and a seminar. While the lecture presents and explains concepts, instruments and strategies for sustainable development, the seminar focuses on the practical relevance of the various instruments, concepts and strategies and discusses these based on case studies.

- Concepts and goals of sustainable development
- Introduction to the current discussion on sustainable development
- Current sustainability instruments and strategies for companies
- Case studies

**Literaturempfehlungen**


**Links**

https://www.uni-oldenburg.de/wire/

**Language of instruction**

German

**Duration (semesters)**

1 Semester

**Module frequency**

jährlich

**Module capacity**

unlimited

**Modullevel / module level**

je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning method**

Vorlesung mit begleitendem Seminar

**Vorkenntnisse / Previous knowledge**
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Präsenzzeit Modul insgesamt 56 h
**wir260 - Environmental Economics**

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<td>- Bachelor's Programme Economics and Business Administration (Bachelor) &gt; Studienrichtung Volkswirtschaftslehre</td>
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<td>- Bachelor's Programme Sustainability Economics (Bachelor) &gt; Vertiefungsmodule</td>
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<td>- Master's Programme Business Informatics (Master) &gt; Module der Wirtschafts- und Rechtswissenschaften (Master)</td>
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<td></td>
<td>Huse, Cristian (Module responsibility)</td>
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**Prerequisites**

Skills to be acquired in this module

- The undergraduates
  - understand the basic subjects of environmental economics
  - know essentials of economic theory in environmental policy
  - know environmental problems and are able to analyze and interpret them economically
  - know the mechanics of instruments in environmental policy and also their conditions of usage
  - are able to evaluate instruments of environmental policy
  - know about the problems of transnational environmental burdens
  - know methods of environmental assessment

Module contents

Following topics will be discussed:

- definition and differentiation of environmental economics
- economic interpretations of environmental problems
- objectives and instruments of environmental policy
- market economy instruments of environmental policy
- conditions of implementation of environmental politics
- International environmental problems
- environmental assessment

**Literaturempfehlungen**


**Links**

https://www.uni-oldenburg.de/wire/

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**Lehr-/Lernform / Teaching/Learning method**

Vorkenntnisse / Previous knowledge

Einführung in die VWL und Mikroökonomische Theorie

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Form of instruction

Lecture

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wir400 - Strategic and International Marketing

Module label: Strategic and International Marketing

Modulkürzel: wir400

Credit points: 6.0 KP

Workload: 180 h

Verwendbarkeit des Moduls:
- Bachelor's Programme Business Administration and Law (Bachelor) > Aufbaubereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Betriebwirtschaftslehre
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Betriebwirtschaftslehre
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich
- Master of Education Programme (Vocational and Business Education) Economics and Business Administration (Master of Education) > Mastermodule
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)

Zuständige Personen:
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites:
Skills to be acquired in this module:
- Upon completion of the module, students will be able to:
  - recognize challenges facing marketing strategy in the field of markets and societies and draw conclusions for business management
  - elaborate and reflect upon the theoretical and conceptual foundations of strategic marketing planning
  - come up with examples that exemplify the systemic connection between strategic and instrumental marketing planning
  - discuss core assumptions of internationalization in the context of strategy planning and critically reflect upon its implications
  - build market research skills in an international context using different methods
  - develop their own perspectives on the conceptualization and implementation of international marketing strategies and advance them in discourses

Module contents:
The core of the module is the application of strategic planning methods in Marketing. A broadened understanding of Marketing in the areas of competitors, market agents and stakeholder orientation will be substantiated in theoretical and practical-normative view. International marketing forms an integrated part of strategic marketing planning; its basics and internal conception are formulated precisely in this course.

Literaturempfehlungen:
Latest editions of
- Meffert, H., Marketing-Management, Analyse - Strategie - Implementierung, Wiesbaden
- Kreikebaum H., Strategische Unternehmensplanung, Stuttgart/ Berlin/ Köln
- Benkenstein, M., Strategisches Marketing, Stuttgart/ Berlin/ Köln

Links:
www.uni-oldenburg.de/marketing

Language of instruction:
German

Duration (semesters):
1 Semester

Module frequency:
jährlich

Module capacity:
unlimited

Modulelevel / module level:
---

Modular / typ of module:
je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning method:

Vorkenntnisse / Previous knowledge:
Erfolgreicher Besuch des Moduls "Einführung in das Marketing" (wir070);
Ausnahmeregelungen nach Absprache mit dem Modulverantwortlichen

Examination:
Prüfungszeiten
Type of examination
End of term written exam; voluntary contributions that improve grades may undertaken as 'portfolio-presentations' during tutorials

Form of instruction:
Comment
SWS
Frequency
Workload of compulsory attendance

| Lecture | 2 | 28 |
| Tutorial | 2 | 28 |

112 / 147
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### wir801 - Concepts of Organisation and Management

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**Verwendbarkeit des Moduls**
- Master's Programme Business Administration, Economics and Law (Master) > Basismodule
- Master's Programme Business Administration, Economics and Law (Master) > Kernmodule CHI
- Master's Programme Business Administration, Economics and Law (Master) > Mantelmodule (MPC2020)
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "China - Wirtschaft und Sprache" (CHI) - Kernmodule (MPC2020)
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Management Consulting (Master) > Mastermodule

**Zuständige Personen**
- Breisig, Thomas (Module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)
- Wengelowski, Peter (Module counselling)
- Gilbert, Jonathan (Module counselling)
- Breisig, Thomas (Module counselling)

**Prerequisites**
- keine

**Skills to be acquired in this module**
- Students get to know selected concepts of organisation and management. Their respective objectives, instruments and methods are discussed and their use in everyday business is critically reflected. Students learn to deal with different management concepts in a conscious and critical way, especially through case studies and discussions.

Upon completion of the module, students will:
- be familiar with the emergence, development, and content of various management concepts;
- be able to convey key findings of the various management concepts to practical issues in the field of organisation and management;
- develop skills of self-reflection (supported by the technical and didactical concepts).

**Module contents**
- Students receive deeper insights into concepts of organisation and management, including:
  - Lean Management
  - Change Management
  - Quality Management
  - Business Process Reengineering

The presentations and discussions within the seminars also offer possibilities to deepen and broaden these topics according to the student's interest and current developments in theory and practice, e. g. Balanced Scorecard, Learning Organisation, Organisational Culture, Worker Participation, Networks, Diversity Management, Management by Objectives.

**Literatureempfehlungen**

Further literature will be announced during the semester according to the particular lecture/seminar content.

**Links**
- www.uol.de/orgpers

**Language of instruction**
- German

**Duration (semesters)**
- 1 Semester

**Module frequency**
- jährlich

**Module capacity**
- unlimited

**Reference text**
- Das Modul muss im Masterstudiengang Wirtschafts- und Rechtswissenschaften als Basismodul von allen Schwerpunkten gewählt werden.

**Modullevel / module level**
- je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning method**
- Praktische Erfahrungen; Kenntnisse aus den Bachelor-Modulen: Organisation und Human Resource Management

**Vorkenntnisse / Previous knowledge**
- Das Modul muss im Masterstudiengang Wirtschafts- und Rechtswissenschaften als Basismodul von allen Schwerpunkten gewählt werden.
## Examination

### Prüfungszeiten
- Final exam of module
  - Depending on the type of examination during the lecture period, at the end of the lecture period or at the end of the semester

### Type of examination
- Seminar paper or presentation or written exam or oral exam or portfolio or project report (will be determined and announced at the beginning of the semester by the lecturer)

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**Präsenzzeit Modul insgesamt** 56 h
wir806 - Information Technology Law

<table>
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<th>Information Technology Law</th>
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<td>Workload</td>
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**Verwendbarkeit des Moduls**

- Bachelor's Programme Business Informatics (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Computing Science (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Master Applied Economics and Data Science (Master) > Specialization
- Master of Education Programme (Hauptschule and Realschule) Computing Science (Master of Education) > Mastermodule
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Recht und Gesellschaft more...
- Master's Programme Business Administration, Economics and Law (Master) > Basismodule
- Master's Programme Business Administration, Economics and Law (Master) > Mantelmodule (MPO2020)
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - Recht
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Computing Science (Master) > Nicht Informatik

**Zuständige Personen**

Rott, Peter (Module responsibility)

Lehrenden, Die im Modul (Prüfungsberechtigt)

Louven, Sebastian (Module counselling)

**Prerequisites**

- Upon completion of the module, students will be able to:
  - deal with all legal questions arising from the use of information and communication technology in all sectors of society,
  - identify legal issues arising from the use of information and communication technology,
  - draft solutions for these legal questions.

**Module contents**

- Internet law; IT contracts law

**Literaturempfehlungen**

- Köhler, Fetzer, Recht des Internet, 8. Aufl., 2016
- Redeker, IT-Recht, 6. Aufl., 2017

**Links**

**Language of instruction**

German

**Duration (semesters)**

1 Semester

**Module frequency**

jährlich

**Module capacity**

unlimited

**Modullevel / module level**

je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning method**

**Vorkenntnisse / Previous knowledge**

**Examination**

Prüfungszeiten | Type of examination
--- | ---
during term | presentation and handout, written exam or oral exam

**Form of instruction**

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**Präsenzzzeit Modul insgesamt**

56 h
wir808 - Multivariate Statistics

Module label
Multivariate Statistics

Modulkürzel
wir808

Credit points
6.0 KP

Workload
180 h

Verwendbarkeit des Moduls
- Master's Programme Business Administration, Economics and Law (Master) > Basismodule
- Master's Programme Business Administration, Economics and Law (Master) > Mantelmodule (MPO2020)
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Volkswirtschaftslehre" (VWL) (MPO2020)
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Computing Science (Master) > Nicht Informatik
- Master's Programme Environmental Modelling (Master) > Mastermodule
- Master's Programme Sustainability Economics and Management (Master) > Basic and Accentuation Modules

Zuständige Personen
Stecking, Ralf Werner (Module responsibility)

Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
Skills to be acquired in this module
With successful completion of the course, students shall:
- be aware of and be able to evaluate advanced methods of multivariate data analysis.
- be able to select adequate methods in relevant fields of application, like prediction, classification, and segmentation analysis.
- be able to run computer-aided analyses and to interpret the results properly.

Module contents
Various methods of quantitative data analysis such as:
- Linear Regression,
- Logistic Regression,
- Linear Discriminant Analysis,
- Principal Component Analysis,
- Feature selection and evaluation methods.

Literaturrempfehlungen

Links

Language of instruction
German

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Modulart / typ of module
MM-PB (Professionalisierungsbereichsmodul im Master)

Lehr-/Lernform / Teaching/Learning method

Vorkenntnisse / Previous knowledge

Examination
Prüfungszeiten
Type of examination

Final exam of module
at the end of the semester
written exam or oral exam

Form of instruction
Comment
SWS
Frequency
Workload of compulsory attendance

Lecture
2

Exercises
2

Präsenzzeit Modul insgesamt
56 h
wir812 - Environmental Law

Module label: Environmental Law
Module key: wir812
Credit points: 6.0 KP
Workload: 180 h

Verwendbarkeit des Moduls
- Master's Programme Business Administration, Economics and Law (Master) > Basismodule
- Master's Programme Business Administration, Economics and Law (Master) > Mantelmodule (MPO2020)
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule NM-Recht
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - Recht
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Computing Science (Master) > Nicht Informatik
- Master's Programme Sustainability Economics and Management (Master) > Basic and Accentuation Modules

Verwendbarkeit des Moduls
- Master's Programme Business Administration, Economics and Law (Master) > Basismodule
- Master's Programme Business Administration, Economics and Law (Master) > Mantelmodule (MPO2020)
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule NM-Recht
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - Recht
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Computing Science (Master) > Nicht Informatik
- Master's Programme Sustainability Economics and Management (Master) > Basic and Accentuation Modules

Zuständige Personen
Meyerholt, Ulrich (Module counselling)
Godt, Christine (Module responsibility)
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
Skills to be acquired in this module
Building on the existing knowledge of the participants, the course will deepen knowledge of European and international law, whereby emphasis will be laid on those areas in which the dividing line between state intervention (public law) and market rights (private law) has become blurred. Students will be able to analyze contemporary regulatory techniques inherent in the multilevel system of governance and to assess them from an interdisciplinary (economic and legal) perspective.

Module contents
The module comprises two courses, one of which will be taught by PD Dr. Meyerholt, and the other together with Prof. Godt.
The first course deals with selected issues in environmental law. With the general structure of environmental law as a point of departure, the course content will be taught in a holistic manner that will also incorporate the leading decisions of the higher courts.
The second course takes into consideration intra-disciplinary environmental law as situated between public and private economic law, whereby special focus will be laid on the European and international dimensions.

Literaturempfehlungen

Links
Language of instruction: German
Duration (semesters): 1 Semester
Module capacity: unlimited
Modulelevel / module level: ---
Moduleart / typ of module: je nach Studiengang Pflicht oder Wahlpflicht
Lehr-/Lernform / Teaching/Learning method

Vorkenntnisse / Previous knowledge

Examination
Prüfungszeiten: during term
Type of examination: oral presentation and written script
Form of instruction: Lecture

SWS: 4
Frequency: SoSe oder WiSe
Workload Präsenzzeit: 56 h
wir814 - Strategic Management

Module label: Strategic Management

Modulkürzel: wir814

Credit points: 6.0 KP

Workload: 180 h

Verwendbarkeit des Moduls:
- Master's Programme Business Administration, Economics and Law (Master) > Mantelmodule (MPO2020)
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "China - Wirtschaft und Sprache" (CHI) - Kernmodule (MPO2020)
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - BWL
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule UF - BWL
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Computing Science (Master) > Nicht Informatik

Zuständige Personen:
Hoppmann, Jörn (Module responsibility)

Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites:
Keine

Skills to be acquired in this module:
- Know advanced theoretical concepts, research streams, and frameworks in the field of Strategic Management
- Understand the links between different theories and are able to critically question them
- Can apply theories to understand and interpret organizational dynamics in daily life
- Are able to develop solutions for concrete practical challenges in companies in the context of Strategic Management based on the concepts and frameworks they have learned
- Can put the newly acquired knowledge into a broader context, so it can be deepened in the further professional life

Module contents:
The course offers an overview of advanced concepts and frameworks in the field of Strategic Management. At the beginning, the course will provide a brief introduction into the historical development, goals, and research streams of the field. In this context, important terms, methods, and philosophical approaches of (management) research will be clarified. Subsequently, students form groups to analyze selected scientific articles with regard to their theoretical relevance and practical implications. Theoretical topics that will be covered in depth are:
1. Top Management Teams, Upper Echelons und Corporate Governance
2. Ressource- and Capability-based Approaches
4. Institutional Theory, Institutional Work/Entrepreneurship and Social Movements
5. Organizational Cognition, Identity, and Framing
6. Organizational Learning and Ambidexterity
7. Organizational networks and ecosystems

The results of the analysis will be summarized in a seminar thesis, presented in class, and discussed with the other students. The main goal of the course is to equip students with advanced concepts, which allow them to understand organizational dynamics, question established practices in firms, and develop new solutions that go beyond the application of standard instruments.

Literaturempfehlungen:

Links:

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**Innovation Management**

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**Verwendbarkeit des Moduls**
- Master’s Programme Business Administration, Economics and Law (Master) > Schwerpunkt Führung von Unternehmen und gesellschaftliche Organisation (FUGO) (MP02020)
- Master’s Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule NM-BWL
- Master’s Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - BWL
- Master’s Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule UF - BWL
- Master’s Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master’s Programme Sustainability Economics and Management (Master) > Additional Modules

**Zuständige Personen**
Lehrende, die im Modul (Prüfungsberechtigt)
Busse, Christian (Module responsibility)

**Prerequisites**
Skills to be acquired in this module
In today’s highly dynamic business environment, innovation is the key to the success of most firms. Moreover, technological and organizational innovations represent valuable instruments for achieving progress toward sustainable development. Against this background, this module familiarizes students with the tools and processes for managing innovation and for developing overall more innovative firms. The module comprises a lecture and a seminar. In the lecture, students become acquainted with the drivers to and role of innovation; they learn about designing innovative firms and developing innovation strategies; they get to know the different sources of innovation; they familiarize themselves with the methods for choosing between alternative planned innovations; they learn how innovation is implemented; and they understand how innovation benefits are exploited. The accompanying seminar is supposed to familiarize the students with select advanced topics surrounding the management of innovation. Moreover, the students train their skills in working in teams, in working with scientific literature, in academic writing, and in presenting in front of a large audience.

**Module contents**
Organizational change, creative destruction, ambidexterity, exploration, exploitation, absorptive capacity, sustainability transitions, innovation models, innovation networks, innovation strategy, innovation ecosystems, diffusion of innovations, organizational routines, entrepreneurship, new ventures, etc.

**Literatureempfehlungen**

**Links**

**Language of instruction**
German

**Duration (semesters)**
1 Semester

**Module frequency**
unlimited

**Reference text**
This module is offered in the winter term. For a more detailed description of course content and organization, please note the syllabus that will be made available via Stud.IP before the beginning of the course.

**Modullevel / module level**
MM (Mastermodul / Master module)

**Modulart / typ of module**
Wahlpflicht / Elective

**Vorkenntnisse / Previous knowledge**

**Examination**

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**Präsenzzeit Modul insgesamt**
56 h
wir842 - Banking

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Verwendbarkeit des Moduls
- Master Applied Economics and Data Science (Master) > Specialization
- Master of Education Programme (Vocational and Business Education) Economics and Business Administration (Master of Education) > Mastermodule
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Accounting, Finance, Taxation" (AFT) (MPO2020)
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule AFT - BWL
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - BWL
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)

Zuständige Personen
Prokop, Jörg (Module responsibility)
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
Skills to be acquired in this module
Upon completion of the module students will be able to explain the role financial institutions play in financial markets based on economic theory. They will have a sound knowledge of institutional and regulatory conditions under which financial institutions operate today, and they will be able to critically assess respective developments in the financial sector. Moreover, they will have developed a sound understanding of how banks are managed in a competitive environment.

Module contents
We will discuss theoretical foundations of financial intermediation in general, and of banking in particular as well as the economic, institutional, and regulatory context in which financial institutions operate today. Moreover, we will cover selected topics in the area of bank management and bank accounting.

Literaturempfehlungen
- Berger / Molyneux / Wilson (Eds.): The Oxford Handbook of Banking, latest edition, Oxford University Press
- Tolkmitt: Neue Bankbetriebslehre, latest edition, Gabler

Further readings may be announced during the course.

Links
http://www.uni-oldenburg.de/fiwi_bbl/

Languages of instruction
German, English

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Modullevel / module level
MM (Mastermodul / Master module)

Modulart / typ of module
Wahlpflicht / Elective

Lehr-/Lernform / Teaching/Learning method

Vorkenntnisse / Previous knowledge

Examination
Prüfungszeiten
Type of examination
typically at the end of the semester; potential midterm examination dates will be announced in the first session
1 term paper (Hausarbeit) or 1 written exam (Klausur) or 1 oral exam (mündliche Prüfung) or 1 Portfolio

Form of instruction
Lecture

SWS
4

Frequency

Workload Präsenzzeit
56 h
**wir848 - Basic theories of Organisation and Human Resources**

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<td>Gilbert, Jonathan (Module counselling)</td>
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<td>Breisig, Thomas (Prüfungsberechtigt)</td>
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<tr>
<td>Prerequisites</td>
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<tr>
<td>Skills to be acquired in this module</td>
<td>Students get to know central theories of organisation and human resources (HR). They are empowered to apply theories in order to explain practical phenomena and to solve practical problems. The ability to put on different &quot;theory glasses&quot; while observing and analysing various organisational and HR practices is fostered. Students learn to deal with different theories in a conscious and critical way, especially through case studies, group work and discussions. Upon completion of the module, students will:</td>
</tr>
<tr>
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<td>- be able to explain various classic and modern theories of organisation and human resource theories, differentiate them and reflect them critically</td>
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<td>- be able to apply the theoretical and abstract ways of thinking and perception so as to transfer them on operational decisions</td>
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<td>- develop skills of self-reflection (supported by the technical and didactical concepts)</td>
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<tr>
<td>Module contents</td>
<td>Students receive deeper insights into classical and modern theories of organisation and human resource, including:</td>
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<td>- Weber’s theory of bureaucracy</td>
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<td>- Taylor’s principles of Scientific Management</td>
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<td>- Human Relations approach</td>
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<td>- Behavioural decision theory</td>
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<td>- Situational approach</td>
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<td>- Micro-political approaches</td>
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<td>- New Institutional Economics</td>
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<td></td>
<td>- Theories of motivation</td>
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<td>- Theories of leadership</td>
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<td>Further literature will be announced during the semester according to the particular lecture/seminar content.</td>
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<td>Modullevel / module level</td>
<td>Wahlpflicht / Elective</td>
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**Lehr-/Lernform / Teaching/Learning method**

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<th>Praktische Erfahrungen; Grundkenntnisse der Betriebswirtschaftslehre, insbes. in den Bereichen Organisation und Human Resource Management</th>
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<table>
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<th>Prüfungszeiten</th>
<th>Type of examination</th>
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<tr>
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<td>Depending on the type of examination during the lecture period, at the end of the lecture period or at the end of the semester</td>
<td>Seminar paper or presentation or written exam or oral exam or portfolio or project report (will be determined and announced at the beginning of the semester by the lecturer)</td>
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| Präsenzzeit Modul insgesamt | 56 h |
wir857 - Law of Media and Telecommunication

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**Verwendbarkeit des Moduls**
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - Recht
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule UF - Recht
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Recht der Wirtschaft" (MPO2020)
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Computing Science (Master) > Nicht Informatik

**Zuständige Personen**
Boehme-Neßler, Volker (Module responsibility)
Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**

**Skills to be acquired in this module**
The students:
- have in-depth insights into the economic conditions of media production, distribution and exploitation.
- know the legal basis and framework conditions of media production, media presentation and mediation (e.g. copyrights, performance rights, distribution of media).
- bring together economic and legal dimensions of media work.
- know the economic and legal framework conditions of media institutions (e.g. television, radio, media mediation).

**Module contents**
This module is about making a connection of the theoretical and practical acquired aesthetic competences with the economic and legal framework conditions. In the sense of professionalisation, prospective media producers and mediators should learn to assess their own future activities under economic and legal conditions.

**Literaturempfehlungen**
Current case law and:
- Fechner, Medienrecht, 19. Aufl. 2018
- Petersen, Medienrecht, 2010.

**Links**
http://www.integrated-media.de/

**Language of instruction**
German

**Duration (semesters)**
1 Semester

**Module frequency**
jährlich

**Module capacity**
unlimited

**Modullevel / module level**
---

**Modulart / typ of module**
je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning method**

**Vorkenntnisse / Previous knowledge**

<table>
<thead>
<tr>
<th>Examination</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
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<tbody>
<tr>
<td>Final exam of module</td>
<td>At the end of the term</td>
<td>Presentation with term paper</td>
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**Form of instruction**
Lecture

**SWS**
4

**Frequency**
SoSe

**Workload Präsenzzeit**
56 h
wir860 - Data Protection Law

Module label: Data Protection Law
Modulkürzel: wir860
Credit points: 6.0 KP
Workload: 180 h

Verwendbarkeit des Moduls
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule
  RdW - Recht
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule
  UF - Recht
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Recht der Wirtschaft" (RdW) (MPC2020)
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Computing Science (Master) > Nicht Informatik

Zuständige Personen
Lehrenden, Die im Modul (Prüfungsberechtigt)
Louven, Sebastian (Module counselling)
Rott, Peter (Module responsibility)

Prerequisites
Skills to be acquired in this module
Upon completion of the module, students will be able to:
- recognize simple data protection incidents.
- apply existing protection mechanisms.
- implement projects in accordance with the law.
- discuss and defend their plans in front of others.

Module contents
The module gives an overview on data protection laws. Basic knowledge of data protection regulations
(DSGVO; BDSG) and existing protection mechanisms is imparted. Within the framework of the seminar, the
discussed topics will be deepened with the help of seminar papers and individual aspects will be discussed in
more detail.
The event will highlight the new informational structures in modern society and their effects on data protection
and data security. Questions concerning general personal rights, freedom of information, IT security and
relevant criminal law regulations will be discussed on the basis of examples and legally provided protection
mechanisms as well as the tasks of supervisory authorities will be discussed. In particular, the most important
decisions on data protection will be covered in detail during the seminar.
At the seminar, students will have the opportunity to prepare in-depth seminar papers on the various topics,
which will then be discussed with all participants.

Literaturempfehlungen
Kühling/Klar/Sackmann, Datenschutzrecht, 2018.
Further literature references will be given in the lecture.

Links
http://www.wto.org/

Language of instruction: German
Duration (semesters): 1 Semester
Module frequency: jährlich
Module capacity: unlimited
Modullevel / module level: ---
Modultyp / typ of module: je nach Studiengang Pflicht oder Wahlpflicht
Lehr-/Lernform / Teaching/Learning method

Vorkenntnisse / Previous knowledge
Examination
Prüfungszeiten
Type of examination
Final exam of module
typically 6 weeks after your presentation
Seminar paper and presentation or Term paper or Oral exam

Form of instruction
Comment
SWS
Frequency
Workload of compulsory attendance
Lecture
2
28
Seminar
2
28
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<td>56</td>
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wir875 - Forecasting Methods

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<td>Credit points</td>
<td>6.0 KP</td>
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<tr>
<td>Workload</td>
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**Verwendbarkeit des Moduls**
- Master Applied Economics and Data Science (Master) > Empirical Methods
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule UF - VWL
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt "Volkswirtschaftslehre" (VWL) (MPO2020)
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Computing Science (Master) > Nicht Informatik

**Zuständige Personen**
Stecking, Ralf Werner (Module responsibility)
Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**
Skills to be acquired in this module
With successful completion of the course, students shall:
- be aware of and be able to evaluate quantitative forecasting methods.
- be able to select adequate methods in relevant fields of application, like time series and classification analysis.
- be able to run computer-aided analyses and to interpret the results properly.

**Module contents**
Various aspects of quantitative forecasting methods such as:
- Time series components,
- Trend and seasonal methods,
- Stationarity,
- Multivariate forecasting methods,
- Autoregressive and moving average processes,
- Box-Jenkins method.

**Literaturempfehlungen**

**Links**
Language of instruction: English
Duration (semesters): 1 Semester
Module frequency: halbjährlich
Module capacity: unlimited
Modulelevel / module level: ---
Modulart / typ of module: je nach Studiengang Pflicht oder Wahlpflicht
### Method

**Vorkenntnisse / Previous knowledge**

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<td>end of semester</td>
<td>written exam or oral exam or term paper or seminar paper and presentation</td>
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<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
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</thead>
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Module Label: Operations and Supply Chain Management

Module Code: wir885

Credit Points: 6.0 KP

Workload: 180 h

Module Content:
- Introduction to Operations Management
- Demand Forecasting
- Location Planning
- Process Design
- Inventory Management
- Production Planning
- Scheduling
- Supply Chain Management
- Revenue Management
- Behavioral Operations Management

Skills to be acquired in this module:
The lecture pertaining to the module focuses on the development and critical discussion of formal analytical models for modelling and optimizing problems in operations and supply chain management. The aim is to provide students with the skills they need to analyze value-added processes in reality and not only to understand them, but ideally also improve them. The accompanying seminar, held in English, serves to deepen and critically examine the topics from the lecture. Supplementary to the lecture, the seminar deals with conceptual and empirical research and cases. Hereby, students get to know scientific discourses on practically relevant issues that are difficult to model. Furthermore, there will be ample training in scientific work, in team work and in presentations in front of large groups.

Module Level:
SPM (Schwerpunktmodul / Main emphasis)

Module Type:
Wahlpflicht / Elective

Prerequisites:
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunkt Führung von Unternehmen und gesellschaftliche Organisation (FUGO) (MPO2020)
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)

Language of instruction:
German, English

Duration (semesters):
1 Semester

Reference text:
The module takes place in the winter semester. Please refer to the syllabus available via Stud.IP for a more detailed description of content and procedure.

Literature recommendations:

Links:
- https://www.pearson.de
- https://www.pseindia.com
- https://www.stefanhelber.de

Examination:
- Type of examination: Final exam of module
- Prüfungszeiten: Portfolio, likely consisting of short test and short presentation

Form of instruction:
- Lecture: 2 SWS (SoSe und WiSe), Frequency: 28
- Seminar or exercise: 2 SWS (SoSe und WiSe), Frequency: 28

Presence time module in total: 56 h
wir902 - International Sustainability Management

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<tr>
<td>Workload</td>
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**Verwendbarkeit des Moduls**
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule NM-BWL
- Master's Programme Business Administration, Economics and Law (Master) > Schwerpunktmodule RdW - BWL
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Sustainability Economics and Management (Master) > Basic and Accentuation Modules
- Master's Programme Water and Coastal Management (Master) > Socioeconomics

**Zuständige Personen**
- Siebenhüner, Bernd (Module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)
- Wegner, Alkje (Prüfungsberechtigt)
- Sievers-Glotzbach, Stefanie (Prüfungsberechtigt)

**Prerequisites**
- No

**Skills to be acquired in this module**
- Knowledge on the basic concepts and strategies of sustainability management related to corporate practice:
  * Sustainability: Basic concepts, strategies,
  * Domestic and international challenges for business,
  * Business case for sustainable development,
  * Integrative concepts of sustainable corporations,
  * Sustainable strategies,
  * Management instruments
- Discussing topics of international sustainability management with students from different scientific disciplines.
- Ability to present and evaluate different concepts and instruments of international sustainability management

**Module contents**
This module consists of a one lecture and one seminar (2 weekly contact hours per lecture/seminar) dealing with basic concepts and strategies of sustainability management within corporations. Both, lecture and seminar give an overview of current sustainability strategies for companies and present a variety of instruments to integrate and initiate sustainable development within corporations. While the lecture focuses more on theoretical approaches and introduces basic concepts of corporate sustainability management, the seminar provides a variety of case studies and business cases to demonstrate different concepts and instruments of sustainability management. The seminar provides the possibilities for inter- and transdisciplinary exchange and discussions.

**Literaturempfehlungen**
BMU/BDI (Eds.) 2002: Sustainability Management in Business Enterprises. CSM, University of Lueneburg (Schaltegger, Herzig, Kleiber, Müller), http://www2.leuphana.de/umanagement/csm/content/bedarf/nmu_fs_engl_final.pdf
Charter, Martin/Tischner, Ursula (Eds.) (2001): Sustainable Solutions, Developing Products and Services for the Future, Sheffield: Greenleaf;

**Links**

**Language of instruction**
- English

**Duration (semesters)**
- 1 Semester

**Module frequency**
- jährlich

**Module capacity**
- unlimited

**Modulart / module level**
- BM (Basismodul / Base)

**je nach Studiengang Pflicht oder Wahlpflicht**
<table>
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<tr>
<td>Examination Prüfungszeiten Type of examination</td>
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<td><strong>Comment</strong></td>
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<tr>
<td>Seminar</td>
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wir904 - Environmental and Sustainability Policies

Module label
Environmental and Sustainability Policies

Modulkürzel
wir904

Credit points
6.0 KP

Workload
180 h

Verwendbarkeit des Moduls
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Computing Science (Master) > Nicht Informatik
- Master's Programme Sustainability Economics and Management (Master) > Basic and Accentuation Modules

Zuständige Personen
Lehrenden, Die im Modul (Prüfungsberechtigt)
Siebenhüner, Bernd (Module counselling)
Wegner, Alkje (Module counselling)
Müller, Werner Joachim (Module counselling)
Siebenhüner, Bernd (Module responsibility)

Prerequisites
Skills to be acquired in this module
- students:
  • have basic information about national and european environmental and sustainability governance
  • describe the history of national and european environmental and sustainability governance
  • reflect upon central principles, instruments, players and strategies in environmental and sustainability governance
  • analyze selected topics of environmental and sustainability governance based upon central principles, instruments, players and strategies

Module contents
- Introduction to environmental politics - Politics, Political Science, Policy Analysis
- Environment – Terms and Concepts - Historical Foundations of Environmental Politics
- Actors, institutions and governance structures; Actors in Environmental Policy
- Socio-ecological systems framework
- Environmental Policy in Germany
- Environmental Policy in the European Union
- Steering and principles in environmental policy
- Instruments in environmental policy
- Policy process and environmental policy
- Multilevel and reflexive governance - Multilevel governance
- International environmental governance
- Science-Policy Interface

Literaturempfehlungen
Aden, Hartmut (2012): Umweltpolitik, Wiesbaden: VS-Verlag

Links
https://www.uni-oldenburg.de/wire/

Languages of instruction
German, English

Duration (semesters)
1 Semester

Module frequency
halbjährlich

Module capacity
unlimited

Modullevel / module level
BM (Basismodul / Base)

Modulart / typ of module
je nach Studiengang Pflicht oder Wahlpflicht

Lehr-/Lernform / Teaching/Learning method

Vorkenntnisse / Previous knowledge
<table>
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<td>presentation</td>
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<td>Frequency</td>
<td>WiSe</td>
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<tr>
<td>Workload Präsenzzzeit</td>
<td>56 h</td>
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</table>
### Prerequisites

- The students should...
  - know and understand basic concepts, instruments and theories in the context of corporate sustainability and corporate social responsibility
  - be able to apply conceptual frameworks to analyze and critically question the sustainability of companies
  - develop options to improve the sustainability of companies and derive recommendations for their implementation in practice

### Module contents

The module "Strategic Sustainability Management" provides an overview of the debates on the role of firms for sustainable development from a strategic perspective. The first session will briefly introduce the historical debate on Corporate Sustainability and Corporate Social Responsibility and delineate important concepts. The following sessions will use concrete company case studies as a basis for a critical discussion of questions in the context of corporate sustainability that are of strategic importance for firms. Questions that will be discussed are, amongst others

- How can one determine whether a firm acts in a socially and ecologically sustainable way?
- Which factors drive and hinder the diffusion of socially and ecologically superior solutions and companies in the market?
- To which extent is there a conflict between firm and market growth on the one hand and sustainability on the other hand?
- Which possibilities does a company have to deal with conflicts between social/ecological and economic goals?
- How can existing firms and value chains be transformed toward sustainability?
- What is the role of managers and boards of directors for organizational change toward sustainability?
- How does the ownership and financial structure of firms influence their strategy toward sustainability?
- In how far can cooperation and partnerships between organizations help integrate social and ecological aspects in firms?

In addition to discussing these questions by drawing on company case studies, students will be introduced to the corresponding theoretical concepts and frameworks in the academic literature. Also, students will be given the opportunity to test different strategies for implementing sustainability in organizations during a simulation, which allows them to gain first-hand insights into the emerging challenges. Toward the end of the course, students will apply and deepen the knowledge they have gathered over the semester by writing a seminar thesis.

### Literature recommendations


Links
Language of instruction English
Duration (semesters) 1 Semester
Module frequency jährlich
Module capacity unlimited
Reference text This module is offered in the summer term. For a more detailed description of course content and organization, please note the syllabus that will be made available via Stud.IP before the beginning of the course.

Modullevel / module level AS (Akzentsetzung / Accentuation)
Modulart / typ of module Pflicht / Mandatory

Vorkenntnisse / Previous knowledge
Examination Prüfungszeiten Type of examination
Final exam of module Submission at the end of the semester Portfolio, presumably consisting of a final report (graded) and a presentation (compulsory but ungraded)

Form of instruction Comment SWS Frequency Workload of compulsory attendance
Lecture 2 SoSe und WiSe 28
Seminar 2 SoSe und WiSe 28

Präsenzzeit Modul insgesamt 56 h
Kernmodule

inf900 - Group Project

Module label: Group Project
Modulkürzel: inf900
Credit points: 24.0 KP
Workload: 720 h

Verwendbarkeit des Moduls
- Master's Programme Business Informatics (Master) > Kernmodule
- Master's Programme Computing Science (Master) > Kernmodule
- Master's Programme Engineering of Socio-Technical Systems (Master) > Systems Engineering

Zuständige Personen
Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
Skills to be acquired in this module

The students get familiar with different software development aspects in a team. Apart from software engineering knowledge and skills they develop key competences like project management, teamwork, problem solving competence and conflict management.

Additionally, students develop special knowledge, skills and competences from the project group topic.

Professional competence
The students:
- characterise and apply computer science basics (algorithms, data structures, programming, basics of practical, technical and theoretical computer science)
- define and describe essential mathematical, logical and physical basics of computer science
- define and illustrate the core disciplines of computer science (theoretical, practical and technical computer science)

Methodological competence
The students:
- examine problems, use formal methods to phrase and analyze them appropriately
- evaluate problems by the use of technical and scientific literature
- reflect on a scientific topic and write a scientific seminar paper under guidance and present their findings

Social competence
The students:
- integrate criticism into their own actions
- respect team decisions
- communicate with users and experts convincingly

Self-competence
The students:
- take on project management tasks
- pursue the overall and special computer science development critically
- implement innovative professional activities effectively and independently
- recognise their abilities and extend them purposefully
- reflect their self-perception and actions with regard to professional, methodological and social aspects
- develop and reflect self-developed hypotheses to theories independently
- work in their field independently

Module contents
Cooperative development of a large-scale computer science project. This project generally includes the (further) development of a hard or software system.

Literaturempfehlungen
According to the assigned task

Links
https://www.uni-oldenburg.de/informatik/studium-lehre/infos-zum-studium/projektgruppen-im-masterstudium/

Languages of Instruction
German, English

Duration (semesters)
2 Semester

Module frequency
semi-annual
<table>
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<th><strong>Module capacity</strong></th>
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<td>Dieses Modul ist im Rahmen der Projekte FiIF und FoL konzipiert worden</td>
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<td><strong>Modulart / typ of module</strong></td>
<td>Pflicht o. Wahlpflicht / compulsory or optional</td>
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<td><strong>Lehr-/Lernform / Teaching/Learning method</strong></td>
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</table>
| **Vorkenntnisse / Previous knowledge** | - Programmierkurs  
- Softwaretechnik  
- Soft Skills |
| **Examination** | Prüfungszeiten  
Type of examination |
| **Final exam of module** | Im Stud.IP nach Bekanntgabe der einzelnen Gruppen und Themen  
Active involvement, presentation, final report, project assessment |
| **Form of instruction** | Project group |
| **SWS** | 8 |
| **Frequency** | SoSe und WiSe |
| **Workload Präsenzeit** | 112 h |
inf903 - Research Project I

<table>
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<tr>
<td>Modulkürzel</td>
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<tr>
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| Verwendbarkeit des Moduls | | Master's Programme Business Informatics (Master) > Kernmodule  
                          |                       | Master's Programme Engineering of Socio-Technical Systems (Master) > Systems Engineering |
| Zuständige Personen | Lehrenden, Die im Modul (Prüfungsberechtigt)  
                          | Marx Gomez, Jorge (Module responsibility)  
                          | Fränzie, Martin Georg (Module responsibility) |

**Prerequisites**

The Module practices the scientific competencies in preparation of the master thesis. It is intended to replace the project group with the two “Research Project” modules to ensure studibility and to enable students to perform research projects at foreign universities. Additionally, it is also intended to embed the student into the research activities of the supervisor in preparation of a potential doctoral work after finishing the program.

**Module contents**

Definition of a research question, identifying the state of the art, development of a research plan, performing research tasks, scientific writing, presentation of results.

**Professional competence**

The students:
- will extend their competences in the required technologies of the research area

**Methodological competence**

The students:
- will extend their competences in scientific methodologies, methods, and tools regarding the research area

**Social competence**

The students:
- will be integrated in the working group of the supervisor of the work and have to present as well as discuss the results within the working group

**Self-competence:**

The students:
- Recognise their abilities and extend them purposefully  
- Reflect their self-perception and actions with regard to professional, methodological and social aspects-  
- Develop and reflect self-developed hypothesis to theories independently  
- Work in their field independently

**Literaturempfehlungen**

Will be announced by the supervisor according to the research topic.

**Links**

**Languages of instruction**

English, German

**Duration (semesters)**

1 Semester

**Module frequency**

Sommer und Winter

**Module capacity**

unlimited

**Modulart / typ of module**

je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning method**

P

**Vorkenntnisse / Previous knowledge**

**Examination**

Prüfungszeiten  
Type of examination  
Final exam of module  
Projekt  
Form of instruction  
Project

**SWS**

6  
**Frequency**

SoSe und WiSe
| Workload Präsenzzzeit | 84 h |
**inf904 - Research Project II**

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<td>Verwendbarkeit des Moduls</td>
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<td>Hahn, Axel (Prüfungsberechtigt)</td>
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</table>

**Skills to be acquired in this module**

The Module improves the scientific competencies in preparation of the master thesis. It is intended to replace the project group with the two "Research Project" modules to ensure studdibail and to enable students to perform research projects at foreign universities. Additionally, it is also intended to embed the student into the research activities of the supervisor in preparation of a potential doctoral work after finishing the program.

**Professional competence**

The students:
- will improve their competences in the required technologies of the research area.

**Methodological competence**

The students:
- will improve their competences in scientific methodologies, methods, and tools regarding the research area.

**Social competence**

The students:
- will be integrated in the working group of the supervisor of the work and have to present as well as discuss the results within the working group.

**Self-competence:**

The students:
- know their abilities and extend them purposefully
- reflect their self-perception and actions with regard to professional, methodological and social aspects
- develop and reflect self-developed hypothesis to theories independently
- work in their field independently

**Module contents**

Definition of a research question, identifying the state of the art, development of a research plan, performing research tasks, scientific writing, presentation of results

**Literaturempfehlungen**

Will be announced by the supervisor according to the research topic.

**Links**

**Languages of instruction**

German, English

**Duration (semesters)**

1 Semester

**Module frequency**

Sommer und Winter

**Module capacity**

unlimited

**Modulart / module level**

BC (Basiscurriculum / Base curriculum)

**Modulart / typ of module**

je nach Studiengang Pflicht oder Wahlpflicht

**Lehr-/Lernform / Teaching/Learning method**

P

**Vorkenntnisse / Previous knowledge**

<table>
<thead>
<tr>
<th>Examination</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
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<td>Projekt</td>
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**Form of instruction**

Project (Project )

**SWS**

4
<table>
<thead>
<tr>
<th>Frequency</th>
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<tbody>
<tr>
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mam - Master Thesis

<table>
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<tbody>
<tr>
<td>Modulkürzel</td>
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<tr>
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<tr>
<td>Zuständige Personen</td>
<td>Sonnenschein, Michael (Module responsibility)</td>
</tr>
<tr>
<td></td>
<td>Hein, Andreas (Module responsibility)</td>
</tr>
<tr>
<td></td>
<td>Marx Gomez, Jorge (Module responsibility)</td>
</tr>
<tr>
<td></td>
<td>der Informatik, Lehrende (Prüfungsberechtigt)</td>
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<tr>
<td>Prerequisites</td>
<td>Durch die Anfertigung der Masterarbeit erbringt der/die Studierende den Nachweis, dass er/sie in der Lage ist, komplexe und ganzheitliche Aufgaben der Informatik auf der Grundlage umfassender wissenschaftlicher Erkenntnisse und unter Anwendung des wissenschaftlichen Methodenapparates zu bearbeiten und zu lösen. Die Studierenden haben insbesondere das während des Masterstudiums erworben Fach- und Methodenwissen sowie ihre Fach- und Sozialkompetenz in die Bearbeitung der Masterarbeit eingebracht und erfolgreich angewandt. Das Masterseminar dient der inhaltlichen und methodischen Diskussion der Masterarbeit. Es dient gleichzeitig dem wissenschaftlichen und praktischen Erfahrungsaustausch und versetzt die Studierenden in den Stand, unterschiedliche Lösungsansätze auf der Basis theoretischer Kenntnis- und Erfahrungshintergründe argumentativ zu reflektieren. Das Masterseminar endet mit einem Kolloquium zur Masterarbeit.</td>
</tr>
<tr>
<td>Skills to be acquired in this module</td>
<td>Entsprechendes Thema aus der Wirtschaftsinformatik</td>
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<tr>
<td>Literaturempfehlungen</td>
<td>Wird entsprechend des konkreten Themas spezifiziert</td>
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<td>Module capacity</td>
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<td>Modulelevel / module level</td>
<td>Abschlussmodul (Abschlussmodul)</td>
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<tr>
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<td>Pflicht</td>
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### inf862 - Study Abroad I

<table>
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**Zuständige Personen**

**Prerequisites**

**Skills to be acquired in this module**

**Module contents**

**Literaturempfehlungen**

**Links**

**Language of instruction**

**Duration (semesters)**

**Module frequency**

**Module capacity**

**unlimited**

**Modullevel / module level**

**Modulart / typ of module**

**Lehr-/Lernform / Teaching/Learning method**

**Vorkenntnisse / Previous knowledge**

**Examination**

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**Form of instruction**

**VA-Auswahl**

**SWS**

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## inf863 - Study Abroad II

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### Zuständige Personen

### Prerequisites

### Skills to be acquired in this module

### Module contents

### Literatureempfehlungen

### Links

### Language of instruction

### Duration (semesters)

### Module frequency

### Module capacity

### unlimited

### Modullevel / module level

### Modulart / typ of module

### Lehr-/Lernform / Teaching/Learning method

### Vorkenntnisse / Previous knowledge

### Examination

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### Final exam of module

### Form of instruction

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### SWS

### Frequency

### Workload Präsenzzzeit

| 0 h |