inf030 - Programming, Algorithms and Data Structures .............................................................. 6
inf031 - Object-oriented Modelling and Programming .............................................................. 9
inf600 - Business Informatics I .................................................................................................. 12
wir011 - Introduction to Business Administration ........................................................................ 14
inf005 - Software Engineering I .................................................................................................. 16
inf007 - Information Systems I .................................................................................................. 18
inf601 - Business Informatics II .................................................................................................. 20
inf608 - eBusiness ...................................................................................................................... 22
inf800 - Proseminar in Computer Science ................................................................................... 24
mat950 - Discrete Mathematics .................................................................................................. 26
wir021 - Double Entry Bookkeeping & Financial Statements under German Law (HGB) .............................................................. 28
wir083 - Purchasing, Operations, and Logistics Management ...................................................... 29
inf008 - Information Systems II .................................................................................................. 30
inf010 - Computer Networks ....................................................................................................... 32
inf012 - Operating Systems I ....................................................................................................... 34
inf016 - Internet Technologies ..................................................................................................... 36
mat955 - Mathematics of Computer Science (Linear Algebra) ..................................................... 38
mat960 - Mathematics of Computer Science (Analysis) .............................................................. 39
mat990 - Mathematics for Economists ......................................................................................... 41
mat991 - Mathematics for Economists II ....................................................................................... 43
mat996 - Introduction to Numerical Analysis .................................................................................. 45
inf808 - Current Topics in Computer Science ............................................................. 94
inf809 - Current Topics in Computer Science II ............................................................ 96
inf853 - Application Fields of Computer Science I ............................................................. 97
inf854 - Application Fields of Computer Science II ............................................................ 98
inf855 - Application Fields of Computer Science III ............................................................. 99
inf856 - Application Fields of Computer Science IV ............................................................ 100
inf857 - Application Fields of Computer Science V ............................................................. 101
inf860 - Study Abroad I .............................................................................................. 102
inf861 - Study Abroad II .............................................................................................. 104
wir032 - Managerial Accounting ..................................................................................... 106
wir041 - Introduction to economics .................................................................................. 107
wir060 - Financial Accounting ....................................................................................... 109
wir070 - Principles of Marketing ..................................................................................... 110
wir082 - Corporate Finance ............................................................................................ 112
wir090 - Human Resource Management ........................................................................... 114
wir100 - Corporate Strategy ........................................................................................... 116
wir130 - Civil Law and Commercial Law ......................................................................... 117
wir160 - Entrepreneurship ............................................................................................... 119
wir200 - Principles of Organisation .................................................................................. 121
wir210 - Corporate Environmental Management ............................................................. 121
wir260 - Environmental Economics ................................................................................... 123
wir360 - Environmental and Sustainability Policies ............................................................ 125
wir400 - Strategic and International Marketing ............................................................... 127
inf700 - Computer Science Education I ............................................................ 129
inf851 - Computer Science and Society ............................................................ 131
wir041 - Introduction to economics ............................................................... 134
wir070 - Principles of Marketing .................................................................. 136
wir090 - Human Resource Management ...................................................... 138
wir160 - Entrepreneurship ........................................................................... 140
wir200 - Principles of Organisation .............................................................. 142
wir210 - Corporate Environmental Management ....................................... 144
wir806 - Information Technology Law .......................................................... 146
bam - Bachelor Thesis Module Business Informatics .................................. 148
Basiscurriculum

inf030 - Programming, Algorithms and Data Structures

Module label
Programming, Algorithms and Data Structures

Modulkürzel
inf030

Credit points
9.0 KP

Workload
270 h

Verwendbarkeit des Moduls
- Bachelor’s Programme Business Informatics (Bachelor) > Basiscurriculum
- Bachelor’s Programme Computing Science (Bachelor) > Basismodule
- Bachelor’s Programme Economics and Business Administration (Bachelor) > Studienrichtung Wirtschaftsinformatik
- Bachelor’s Programme Mathematics (Bachelor) > Nebenfachmodul
- Bachelor’s Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich
- Dual-Subject Bachelor’s Programme Computing Science (Bachelor) > Basismodule

Zuständige Personen
- Schönberg, Christian (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
No participant requirement

Skills to be acquired in this module

Professional competence
The students:
- describe basic concepts of imperative programming with Java
- recognise imperative programming terminology and use the appropriate terms accurately in discussions
- recognise basic terminology of object-oriented programming
- describe what programs presented to them do
- independently develop programs to solve small problems
- systematically examine their own and other people's programmes for errors
- use modern programme development environments to develop and test programmes
- create algorithms with general design concepts (e.g. Greedy method, divide-and-conquer method)
- name algorithms and data structures for solving common problems and evaluate their applicability
- name problems of efficiency of algorithmic solutions of concrete problems and evaluate them
- make a well-founded choice of an algorithm and a data structure for solving a concrete problem
- apply the learned algorithms and data structures sensibly to given and concrete problems

Methodological competence
The students:
- solve given problems from the point of view of imperative or object-oriented programming
- transfer practical experience in programme development to new tasks

Social competence
The students:
communicate the structure and mode of operation of self-developed programmes to others
present solutions to small tasks in front of groups

Self-competence
The students:
organise themselves in finding algorithmic solutions to small and medium-sized problems in computer science
incorporate the concepts of general programme design in their actions

Module contents
In the first part, general basic concepts of programming are introduced:

- Algorithm, programming languages, computer development tools, development phases
- Compilers
- Grammars
- Logic

The second part deals with basic programming concepts:

- Data types
- Variables
- Expressions, statements
- Control structures
- Methods, parameters
- Recursion
- Reference data types, arrays
- Classes, objects
- Documentation
- Testing

The third part contains an introduction to data structures and algorithms as well as a discussion of their efficiency, i.e. the computational effort or memory requirements depending on the amount of data to be processed. The module introduces known, efficient algorithms and data structures for various, frequently occurring problems. These include in particular:

- Methods for searching for keys, as well as insertion and deletion in dynamic data sets, e.g. lists, trees, AVL trees or hash methods,
- Methods for searching for text patterns,
- Methods for sorting data by key values, e.g. QuickSort and HeapSort,
- Graph-based applications, e.g. for finding shortest paths in graphs.

The lecture part is supplemented by a comprehensive exercise part, in which in particular the taught programming contents are implemented in practical examples.

Literatureempfehlungen
Essential:
Lecture Notes (made available either in printed form or via Stud.IP during the course of the lecture)

Good secondary literature:
Dietmar Ratz, Jens Scheffler, Detlev Seese, Jan Wiesenberger: Grundkurs Programmieren in Java, Carl Hanser Verlag.
Joachim Goll, Cornelia Heinisch: Java als erste Programmiersprache, Springer Vieweg Verlag
Siege: Einführung in die Informatik. Shaker Verlag, 2013
<table>
<thead>
<tr>
<th>Language of instruction</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (semesters)</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Module frequency</td>
<td>every winter term</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>1V + 1Ü</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>none</td>
</tr>
<tr>
<td>Examination</td>
<td>Prüfungszeiten</td>
</tr>
<tr>
<td>Final exam of module</td>
<td>At the End of the Semester</td>
</tr>
<tr>
<td>Form of instruction</td>
<td>Comment</td>
</tr>
<tr>
<td></td>
<td>SWS</td>
</tr>
<tr>
<td>Lecture</td>
<td>4</td>
</tr>
<tr>
<td>Exercises</td>
<td>2</td>
</tr>
<tr>
<td>Präsenzzeit Modul insgesamt</td>
<td></td>
</tr>
</tbody>
</table>
Object-oriented Modelling and Programming

Object orientation represents the state of the art in software development today. Given problems are first transformed into an object-oriented model and then into an object-oriented program with the help of object-oriented analysis and design methods. Aim of the module "Object-Oriented Modelling and Programming" is to learn basic concepts of object-oriented modelling using UML as the modelling notation and object-oriented programming using the Java programming language. After completing the module, students should be able to independently develop object-oriented programs based on Java for solving medium-sized problems.

Professional competence:
The students:
- know basic concepts of object-oriented modelling and UML as modelling notation
- know basic concepts of object-oriented programming with Java
- know the terminology of object-oriented modelling and programming and use the appropriate terms precisely in discussions
- can describe what object-oriented programmes presented to them do independently develop models and programmes for solving medium-sized problems
- systematically examine their own and other people's models and programmes for errors
- use modern development environments for modelling and developing programmes
- know the differences between the imperative, object-oriented, functional, logical and rule-based programming paradigms

Methodological competence:
The students:
- independently develop programmes for given problems by consistently applying the concepts of object-oriented modelling and programming
- transfer practical experience in programme development to new tasks
- independently develop programmes with concurrency
- can independently apply known solution methods to complex problems

Social competence:
The students:
- communicate the structure and mode of action of self-developed models and programmes to others
- present independently developed solutions to groups

Self-competence:
The students:
- organise themselves when developing programmes for small and medium-sized problems in computer science
- incorporate the concepts of object-oriented programme design in their actions
Module contents

In the first part, basic concepts of object-oriented modelling and programming are taught:

- Models and modelling
- UML class diagrams
- Classes and objects
- data encapsulation
- inheritance
- Polymorphism and dynamic binding
- Exception handling
- Genericity

In the second part, important concepts and classes of the JDK class library are introduced and the classes are used in solving medium-sized problems:

- Java Collection API
- IO and Streams
- GUI applications with JavaFX
- Parallel programming with threads

In the third part, advanced solution strategies are presented and other programming paradigms are introduced and compared with the object-oriented paradigm:

- Backtracking, Branch and Bound, Greedy
- Local Search, Evolutionary Algorithms
- Functional programming (e.g. Java-Lamdas, Standard ML)
- Logical programming (e.g. Prolog)
- Rule-based programming (e.g. Drools)

The lecture part is supplemented by a comprehensive exercise part, in which in particular the taught contents are implemented in practical examples.

Literaturempfehlungen

Essential:

- Lecture Notes (made available either in printed form or via Stud.IP during the course of the lecture)

Good secondary literature:

- Heide Balzert: Lehrbuch der Objektmodellierung: Analyse und Entwurf mit der UML 2, Spektrum Akademischer Verlag
- Dietmar Ratz, Jens Scheffler, Detlev Seese, Jan Wiesenberger: Grundkurs Programmieren in Java, Carl Hanser Verlag.
- Christian Ullenboom: Java ist auch eine Insel: Programmieren lernen mit dem Standardwerk für Java- Entwickler, Rheinwerk Computing
- Christian Ullenboom: Java SE 8 Standard-Bibliothek: Das Handbuch für Entwickler, Rheinwerk Computing

Links

Language of instruction | German
Duration (semesters) | 1 Semester
Module frequency | every summer term
Module capacity | unlimited
Teaching/Learning method | 1V + 1Ü
Previous knowledge | useful previous knowledge: inf030 Programming, Algorithms and Data Structures

Examination | Prüfungszeiten | Type of examination
Final exam of module | At the end of the Semester. | Portfolio or written exam or oral exam
Form of instruction | Comment | SWS | Frequency | Workload of compulsory attendance
Lecture | | 4 | | SoSe | 56
<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercises</td>
<td></td>
<td>2</td>
<td>SoSe</td>
<td>28</td>
</tr>
<tr>
<td>Präsenzzelt Modul insgesamt</td>
<td></td>
<td></td>
<td></td>
<td>84 h</td>
</tr>
</tbody>
</table>
### inf600 - Business Informatics I

#### Module label
Business Informatics I

#### Modulkürzel
inf600

#### Credit points
6.0 KP

#### Workload
180 h

#### Verwendbarkeit des Moduls
- Bachelor's Programme Business Informatics (Bachelor) > Basiscurriculum
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Wirtschaftsinformatik
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Angewandte Informatik)
- 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) > Pflichtbereich

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

#### Prerequisites
No participant requirements

#### Skills to be acquired in this module
**Business informatics regards itself as an interdisciplinary subject. It connects business administration with computer science. Business informatics also includes information technologies as well as technical subjects and research topics. It is more than just an intersection of research fields and offers e.g. special methods to coordinate corporate strategies and information processing. The module introduces the entire scope of the field of business informatics.**

**Professional competence**
The students:
- describe the key aspects of business informatics
- differentiate business informatics as an interdisciplinary subject from other subjects
- characterise the functionality of essential application systems and management structures, from the strategical to the tactical and operative level.
- consider and evaluate case studies and layout options for the conception, development, implementation, usage and maintenance of operational sociotechnical applications systems

**Methodological competence**
The students:
- model technical and sociotechnical processes using suitable tools
- analyse business processes and the demands on their modification and their technical assistance
- abstract from complex systems in a suitable way to improve the manageability of models

**Social competence**
The students:
- present their solutions in front of other groups
- discuss their outcomes

**Self-competence**
The students:
- develop solutions for case studies in groups
- construct an argument based on acquired knowledge

#### Module contents
The main topics of business informatics are the presentation and evaluation of configuration options to conceptualise, develop, implement, use and maintain operational sociotechnical application systems. The lecture focusses on information systems of the networked company. Technical, economic, organisational, and psychosocial aspects are considered. The understanding of these relations will be trained by means of case studies taken from Laudon et al. (cf. suggested reading).

The lecture gives an overview of the following business informatics
fields:
- Information systems, (object of BI)
- Application systems
- E-Commerce and E-Business
- Ethical, social and political aspects
- Business process integration
- Knowledge management
- Support of decision making
- Reorganisation of companies
- Economic evaluation For a better understanding of each subject, it is recommended to take specific modules later in the course of studies.

Literaturempfehlungen
- Frank, Gronau (2002), Systemanalyse im Unternehmen Oldenbourg (Gebundene Ausgabe - Juni 2002)

Links

<table>
<thead>
<tr>
<th>Language of instruction</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (semesters)</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Module frequency</td>
<td>every winter term</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>1VL + 1Ü</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>none</td>
</tr>
<tr>
<td>Examination</td>
<td>Prüfungszeiten</td>
</tr>
<tr>
<td>Final exam of module</td>
<td>At the end of the lecture period</td>
</tr>
<tr>
<td>Tasks and active partaking during the exercises / written exam or oral exam</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td>WiSe</td>
<td>28</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>2</td>
<td>WiSe</td>
<td>28</td>
</tr>
<tr>
<td>Präsenzzeit Modul insgesamt</td>
<td></td>
<td>56 h</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
wir011 - Introduction to Business Administration

Module label
Introduction to Business Administration

Modulkürzel
wir011

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) > Basiscurriculum
- Bachelor's Programme Comparative and European Law (Bachelor) > Module
- Bachelor's Programme Economics and Business Administration (Bachelor) > Basismodule
- Bachelor's Programme Mathematics (Bachelor) > Nebenfachmodul
- Bachelor's Programme Sustainability Economics (Bachelor) > Grundlagen-/Basiscurriculum
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > Basismodule

Zuständige Personen
- Hoppmann, Jörn (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
The goal of the course is that students are able to...
- know and understand basic concepts and processes in the context of business administration
- name important research streams and theoretical frameworks in the field
- apply models and instruments of business administration to develop solutions for practical challenges in companies
- critically question the application of common instruments and models and evaluate their advantages and disadvantages in specific decision making situation
- put the newly acquired knowledge into a broader context, so it can be deepened in the further course of study and when working in a company

Module contents
The course offers an introduction to the most important concepts, instruments, and frameworks of business administration. Toward this end, the course first introduces the core concepts and provides an overview of the history, goals, structure, and research traditions of business administration. Subsequently, students will gain insights into 11 important areas of business administration: (1) Entrepreneurship, (2) Strategic Management, (3) Logistics and Supply Chain Management, (4) Production Management, (5) Marketing and Sales, (6) Accounting and Controlling, (7) Finance and Investment, (8) Technology and Innovation Management, (9) Human Resource Management, (10) Information Management, and (10) Sustainability Management. Students deepen and apply the knowledge acquired in the lecture in tutorials. In addition, the course includes guest lectures by practitioners to clarify the practical relevance of the content.

Literaturempfehlungen

Links

Language of instruction
German

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Examination
Prüfungszeiten
Type of examination
Final exam of module
At the end of the semester
1 Prüfungsleistung: 1 Klausur/Antwort-Wahl-Verfahren (Multiple Choice) (i. d. R. 60 – 90 Min.) oder 1 mündl. Prüfung (i. d. R. 20 Min.) oder 1 Hausarbeit (max. 15 Seiten) oder 1 Referat (max. 30 Min.) oder 1 Portfolio (max. 5 Leistungen)

Form of instruction
Comment
SWS
Frequency
Workload of compulsory attendance
Lecture
2
28
Tutorial
2
28
Präsenzzeit Modul insgesamt
56 h
Aufbaucurriculum - Pflichtbereich

inf005 - Software Engineering I

<table>
<thead>
<tr>
<th>Module label</th>
<th>Software Engineering I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf005</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

Verwendbarkeit des Moduls

- Bachelor's Programme Business Informatics (Bachelor) > Aufbaucurriculum - Pflichtbereich
- Bachelor's Programme Computing Science (Bachelor) > Aufbaumodule
- Bachelor's Programme Mathematics (Bachelor) > Nebenfachmodule
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Aufbaumodule (60 KP)
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Pflichtbereich
- Master's Programme Environmental Modelling (Master) > Mastermodule

Zuständige Personen

- Winter, Andreas (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

- inf030
- inf031

Skills to be acquired in this module

The objective of the module is to convey the development and maintainance of large scale software systems. The complete software developing process including requirements collection, software architecture and quality control is observed. The basics of object oriented modelling and software development are enhanced.

Professional competence

The students:

- comprehend the different developmental phases of software (especially requirements engineering, software design, software implementation and quality control)
- name the tasks of each phase
- select appropriate methodical utilities
- select suitable methods and utilities for each project phase
- understand the advantages of the modelling process with UML
- model moderate tasks in UML
- understand and develop solutions for given problems by means of development environments

Methodological competence

The students:

- structure, document and evaluate problems and solutions with the tools of object oriented modelling
- apply methods and techniques of object oriented modelling purposefully

Social competence

The students:

- create, present and discuss solutions with modelling techniques -
- present and solve modelling problems in teams

Self-competence

The students: reflect their problem-solving behaviour with regard to the capabilities of software technology

Module contents

The module introduces fundamental terms and concepts in software engineering.

This includes:

- need for software engineering
- activities and process-models in software development
- object-oriented modelling, meta modelling
- Interdependencies between code and models
- requirements elicitation
- definition of software architectures
- application of software patterns
- software quality management
- software maintenance, evolution and operation Software engineering tools are presented and applied in practical exercises.

**Literaturempfehlungen**

- Slide script for the lecture
- Helmut Balzert: Lehrbuch der Software-Technik, Spektrum Akademischer Verlag, 3. Auflage 2009

**Links**

<table>
<thead>
<tr>
<th>Language of instruction</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (semesters)</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Module frequency</td>
<td>annual</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>V+Ü</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>- inf030</td>
</tr>
<tr>
<td></td>
<td>- inf031</td>
</tr>
<tr>
<td>Examination</td>
<td>Prüfungszeiten</td>
</tr>
<tr>
<td>Final exam of module</td>
<td>At the end of the lecture period or during the lecture period (portfolio)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>3</td>
<td>WiSe</td>
<td>42</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>2</td>
<td>WiSe</td>
<td>28</td>
</tr>
</tbody>
</table>

| Präsenzzeit Modul insgesamt | 70 h |

The table above provides information on the language of instruction, duration, module frequency, module capacity, teaching/learning methods, previous knowledge, examination format, and a detailed breakdown of lecture and exercise SWS (SWS: Semesterwochenstunden).
**inf007 - Information Systems I**

<table>
<thead>
<tr>
<th>Module label</th>
<th>Information Systems I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf007</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**Verwendbarkeit des Moduls**

- Bachelor's Programme Business Informatics (Bachelor) > Aufbaucurriculum - Pflichtbereich
- Bachelor's Programme Computing Science (Bachelor) > Aufbaumodule
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Wirtschaftsinformatik
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Aufbaumodule (60 KP)
- Master Applied Economics and Data Science (Master) > Specialization
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Pflichtbereich

**Zuständige Personen**

- Wingerath, Wolfram (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**

- No participant requirement

**Skills to be acquired in this module**

This module introduces the core concepts, languages and architectures of databases. In software systems these concepts are important.

**Professional competence**

The students:

- name the core concepts of the languages and architectures of databases (especially)
- select data models
- integrate structuring concepts of information systems in their designs

**Methodological competence**

The students:

- design database systems appropriately
- analyse problems from the field of database-supported information systems and solve them appropriately

**Social competence**

The students:

- enhance their ability to work in a team

**Self-competence**

The students:

- reflect their problem-solving behaviour with regard to the information processing concepts

**Module contents**

- Relational data models
- Relational algebra and its implementation in SQL (the standard of databases)
- Database design on different abstractions (conceptual and logical design)
- Normalisation - Data base architectures
- Distributed and active databases
- Object-oriented, object-related and XML-based database systems

**Literaturempfehlungen**


**Links**

**Language of instruction**

- German
<table>
<thead>
<tr>
<th>Duration (semesters)</th>
<th>1 Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module frequency</td>
<td>annual</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>V+Ü</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>none</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>3</td>
<td>WiSe</td>
<td>42</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>1</td>
<td>WiSe</td>
<td>14</td>
</tr>
</tbody>
</table>

**Präsenzzeit Modul insgesamt** 56 h
**inf601 - Business Informatics II**

<table>
<thead>
<tr>
<th>Module label</th>
<th>Business Informatics II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf601</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**Verwendbarkeit des Moduls**
- Bachelor's Programme Business Informatics (Bachelor) > Aufbaucurriculum - Pflichtbereich
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studiennrichtung Wirtschaftsinformatik
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Angewandte Informatik)

**Zuständige Personen**
- Marx Gómez, Jorge (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**
- No participant requirements

**Skills to be acquired in this module**

The module provides the fundamentals and tasks of information management to create an IT strategy. Tasks are especially considered from a strategic perspective and brought closer by methodological skills for each task.

**Professional competence**
The students:

- name the strategic aspects of information management and identify their impact on technical and operational information management
- examine the essential questions of enterprise reorganization in connection with an information system and recognize the influence of the Internet and its services on commercial processes and information systems by an exemplary system, e.g. SAP R/3
- identify different approaches to information management (Information Ressource Management, Management approach, management approach, personal information management) and understand why determining the value of information management is necessary and how it is done
- specify the objectives of information management, differentiate and classify its tasks appropriately
- recognize the methodological characteristics of information management
- transfer the concept of architecture to the information infrastructure
- assess the importance to plan features for strategic IT-design oriented on IT-architecture
- schedule the procedures concerning the strategical situation analysis of the competition analysis, the information infrastructure and the environmental analysis with the objective to transfer them to simple problems
- name the key contents of strategical IT objectives and are aware of difficulties in determining the measurement category
- identify and learn the scope and central tasks of business process and environmental management (as excursion) and the significance for information management

**Methodological competence**
The students:

- perform information management tasks using methods of Information Engineering and thereby learn how to transfer and employ the methods to other fields, e.g. economy
- learn by practice advantages and disadvantages of different methods and can use them as part of the optimized IT strategy based on the acquired knowledge.

**Social competence**
The students:

- construct solutions to case studies given in the group, i.e. the development of an IT strategy
- discuss the solutions on a technical level
- present the solutions to case studies as part of the exercises

**Self-competences**
The Students:
- accept criticism and understand it as a precondition for the further development of one's own actions

Module contents
The proportion of information technology in the investment budget of companies is rising continuously. For instance, banks spend 25% of all investments for their information systems. Information is not just a production factor, it is also an element of competition. Information is increasingly important for business. The business informatics deals with these economic tasks of information technology. Information systems in businesses and organisations are of central concern. The interdisciplinary nature of business informatics raises questions about proceedings, problems of models (modelling in a narrow sense) and the application in specific problem domains.

Contents of this module are:
- Information management principles and tasks
- IT architectures
- Infrastructure of information and communication technology
- Strategic, administrative and operative information engineering

Literatureempfehlungen
- Heinrich, Stelzer (2011): Informationsmanagement
- Grundlagen, Aufgaben, Methoden. Oldenbourg Verlag
- Laudon, Laudon, Schoder (2010): Wirtschaftsinformatik
- Eine Einführung. Pearson Verlag
- Krcmar (2015): Informationsmanagement. Springer Verlag

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

Language of instruction
German

Duration (semesters)
1 Semester

Module frequency
annual

Module capacity
unlimited

Teaching/Learning method
1VL + 1Ü

Previous knowledge
none

Examination
Prüfungszeiten
Type of examination

Final exam of module
Usually two weeks after lecture time
Written exam max. 120 minutes

Form of instruction
Comment
SWS
Frequency
Workload of compulsory attendance

Lecture
2
SoSe
28

Exercises
2
SoSe
28

Präsenzzeit Modul insgesamt
56 h
The module provides an introduction to the "Electronic Business" (e-business). The graduates know the fundamental and current technologies, advanced concepts, applications and competitive strategies of the "Electronic Commerce" (e-commerce). The knowledge and abilities acquired in this module are directly applicable in study and business. They are deepening the basics from the module "Wirtschaftsinformatik II". They provide a professional e-business consulting background and the skills to design software products for this area of business in practice.

**Professional competence**

The students:

- name and discuss the eBusiness key challenges
- discuss the chances of the added value and the changes of commercial models by the internet
- define the concepts of e-business and e-commerce.
- discuss the change of retail trade and the transactions between companies in e-business
- name current payment systems and communication technologies
- discuss the possibilities of the internet in order to simplify the administration and the coordination of internal and external business processes
- characterise the challenges for the management caused by e-business and e-commerce
- differentiate the concepts and conceptualities of e-business
- assess applications with regard to economic points of view
- practically learn how to handle core technologies of e-business

**Methodological competence**

The students:

- assess the core technologies of e-business and e-commerce
- apply methods in case studies

**Social competence**

The students:

- develop case studies on basis of given problems in groups
- present their solutions

**Self-competence**

The students:

- learn about their own limitations while planning and developing e-commerce applications

**Module contents**

The module provides the following contents:

- the definition of the core e-business concepts and the technical conditions for the implementation
- introduction of the variations of e-commerce, especially the Business-to-
Consumer (B2C) and Business-2-Business (B2B) concepts and the current research in this field
- discussion on the economic aspects of e-business based on the theory of informational added value
- technological basics of the web and current development technologies for e-commerce web applications and security mechanisms with focus on online-shops and applications (hands-on exercise topics: HTTP, JSP and SQL Injection, PHP, XML, XML-Security, data modelling, Online-Shop development and Online-Shop administration)

**Literaturempfehlungen**


**Links**

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

**Language of instruction**

- German

**Duration (semesters)**

- 1 Semester

**Module frequency**

- annual

**Module capacity**

- unlimited

**Teaching/Learning method**

- 1VL + 1Ü

**Previous knowledge**

- none

**Examination**

**Prüfungszeiten**

- At the end of the lecture period

**Type of examination**

- Written or oral exam

**Final exam of module**

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td>SoSe</td>
<td>28</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>2</td>
<td>SoSe</td>
<td>28</td>
</tr>
</tbody>
</table>

**Präsenzziet Modul insgesamt**

- 56 h
# inf800 - Proseminar in Computer Science

<table>
<thead>
<tr>
<th>Module label</th>
<th>Proseminar in Computer Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf800</td>
</tr>
<tr>
<td>Credit points</td>
<td>3.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>90 h</td>
</tr>
</tbody>
</table>

## Verwendbarkeit des Moduls
- Bachelor's Programme Business Informatics (Bachelor) > Aufbaumodule
- Bachelor's Programme Computing Science (Bachelor) > Aufbaumodule
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Praktische Vertiefung (60 KP)
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Praktische Vertiefung der Informatik

## Zuständige Personen
- Nieße, Astrid (module responsibility)
- Sauer, Jürgen (module responsibility)
- Diethelm, Ira (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

## Prerequisites
The specific participation requirements are described in the individual assigned courses.

## Skills to be acquired in this module
Supported by a lecturer the students familiarise with a given topic by literature research. They understand and evaluate the relevance of the literature. After this evaluation the students present and discuss their solutions academically.

### 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 them 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:
- communicate considerately and appropriately with users and experts
- use presentation methods

### Self-competence
The students:
- plan their informatical actions independently
- reflect their contributions critically and discuss them with users and experts
- collect and update their knowledge independently

## Module contents
according to the assigned task

## Literaturempfehlungen

## Links

## Language of instruction
German

## Duration (semesters)
1 Semester

## Module frequency
each semester

## Module capacity
unlimited

## Reference text
Students must attend one of the seminars offered.
Passing the proseminar is a prerequisite for registering for the Bachelor's thesis.

<table>
<thead>
<tr>
<th>Teaching/Learning method</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous knowledge</td>
<td>none</td>
</tr>
<tr>
<td>Examination</td>
<td>Prüfungszeiten</td>
</tr>
<tr>
<td>Type of examination</td>
<td></td>
</tr>
<tr>
<td>Final exam of module</td>
<td>Am Ende des Semesters und nach Absprache</td>
</tr>
</tbody>
</table>

- Active participation in the seminar is expected
- Paper and presentation

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Seminar</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWS</td>
<td>2</td>
</tr>
<tr>
<td>Frequency</td>
<td>SoSe oder WiSe</td>
</tr>
</tbody>
</table>
mat950 - Discrete Mathematics

Module label: Discrete Mathematics
Modulkürzel: mat950
Credit points: 6.0 KP
Workload: 180 h

Verwendbarkeit des Moduls
- Bachelor's Programme Business Informatics (Bachelor) > Aufbaucurriculum - Pflichtbereich
- Bachelor's Programme Computing Science (Bachelor) > Aufbaumodule
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Basismodule

Zuständige Personen
- Heß, Florian (module responsibility)
- Stein, Andreas (module responsibility)
- Stein, Sandra (module responsibility)

Prerequisites
- Getting to know and to understand the axiomatic structure of mathematics and the importance of mathematical reasoning
- Mastering basic mathematical proof techniques and their logical structure
- Recognizing the relevance of premises in mathematical theorems: Localization of premises within proofs and possible consequences if premises are not met
- Exemplary acquaintance with further mathematical areas and thus expansion of the student's mathematical knowledge
- Getting to know applications
- Integration and crosslinking of the student's mathematical knowledge by establishing relationships between different mathematical areas
- Learning the essential ideas and methods for discrete structures in mathematics
- Knowledge of the fundamental concepts and methods of graph theory
- Knowledge of the fundamental concepts and methods of algebra and number theory, such as groups, rings, fields, residue class rings, Euclidean algorithm, Chinese remainder theorem, polynomials.
- Knowledge of further concepts and methods for discrete structures, e.g. primality tests, RSA, graph-theoretical algorithms

Module contents
- Elements of propositional logic, proof techniques, sets, relations and maps, combinatorics, graphs and applications, the ring of integers and residue class rings, groups and semi groups

Literaturempfehlungen
- Graham, Knuth, Patashnik: Concrete Mathematics, Addison-Wesley 1994.
- Hartmann: Mathematik für Informatiker, Vieweg 2014.
- Teschl, Teschl: Mathematik für Informatiker, Band 1, Springer 2013.

Further reading will be announced in the lecture.

Links
- Language of instruction: German
- Duration (semesters): 1 Semester
- Module frequency: annual
- Module capacity: unlimited
- Reference text: Im Zwei-Fächer Bachelor Informatik ist dieses Modul im Basiscurriculum zu studieren.

Examination
- Prüfungszeiten: Im Zwei-Fächer Bachelor Informatik ist dieses Modul im Basiscurriculum zu studieren.
- Type of examination: Written exam or oral exam.
- Bonus points can be earned.

Form of instruction
- Lecture: 3 SWS, WIS, 42
- Exercises: 1 SWS, WIS, 14
<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Präsenzzeit Modul insgesamt</td>
<td></td>
<td></td>
<td></td>
<td>56 h</td>
</tr>
</tbody>
</table>
Double Entry Bookkeeping & Financial Statements under German Law (HGB)

**Module label**
Double Entry Bookkeeping & Financial Statements under German Law (HGB)

**Modulkürzel**
wir021

**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) > Aufbaucurriculum - Pflichtbereich
- Bachelor's Programme Comparative and European Law (Bachelor) > Module
- 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 Computing Science (Master) > Module aus anderen Studiengängen

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

**Prerequisites**
none

**Skills to be acquired in this module**
1. understand financial accounting as the basis of corporate data and bookkeeping
2. gain comprehensive knowledge of main accounting areas such as procurement, sales, HR, inventory, tax, provisions etc.
3. obtain basic knowledge about annual report process of single entities.

**Module contents**
The main objective of this module is to give the students an overview of the double entry bookkeeping as well as the link between financial accounting, balance sheet and income statement. The acquisition of basis knowledge of the corporate accountancy stands in the foreground, for example, how organizations manage the bookkeeping, legal basis of the annual accounts, creating an inventory, content of accounting and income statement.

**Literaturempfehlungen**

An additional script is provided.

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

**Language of instruction**
German

**Duration (semesters)**
1 Semester

**Module frequency**
jährlich

**Module capacity**
unlimited

**Examination**
Prüfungszeiten
Type of examination
final exam

**Final exam of module**
at the end of the semester

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Tutorial</td>
<td></td>
<td>2</td>
<td>WiSe</td>
<td>28</td>
</tr>
</tbody>
</table>

**Präsenzzeit Modul insgesamt**
56 h
wir083 - Purchasing, Operations, and Logistics Management

Module label: Purchasing, Operations, and Logistics Management

Module key: wir083

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) > Aufbaucurriculum - Pflichtbereich
- 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
- 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

Zuständige Personen:

- Lehrenden, Die im Modul (Prüfungsberechtigt)
- Busse, Christian (module responsibility)

Prerequisites:

Skills to be acquired in this module:

Students obtain an overview of the most important operational functions of an industrial or service company. These are procurement, production and logistics. Students will get to know typical operational challenges and familiarize themselves with established approaches and methods for analyzing and improving procurement, production and logistics operations.

Module contents:

The module comprises a lecture (course number 2.02.231) and an accompanying tutorial (course numbers 2.02.231a to 2.02.231j). The lecture is based on the text book "Grundzüge der Beschaffung, Produktion und Logistik" by Kummer, Grün und Jammernegg in the third edition of 2013 and the associated workbook, as well as partly on the text book "Operations Management: Konzepte, Methoden und Anwendungen" by Thonemann in the third edition of 2015. The purpose of the lecture is to explain the fundamental problems and their solutions theoretically. The tutorials focus on application and practice and offer time for questions. There are no formal or content-related participation or entrance requirements.

Literature recommendations:


Links:

Language of instruction: German

Duration (semesters): 1 Semester

Module frequency: jährlich

Module capacity: unlimited

Reference text:

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

Examination:

Prüfungszeiten:

Type of examination:

Final exam of module:

Form of instruction:

Comment: SWS

Frequency: Workload of compulsory attendance

Lecture: 2 SoSe und WiSe 28

Tutorial: 2 SoSe und WiSe 28

Präsenzzeit Modul insgesamt: 56 h
Aufbaucurriculum-Wahlbereich Praktische Informatik

inf008 - Information Systems II

<table>
<thead>
<tr>
<th>Module label</th>
<th>Information Systems II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf008</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

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) > Akzentsetzungsmodul der Informatik

Zuständige Personen
- Grawunder, Marco (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
- No participant requirement

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:
- improve their ability to work in a team

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
<table>
<thead>
<tr>
<th>Links</th>
<th></th>
</tr>
</thead>
<tbody>
<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>
<td>annual</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>V+Ü</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>none</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Examination</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td>At the end of the lecture period</td>
<td>written or oral Exam</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>3</td>
<td>SoSe</td>
<td>42</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>1</td>
<td>SoSe</td>
<td>14</td>
</tr>
<tr>
<td><strong>Präsenzzeit Modul insgesamt</strong></td>
<td></td>
<td></td>
<td></td>
<td>56 h</td>
</tr>
</tbody>
</table>
inf010 - Computer Networks

Module label | Computer Networks
---|---
Modulkürzel | inf010
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) > Wahlpflichtbereich Praktische Informatik
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Praktische Informatik)
- 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) > Akzentsetzungsbereich

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

Prerequisites
- No participant requirement

Skills to be acquired in this module

Professional competence
The students:
- identify the layers of the ISO/OSI model
- recognise the main concepts and algorithms of each ISO/OSI layer
- assign technical processes to the layers
- classify new technologies to the main concepts of the ISO/OSI model - Compare different methods and approaches of a layer (i.e. TCP and UDP)
- characterise safety-critical aspects of each layer

Methodological competence
The students:
- administer small networks
- characterise safety-critical aspects of networks

Social competence
The students:
- work on exercises in small teams

Self-competence
The students:
- accept criticism
- reflect on their proposed solutions, taking into account the methods taught

Module contents
Contents of this lecture (cf. suggested reading Tanenbaum and Wetherall):
- Introduction to networks and the internet
- Physical Layer
- Data Link Layer
- MAC Sub-Layer
- Network Layer
- Transport Layer
- Session Layer
- Presentation Layer
- Application Layer
- Technologies (Cable and Co)
- Nyquist Shannon and Transmissions - CDMA
- Hamming & CRC
- Stop & wait, go back n, selective repeat
- Aloha & CSMA
- Ethernet technologies
- Wifi
- Paket switchen & Dijkstra
- IP Adressing & Header
- TCP
- UDP
- Buckets & TCP-Reno
• DNS
• Flask
• RSA & PGP
• Firewalls

Literaturempfehlungen

• lecture notes

Links

<table>
<thead>
<tr>
<th>Language of instruction</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (semesters)</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Module frequency</td>
<td>annual</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>V+Ü</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>none</td>
</tr>
<tr>
<td>Examination</td>
<td>Prüfungszeiten</td>
</tr>
<tr>
<td>Final exam of module</td>
<td>At the end of the lecture period</td>
</tr>
<tr>
<td>Form of instruction</td>
<td>Written or oral exam</td>
</tr>
<tr>
<td>Comment</td>
<td></td>
</tr>
<tr>
<td>SWS</td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td></td>
</tr>
<tr>
<td>Workload of compulsory attendance</td>
<td></td>
</tr>
<tr>
<td>Lecture</td>
<td>3</td>
</tr>
<tr>
<td>Exercises</td>
<td>1</td>
</tr>
<tr>
<td>Präsenzzeit Modul insgesamt</td>
<td></td>
</tr>
</tbody>
</table>
### inf012 - Operating Systems I

<table>
<thead>
<tr>
<th>Module label</th>
<th>Operating Systems I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf012</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>
| Verwendbarkeit des Moduls | • Bachelor's Programme Business Informatics (Bachelor) > Aufbaurcurriculum-Wahlbereich Praktische Informatik  
  • Bachelor's Programme Computing Science (Bachelor) > Wahlpflichtbereich Praktische Informatik  
  • Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Praktische Informatik) |
| Zuständige Personen       | • Theel, Oliver (module responsibility)  
  • Lehrenden, Die im Modul (Prüfungs berechtigt) |
| Prerequisites             | Useful prior knowledge: Study contents of the first year of the subject Bachelor of Computer Science or Business Informatics. |
| Skills to be acquired in this module | To gain knowledge of and capabilities in the design, the implementation, and the evaluation of operating systems. |
| Professional competence   | The students:  
  • develop an understanding of operating systems regarding terminology, structure, functionality, conception, central challenges and solutions  
  • evaluate the performance of operating systems  
  • are aware of the implementation problems of operating systems  
  • realise and evaluate solutions of subproblems  
  • comprehend and evaluate the functional connections between application systems and hardware  
  • understand operating systems as a link between technical and applied computer science  
| Methodological competence | The students:  
  • transfer concepts of implementations to other contexts  
  • question different solutions wrt. properties  
| Social competence         | The students:  
  • solve problems in small teams  
  • present their solutions to the members of the tutorial  
  • discuss their different solutions with members of the tutorial  
| Self-competence           | The students:  
  • accept criticism  
  • question their initial solutions in the light of newly learned methods  
| Module contents           | The contents of this module are:  
  1. "Operating systems" definition and structure  
  2. Requirements of operation systems  
  3. Technical characteristics of related hardware  
  4. The need and implementation options of parallel processes  
  5. Cooperation of processes: communication and synchronisation (semaphores)  
  6. Memory management: virtual und non-virtual memory management  
  7. File management  
| Links                     | German  

Language of instruction: German
<table>
<thead>
<tr>
<th>Duration (semesters)</th>
<th>1 Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module frequency</td>
<td>annual</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
</tbody>
</table>
| Reference text       | Linked to the modules:  
  - Operating Systems II (as a possible follow-up course)  
  - Distributed Operating Systems (as a possible specialization)  
  - Operating Systems Practicum  |
| Teaching/Learning method | V+Ü      |
| Previous knowledge   | Useful prior knowledge: Study contents of the first year of the subject Bachelor of Computer Science or Business Informatics. |
| Examination          | Prüfungszeiten | Type of examination |
| Final exam of module | End of the lecture period | Written or oral exam |
| Form of instruction  | Comment | SWS | Frequency | Workload of compulsory attendance |
| Lecture              |          | 2   | SoSe      | 28     |
| Exercises            |          | 2   | SoSe      | 28     |
| PräsenzeModul insgesamt |          |      |           | 56 h    |
inf016 - Internet Technologies

**Module label**  
Internet Technologies

**Modulkürzel**  
inf016

**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) > Wahlpflichtbereich Praktische Informatik
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Praktische Informatik)
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Akzentsetzungsbereich

**Zuständige Personen**

- Boles, Dietrich (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**

Useful previous knowledge: object-oriented programming

**Skills to be acquired in this module**

The graduates of the module know the basic concepts and technologies of Internet and web applications. They can evaluate the capability of the concepts and technologies to design internet-based applications. The students will apply these concepts and techniques in a project.

**Professional competence**

The students:

- Know basic concepts and technologies of the Internet and the web

**Methodological competence**

The students:

- Are able to use the techniques in projects

**Social competence**

The students:

- Implement web-based projects in a team

**Self-competence**

The students:

- Reflect their own capabilities to develop Internet-based applications

**Module contents**

The module deals with the basic development concepts of Internet-based applications. It covers relevant client technologies of web applications (HTML, CSS, JavaScript), server technologies (forms, servlets, PHP, databases) and technologies for client server communication (AJAX, WebSockets, Web services, Social-Media-APIs). Additional topics are web design, Internet law, security and web search.

The practical exercises of this module consist of the design, implementation and presentation of a comprehensive web application. The topics of the lecture will be applied and deepened in practice.

**Literaturempfehlungen**

list of links in the learning management system

**Links**

- Language of instruction: German
- Duration (semesters): 1 Semester
- Module frequency: every summer term
- Module capacity: unlimited

**Reference text**

- Teaching/Learning method: V+Ü
- Previous knowledge: Useful previous knowledge: object-oriented programming
- Examination: Prüfungszeiten
  - Type of examination
  - Final exam of module: The presentation of partial results of the practical project takes place weekly during the exercises. project and written exam or project and oral exam
Final delivery of the final project is one week after the end of the lecture period. The written exam or oral exam take place in the last week of the lecture period or the first week after the end of the lecture 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>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td>SoSe</td>
<td>28</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>2</td>
<td>SoSe</td>
<td>28</td>
</tr>
<tr>
<td><strong>Präsenzzeit Modul insgesamt</strong></td>
<td></td>
<td></td>
<td></td>
<td>56 h</td>
</tr>
</tbody>
</table>
### Mathematics of Computer Science (Linear Algebra)

**Module label**
Mathematics of Computer Science (Linear Algebra)

**Modulkürzel**
mat955

**Credit points**
6.0 KP

**Workload**
180 h

**Verwendbarkeit des Moduls**
- Bachelor’s Programme Business Informatics (Bachelor) > Aufbaucurriculum-Wahlbereich Mathematik
- Bachelor’s Programme Computing Science (Bachelor) > Aufbaumodule

**Zuständige Personen**
- Frühbis-Krüger, Anne (module responsibility)
- Heß, Florian (module responsibility)
- Stein, Andreas (module responsibility)
- Stein, Sandra (module responsibility)

**Prerequisites**
- Getting to know and to understand the axiomatic structure of mathematics and the importance of mathematical reasoning
- Mastering basic mathematical proof techniques and their logical structure
- Recognizing the relevance of premises in mathematical theorems: Localization of premises within proofs and possible consequences if premises are not met
- Learning the significant ideas and methods of linear algebra
- Mastering the fundamental concepts of algebra, such as groups, rings, fields
- Mastering the fundamental concepts and significant methods of linear algebra, such as systems of linear equations, Gaussian algorithm, vector spaces, dimension, linear maps, matrices, determinants
- Mastering of further notions and methods of linear algebra, e.g. eigenvectors, eigenvalues, diagonalization

**Module contents**
Significant techniques and structures, systems of linear equations, vector spaces, dimension, linear maps, determinants, eigenvalues, diagonalization

**Literaturempfehlungen**
- G. Fischer: Lineare Algebra, Vieweg 2010 (17. Aufl.)

**Links**
- S. Bosch: Lineare Algebra, Springer 2014
- B. Huppert, W. Willems: Lineare Algebra, Springer 2010
- F. Lorenz: Lineare Algebra, Spektrum 2008

**Language of instruction**
German

**Duration (semesters)**
1 Semester

**Module frequency**
annual

**Module capacity**
unlimited

**Examination**
Prüfungszeiten

**Type of examination**
written exam or oral exam.

**Final exam of module**
Bonus points can be earned.

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Präsenzzeit Modul insgesamt</td>
<td></td>
<td></td>
<td></td>
<td>56 h</td>
</tr>
</tbody>
</table>

38 / 149
mat960 - Mathematics of Computer Science (Analysis)

<table>
<thead>
<tr>
<th>Module label</th>
<th>Mathematics of Computer Science (Analysis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>mat960</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**Verwendbarkeit des Moduls**
- Bachelor's Programme Business Informatics (Bachelor) > Aufbaucurriculum-Wahlbereich Mathematik
- Bachelor's Programme Computing Science (Bachelor) > Aufbaumodule

**Zuständige Personen**
- Chernov, Alexey (module responsibility)
- Grieser, Daniel (module responsibility)
- Pankrashkin, Konstantin (module responsibility)
- Schöpfer, Frank (module responsibility)
- Shestakov, Ivan (module responsibility)
- Uecker, Hannes (module responsibility)
- Vertman, Boris (module responsibility)

**Prerequisites**

**Skills to be acquired in this module**

**Professional competence**
The students:
- use rigorous mathematical proofs
- compute limit values and analyse the convergence behaviour of iterative methods
- apply differential and integral calculus to compute extreme values, to analyse the behaviour of functions and to develop numerical solution methods

**Methodological competence**
The students:
- analyse formal relations
- structure and justify solution methods

**Social competence**
The students:
- develop solutions to given problems in groups
- accept constructive criticism

**Personal competence**
The students:
- reflect their solution strategies
- deepen their understanding of the presented mathematical concepts with exercises and adopt the solution methods

**Module contents**
- Convergence of sequences, series and iterative methods
- Continuity, differential and integral calculus of functions of one variable
- Characterization and computation of extreme values
- Separable and linear ordinary differential equations

**Literaturempfehlungen**
- Peter Hartmann: Mathematik für Informatiker - ein praxisbezogenes Lehrbuch
- Dirk Hachenberger: Mathematik für Informatiker
- Otto Forster: Analysis I
- Harro Heuser: Lehrbuch der Analysis, Teil 1
- Konrad Königsberger: Analysis

**Links**

**Language of instruction**
German

**Duration (semesters)**
1 Semester

**Module frequency**
every year

**Module capacity**
unlimited

**Examination**

<table>
<thead>
<tr>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>At the end of the lecture period written exam</td>
<td>Final exam of module</td>
</tr>
</tbody>
</table>

**Form of instruction**

<table>
<thead>
<tr>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>3</td>
<td>SoSe</td>
<td>42</td>
</tr>
<tr>
<td>Exercises</td>
<td>1</td>
<td>SoSe</td>
<td>14</td>
</tr>
</tbody>
</table>

**Präsenzzeit Modul insgesamt**
56 h
### mat990 - Mathematics for Economists

<table>
<thead>
<tr>
<th>Module label</th>
<th>Mathematics for Economists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>mat990</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

#### Verwendbarkeit des Moduls
- Bachelor's Programme Business Administration and Law (Bachelor) > Basiscurriculum Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Aufbaucurriculum-Wahlbereich Mathematik
- Bachelor's Programme Economics and Business Administration (Bachelor) > Basismodule
- Bachelor's Programme Sustainability Economics (Bachelor) > Grundlagen-/Basiscurriculum
- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) > Basismodule

#### Zuständige Personen
- Lehrenden, Die im Modul (Prüfungsberechtigt)
- Modulverantwortlichen, Die (Prüfungsberechtigt)
- May, Angelika (module responsibility)

#### Prerequisites
- Students internalize basic mathematical concepts and methods from analysis and matrix calculation and their applications in economics.

#### Skills to be acquired in this module
- **Professional competence**
  - The students:
    - are proficient in the mathematical fundamentals relevant to economics
    - master methods for solving equations and inequalities
    - master differential calculus for one and two variables and can integrate
    - are able to reliably determine local and global extreme points for functions of one and two variables.

- **Methodological competence**
  - The students:
    - analyse formal contexts
    - understand the formal mathematical language
    - structure problems from the economic sciences and justify their solutions.

- **Social competence**
  - The students:
    - construct solutions to given problems in groups
    - accept criticism and see it as an aid.

- **Self-competence**
  - The students:
    - reflect their actions in establishing solutions
    - deepen the presented mathematical concepts in exercises and add them to their actions.

#### Module contents
- Basics in real Arithmetic, Rules for Matrix Arithmetic
- Linear equations, linear inequalities and systems of those, quadratic equations, financial mathematics (interest rates and present values, pension calculation)
- Calculus for functions of one variable: derivation rules for power functions, exp and ln, indefinite integral
- applications of integral calculus (density function, ordinary differential equations), single-variable optimization (stationary points, extreme-value theorem, local and global extreme points)
- Approximation methods (linear approximation, Taylor series with Lagrange remainder)
- Functions of two variables (partial derivatives, total differential), Tools for comparative statics : (elasticity of substitution, homogeneous and homothetic functions), multivariable optimization tasks (local and global extremes,
**Literaturempfehlungen**


Begleitend:

**Links**

www.uni-oldenburg.de/wire

**Language of instruction**

German

**Duration (semesters)**

1 Semester

**Module frequency**

annual

**Module capacity**

unlimited

**Reference text**

Examination | Prüfungszeiten | Type of examination
---|---|---
Final exam of module | zum Ende der Vorlesungszeit | written exam

**Form of instruction** | Comment | SWS | Frequency | Workload of compulsory attendance
---|---|---|---|---
Lecture | | 2 | WiSe | 28
Exercises | | 2 | WiSe | 28

**Präsenzzeit Modul insgesamt**

56 h
mat991 - Mathematics for Economists II

Module label: Mathematics for Economists II
Modulkürzel: mat991
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) > Aufbaucurriculum-Wahlbereich Mathematik
- Bachelor's Programme Economics and Business Administration (Bachelor) > Vertiefungsbereich
- Bachelor's Programme Sustainability Economics (Bachelor) > Aufbaumodule

Zuständige Personen
- May, Angelika (module responsibility)
- May, Angelika (Prüfungsberechtigt)

Prerequisites

Skills to be acquired in this module
The students internalize advanced mathematical methods, know applications in economics and can provide solutions.

Professional competence
The students:
- are proficient in the quantitative methods relevant to economics
- know vector spaces and rings
- master the differential calculus for n variables
- can determine extreme points with general constraints
- can solve special homogeneous and inhomogeneous differential equations.

Methodological competence
The students:
- analyse complex interrelationships
- understand the formal mathematical language
- structure problems from the economic sciences and find independent solutions.

Social competence
The students:
- construct solutions to given problems in groups
- accept criticism and see it as an aid.

Self-competence
The students:
- reflect their actions in establishing solutions
- deepen the presented mathematical concepts in exercises and add them to their actions.

Module contents
n-dimensional vector spaces, linear maps, matrix and vector algebra (determinant, inverse matrix, eigenvalues and eigenvectors), linear systems of equations and their economic application.
Functions of n variables), tools for comparative static (chain rules, implicit differentiation along a level curve, elasticity of substitution), multivariate optimization with and without constraints (necessary and sufficient conditions), general constraints, Kuhn-Tucker conditions.
Integration, Differential and ordinary differential equations with solution methods for special types.

Literatureempfehlungen
<table>
<thead>
<tr>
<th>Links</th>
<th>Language of instruction</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (semesters)</td>
<td></td>
<td>1 Semester</td>
</tr>
<tr>
<td>Module frequency</td>
<td></td>
<td>annual</td>
</tr>
<tr>
<td>Module capacity</td>
<td></td>
<td>unlimited</td>
</tr>
<tr>
<td>Examination</td>
<td>Prüfungszeiten</td>
<td>Type of examination</td>
</tr>
<tr>
<td>Final exam of module</td>
<td></td>
<td>written exam (90-120 minutes)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bonus points can be earned.</td>
</tr>
</tbody>
</table>

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

| Präsenzzelt Modul insgesamt | 56 h |
mat996 - Introduction to Numerical Analysis

<table>
<thead>
<tr>
<th>Module label</th>
<th>Introduction to Numerical Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>mat996</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></td>
</tr>
<tr>
<td></td>
<td>• Bachelor's Programme Business Informatics (Bachelor) &gt; Aufbaucurriculum-Wahlbereich Mathematik</td>
</tr>
<tr>
<td></td>
<td>• Bachelor's Programme Computing Science (Bachelor) &gt; Wahlpflichtbereich Mathematik</td>
</tr>
<tr>
<td></td>
<td>• Master's Programme Computing Science (Master) &gt; Module aus anderen Studiengängen</td>
</tr>
<tr>
<td>Zuständige Personen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Chernov, Alexey (module responsibility)</td>
</tr>
<tr>
<td></td>
<td>• Schöpfer, Frank (module responsibility)</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>Analysis I, Lineare Algebra</td>
</tr>
<tr>
<td>Skills to be acquired in this module</td>
<td>The students learn and analyze the basic numerical methods. The students learn to implement the basic numerical methods in a computer program.</td>
</tr>
<tr>
<td></td>
<td>Professional competence</td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>• learn basic numerical methods and algorithms</td>
</tr>
<tr>
<td></td>
<td>• analyze properties of the numerical methods using rigorous mathematical tools</td>
</tr>
<tr>
<td></td>
<td>• implement the basic numerical methods in a computer program</td>
</tr>
<tr>
<td></td>
<td>• interpret results of computer simulations</td>
</tr>
<tr>
<td></td>
<td>Methodological competence</td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>• analyze algorithms with mathematical tools</td>
</tr>
<tr>
<td></td>
<td>• implement numerical algorithms for concrete problems</td>
</tr>
<tr>
<td></td>
<td>Social competence</td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>• develop solutions to given problems in groups</td>
</tr>
<tr>
<td></td>
<td>• accept constructive criticism</td>
</tr>
<tr>
<td></td>
<td>Personal competence</td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>• reflect their solution strategies</td>
</tr>
<tr>
<td></td>
<td>• deepen their understanding of the presented mathematical and algorithmical concepts with exercises and adopt the solution methods</td>
</tr>
<tr>
<td>Module contents</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Numerical methods for linear systems: LU-, Cholesky decompositions, iterative methods</td>
</tr>
<tr>
<td></td>
<td>• Numerical methods for nonlinear equations: fix-point iterations, Netwon's Method</td>
</tr>
<tr>
<td></td>
<td>• Polynomials, spline and trigonometric interpolation</td>
</tr>
<tr>
<td></td>
<td>• Numerical integration: Newton-Cotes, Gauss quadrature rules, adaptive quadrature and extrapolation methods</td>
</tr>
<tr>
<td></td>
<td>• Stability and conditioning of algorithms and problems</td>
</tr>
<tr>
<td>Links</td>
<td></td>
</tr>
<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>
<td>every year</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Reference text</td>
<td>Als 6 KP Modul werden Vorlesung und Übungen nur in den ersten 2/3 des Semesters besucht.</td>
</tr>
<tr>
<td>Examination</td>
<td></td>
</tr>
<tr>
<td>Prüfungszeiten</td>
<td></td>
</tr>
<tr>
<td>Type of examination</td>
<td></td>
</tr>
<tr>
<td>Final exam of module</td>
<td>At the end of the lecture period written exam</td>
</tr>
<tr>
<td>Form of instruction</td>
<td>Comment</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------</td>
</tr>
<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>
**wir150 - Statistics I for Economists**

<table>
<thead>
<tr>
<th>Module label</th>
<th>Statistics I for Economists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>wir150</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**Verwendbarkeit des Moduls**
- Bachelor's Programme Business Administration and Law (Bachelor) > Aufbaubereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Aufbaucurriculum-Wahlbereich Mathematik
- Bachelor's Programme Economics and Business Administration (Bachelor) > Akzentsetzungsmodule
- Bachelor's Programme Sustainability Economics (Bachelor) > Aufbaumodule
- 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

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

**Prerequisites**
- Students will understand the fundamental terms of descriptive and inductive statistics.
- Students will be able to choose and calculate appropriate measures and methods in order to describe empirical data properly.
- Students are familiar with concepts of probability theory and will be able to transfer statistical results from sample to population.

**Module contents**
- Measuring and tabular / graphic representation of the data, summary statistics (arithmetic mean, statistical dispersion), two-dimensional distributions (graphic / tabular depiction, statistical independence, contingency, simple linear regression, and correlation), fundamentals of probability theory and probability distribution, sampling distributions, estimation and test methods.

**Literaturempfehlungen**

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

**Language of instruction**
- German

**Duration (semesters)**
- 1 Semester

**Module frequency**
- jährlich

**Module capacity**
- unlimited

**Examination**

<table>
<thead>
<tr>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Final exam of module**

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Tutorial</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Exercises (optional)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Präsenzzeit Modul insgesamt**
- 56 h
Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik

inf006 - Software Engineering II

<table>
<thead>
<tr>
<th>Module label</th>
<th>Software Engineering II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf006</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

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)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

Softwaretechnik I

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

**Literatureempfehlungen**

- 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**: every summer term
- **Module capacity**: unlimited
- **Teaching/Learning method**: V+S
- **Previous knowledge**: Software engineering I
- **Examination**
  - **Type of examination**: Final exam of module
  - **Prüfungszeiten**: At the end of the lecture period
  - **Portfolio (30-minute presentation, 1 paper (4 pages, IEEE) and oral exam)**

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td>SoSe</td>
<td>28</td>
</tr>
<tr>
<td>Seminar</td>
<td></td>
<td>2</td>
<td>SoSe</td>
<td>28</td>
</tr>
<tr>
<td><strong>Präsenzzzeit Modul insgesamt</strong></td>
<td></td>
<td></td>
<td></td>
<td>56 h</td>
</tr>
</tbody>
</table>
# inf009 - Database Practical

<table>
<thead>
<tr>
<th>Module label</th>
<th>Database Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf009</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**Verwendbarkeit des Moduls**
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Praktische Vertiefung (60 KP)
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Praktische Informatik)
- 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) > Praktische Vertiefung der Informatik

**Zuständige Personen**
- Grawunder, Marco (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberichtigt)

**Prerequisites**
- Information Systems I
- Operating system knowledge

**Skills to be acquired in this module**

The objective of this module is to gather practical experience on databases and information systems. The students get an overview of the technical realisation, implementation and optimisation of a professional database management system.

**Professional competence**
The students:
- Realise, implement and program data base systems
- Program and implement database-oriented system routines
- Implement optimisation goals in the modelling phase
- Administer professional database systems (installation, maintenance and adjustment)
- Recognise database systems' performance problems and are able to fix them with according methods
- Organise and control processes of database systems

**Methodological competence**
The students:
- propose concrete processing principles for special application classes
- reflect on specific technologies and procedures with regard to their consequences

**Social competence**
The students:
- Solve database system problems in a team

**Self-competence**
The students:
- Acknowledge the limits of their ability to cope with pressure during the implementation and are aware of failures
- Reflect their self-perception

**Module contents**
The module “Practical Course Databases” is a related practical course of the module “Information Systems I”. The objectives of this module are special technical concepts of a database system and practical solutions in database programming and optimisation.

Contents of this module are:
- System-oriented database management programming,
- Implementation of catalogue systems,
Optimisation strategies based on parallelisation and partitioning requirements

Literaturempfehlungen

- Held Andrea (2005). Oracle 10g Hochverfügbarkeit Addison-Wesley -
- Held Andrea (2015), Oracle 12c New Features Addison Wesley

Links

http://www-is.informatik.uni-oldenburg.de/227/

Language of instruction

German

Duration (semesters)

1 Semester

Module frequency

every winter term

Module capacity

unlimited

Teaching/Learning method

P

Previous knowledge

Information Systems I
Operating system knowledge

Examination

Prüfungszeiten
Type of examination

Final exam of module

At the end of the lecture period
Oral exam

Form of instruction

Exercises

SWS

4

Frequency

WiSe
inf017 - Interactive Systems

Module label  Interactive Systems
Modulkürzel  inf017
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" more...
- Bachelor's Programme Comparative and European Law (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Computing Science (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Bachelor's Programme Education (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 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 Dutch Linguistics and Literary Studies (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 Economic Education (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 Gender Studies (Bachelor) > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
Prerequisites
No participant requirement

Skills to be acquired in this module

Professional competence
The students:
- can describe and explain an iterative process to develop interactive systems.
- can classify a method known from the lecture into that process
- name the basic concepts and characteristics of usable user interfaces
- name and explain established guidelines and heuristics of the user-centered design of interactive systems

Methodological competence:
The students:
- can name and explain methods for context of use and/or user requirements analysis.
- can name methods for the design and prototypical implementation of interactive systems and discuss their advantages and disadvantage.
- can explain established methods for usability testing.
- can evaluate a given user interface with regard to potential usability problems.

Social competence
The students:
- can present solutions to usability problems or results of an usability evaluation in the plenum.

Self competence
The students:
- can accept criticisms by their peer group as valuable contributions to
their solutions.

Module contents

The field of interactive systems deals with the tasks, concepts and technologies of human-computer interaction and its user-friendly and suitable design. The lecture is based on the so-called Human Centred Design Process and includes models of interaction between humans and their environment, iterative design, prototyping techniques, study and evaluation processes. Basic design principles, methods and tools are presented. Practical tasks complete the lecture.

Literaturempfehlungen

- Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale: Human Computer Interaction.
- Bernhard Preim, Raimund Dachselt: Interaktive Systeme
- Weitere Fachartikel, die in der Vorlesung vorgestellt werden

Links

https://uol.de/en/media-informatics/teaching/courses

Languages of instruction

German, English

Duration (semesters)

1 Semester

Module frequency

every winter term

Module capacity

40

Teaching/Learning method

V+Ü

Previous knowledge

none

Final exam of module

Individually, at the end of the lecture period

Project and oral Exam or project and written exam

Form of instruction

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Präsenzzeit Modul insgesamt

56 h
**inf018 - Media Processing**

<table>
<thead>
<tr>
<th>Module label</th>
<th>Media Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf018</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**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" more...
- Bachelor's Programme Comparative and European Law (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 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 Dutch Linguistics and Literary Studies (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"
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++)

---

### Prerequisites
Solid programming skills in Java and/or C++, practical informatics. Interest in media processing

### Skills to be acquired in this module
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.

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

Links
https://uol.de/en/media-informatics/teaching/courses

Language of instruction
German

Duration (semesters)
1 Semester

Module frequency
every winter term

Module capacity
12

Reference text

Teaching/Learning method
V+Ü

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

Examination
Prüfungszeiten
Type of examination
Project and oral Exam or project and written exam

Final exam of module
The presentation of the practical project on a project day of all small groups takes place directly after the lecture period. The oral examination takes place in the first two weeks after the end of the lecture period. Any post-examinations will take place at the end of the lecture period. The exact schedule can be found on the department’s web pages as well as the information in the learning management system Stud.IP.

Form of instruction
Comment
SWS
Frequency
Workload of compulsory attendance

Lecture
2
WisSe
28

Exercises
2
WisSe
28

Präsenzzzeit Modul insgesamt
56 h
inf021 - Advanced Java Technologies

<table>
<thead>
<tr>
<th>Module label</th>
<th>Advanced Java Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf021</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

Verwendbarkeit des Moduls

- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Praktische Vertiefung (60 KP)
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Praktische Vertiefung der Informatik

Zuständige Personen

- Boles, Dietrich (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

useful knowledge: Object-oriented programming

Skills to be acquired in this module

The objective of this module is to introduce advanced concepts and technologies of the Java Standard Edition. The students will be able to use the technologies to implement large applications.

Professional competence:
The students:

- name the essential packages of the JDK class library
- structure large programs properly and implement them extensively
- set up own Java class libraries
- look up required classes in the JDK-Library and solve problems with these classes
- structure their programs properly
- understand and interpret large programs of other students
- evaluate the quality of large programs related to their maintainability, reusability and expandability

Methodological competence:
The students:

- search for solutions to specific problems in the internet independently

Social competence:
The students:

- discuss own and solutions of other students

Self-competence:
The students:

- reflect their problem-solving behaviour and take up new solutions, e.g. from the internet

Module contents

A selection of the following subjects is presented during the lectures:

- GUI (AWT, Swing, JavaFX)
- Java-Basics and Collection-API
- Graphics and multimedia
- Events
- Model-View-Control (MVC)
- Threads
- Internationalization, localization
- Reflection
- IO, Files
- Tools (compiler, classloader, printer, ...)
- Storage technologies (XML and serialization)
- Distributed programming (sockets and RMI)
- Databases (JDBC)
- Compression
- Security concepts
Alternatively, a single topic is explored in depth. As part of the exercises, individual programming tasks or a larger programming task will be worked on. The tasks are related to the topic of the individual lecture contents.

<table>
<thead>
<tr>
<th>Literatureempfehlungen</th>
<th>list of links in the learning management system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Links</td>
<td></td>
</tr>
<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>
<td>every semester</td>
</tr>
<tr>
<td>Module capacity</td>
<td>12</td>
</tr>
<tr>
<td>Reference text</td>
<td></td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>V+Ü</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>Object-oriented programming</td>
</tr>
<tr>
<td>Examination</td>
<td></td>
</tr>
<tr>
<td>Prüfungszeiten</td>
<td>throughout the semester</td>
</tr>
<tr>
<td>Type of examination</td>
<td>practical exercises</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td>SoSe oder WiSe</td>
<td>56</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>2</td>
<td>SoSe oder WiSe</td>
<td>28</td>
</tr>
<tr>
<td>Präsenzzeit Modul insgesamt</td>
<td></td>
<td></td>
<td></td>
<td>84 h</td>
</tr>
</tbody>
</table>
inf040 - Introduction to Data Science

Module label | Introduction to Data Science
Modulkürzel | inf040
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
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich
- Master Applied Economics and Data Science (Master) > Data Science
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Praktische Informatik)
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Theoretische Informatik)
- 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) > Akzentsetzungsbereich
- Master's Programme Computing Science (Master) > Praktische Informatik

Zuständige Personen
- Wingerath, Wolfram (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
Basics of databases, Python programming and statistics

Skills to be acquired in this module

The module teaches fundamentals from the field of Data Science, covering purposes, challenges, and common best practices.

Professional competences
The students
- have knowledge of basic concepts, problems and solution approaches from the field of Data Science.
- are able to justify the choice of specific data analysis methods for a given problem
- include possible imponderables in the analysis when evaluating analysis results

Methodological competences
The students
- are able to translate questions from a specific domain into a feasible analysis
- work on Data Science tasks to expand their understanding of the different approaches and methods.

Social competences
The students
- discuss approaches and problems encountered in smaller and larger groups

Self competences
The students
- reflect on their actions when identifying possible solutions and critically question their own results

Module contents
Data Science is an interdisciplinary science at the intersection of statistics, machine learning, data visualization, and mathematical modeling. This course is designed to provide a practical introduction to the field of Data Science by teaching theoretical principles while also applying them practically. Topics covered range from data collection and preparation (data sources & formats, data cleaning, data bias), mathematical foundations (statistical distributions, correlation analysis, significance) and methods for visualization (tables & plots, histograms, best practices) to the development of models for classifying or predicting values (linear regression, classification, clustering).

Literaturempfehlungen

See description of the assigned course

Links

<table>
<thead>
<tr>
<th>Language of instruction</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (semesters)</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Module frequency</td>
<td>regular in summer term</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>V + Ü</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>Basics of databases, Python programming and statistics</td>
</tr>
</tbody>
</table>

Examination

Prüfungszeiten | Type of examination

- At the end of the lecture period or by arrangement with the instructor.
- Written or oral exam or portfolio or project or practical exercise

Form of instruction

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

Präsenzzeit Modul insgesamt

56 h
inf420 - Introduction to IT-Security

<table>
<thead>
<tr>
<th>Module label</th>
<th>Introduction to IT-Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf420</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

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 of Education Programme (Gymnasium) Computing Science (Master of Education) > Pflichtmodule
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Angewandte Informatik)
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Theoretische Informatik)
- Master of Education Programme (Hauptschule and Realschule) Computing Science (Master of Education) > Mastermodule

Zuständige Personen

- Peter, Andreas (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

No participant requirements

Skills to be acquired in this module

Students understand the basic concepts, methods and protocols for protecting data and systems from manipulation and misuse on a basic, practice-oriented, scientific level (see "contents of the module"). The students can explain the causes of security problems in today's systems, can reproduce the connections between protection mechanisms and the problems they address, and can apply them to case studies. They can identify vulnerabilities, analyze them and understand the attack mechanisms described. In addition, the students are able to discuss possible solutions and are able to protect systems accordingly.

Professional competence

The students

- understand the semantics of security and explain the properties of secure IT systems (see "contents of the module");
- discuss the importance of IT security, and
- carry out simple security analyses of systems.

Methodological competence

The students

- use concepts and techniques to increase security, in particular regarding which protection goals can be achieved with which techniques (see "contents of the module");
- apply mechanisms of IT security in simple scenarios, and
- question the properties and limits of security concepts and combine different concepts in a meaningful way.

Social competence

The students

- solve problems partially in small groups and thus improve their willingness to cooperate and their communication skills,
- present solutions to IT security problems in front of the exercise group,
- discuss their different solutions within the exercise group, and
- improve their English language skills.

Self-competence

The students

- motivate themselves to work on questions and problems in the domain of IT security,
- justify their own actions with theoretical and methodical knowledge, and
- critically reflect on proposed solutions in relation to social expectations.
and consequences, taking into account the methods taught.

**Module contents**

The course provides a broad introduction to IT security, covering the following topics:

- basic terms, concepts, and principles in IT security,
- major cryptographic building blocks (encryption, signatures, ...),
- access control models and mechanisms,
- authentication and key exchange protocols,
- network security basics,
- anonymous communication (including TOR), and
- basics of privacy protection.

**Literaturempfehlungen**


**Links**

- Language of instruction: English
- Duration (semesters): 1 Semester
- Module frequency: Every winter semester
- Module capacity: unlimited
- Teaching/Learning method: V+Ü

**Previous knowledge**

Hard requirement: Fundamental knowledge on algorithms, discrete structures, and linear algebra as for instance covered in the following courses at the UOL:

- inf030 Programmierung, Datenstrukturen und Algorithmen
- mat950 Diskrete Strukturen
- mat955 Linear Algebra für Informatik

Useful (but optional) additional knowledge: Basics of computer networks as for instance covered in the UOL course inf010 Rechnernetze

**Examination**

<table>
<thead>
<tr>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written or oral exam</td>
<td></td>
</tr>
</tbody>
</table>

**Final exam of module**

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td>WISe</td>
<td>2</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>2</td>
<td>WISe</td>
<td>2</td>
</tr>
<tr>
<td><strong>Präsenzzeit Modul insgesamt</strong></td>
<td></td>
<td>4 h</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
inf517 - Introduction to Energy Informatics

Module label: Introduction to Energy Informatics

Modulkürzel: inf517

Credit points: 3.0 KP

Workload: 90 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 of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Praktische Vertiefung der Informatik

Zuständige Personen
- Nieße, Astrid (module responsibility)
- Vogel-Sonnenschein, Ute (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
Die Studierenden lernen an Beispielen, die Grenzen der eigenen Fachdisziplin in der Anwendung zu erkennen sowie Forschungsfragestellungen zu identifizieren und einzuordnen.

ACHTUNG: Dies Modul wird nicht mehr angeboten! Die Inhalte wurden in Modul inf518 integriert.

Skills to be acquired in this module
The students learn to identify the borders of their disciplinary background when going to the field. Additionally, they learn to identify research questions and how to approach them.

Professional competence
The students
- learn to identify the borders of their disciplinary background when going to the field. Additionally, they learn to identify research questions and how to approach them.

Methodological competence
The students
- will know how computer science methods can be applied to energy systems and energy research.

Social competence
The Students
- discuss in an interdisciplinary context in an appreciative manner.

Module contents
This module gives an overview about different topics in the field of energy informatics.
In the lecture, the role of computer science in the energy domain is presented on the base of different topics to illustrate the links between energy technology and management and computer science.
Some examples are:
- Energy markets
- Network planning & operations management
- Virtual power plants
- Demand side management and flexibility

Literaturempfehlungen

Links

Language of instruction: German

Duration (semesters): 1 Semester

Module frequency: irregular

Module capacity: unlimited

Teaching/Learning method: V

64 / 149
Basic knowledge in the field of power engineering or computer science can be brought in, but is not a prerequisite.

<table>
<thead>
<tr>
<th>Examination</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td>At the end of the lecture time</td>
<td>Exam</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Lecture</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SWS</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>siehe Angebotsrhythmus Modul</td>
</tr>
</tbody>
</table>
inf518 - Foundations of Energy Informatics

Module label: Foundations of Energy Informatics

Modulkürzel: inf518

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 of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Praktische Informatik)
- Master of Education Programme (Hauptschule and Realschule) Computing Science (Master of Education) > Mastermodule

Zuständige Personen:
- Lehrenden, Die im Modul (Prüfungsberechtigt)
- Rauh, Andreas (module responsibility)
- Vogel-Sonnenschein, Ute (module responsibility)

Prerequisites:
Diesem Modul können Sie gut folgen, wenn Sie Vorkenntnisse mitbringen in
- Grundkenntnisse in Lineare Algebra,
- Analysis,
- Grundlegende Programmierkenntnisse

Skills to be acquired in this module:
The students learn to recognize the limits of their own specialist discipline in the application and to identify and classify research questions. They have a basic understanding of the structure of such systems and their physical/chemical properties. and can model simple system components.

Professional competences:
The students
- know the basics of modern energy systems and energy markets
- can critically classify issues in the context of energy systems and energy research
- are familiar with the structure of selected energy-related components in energy systems
- know the regulatory challenges and components in energy systems and their electrotechnical properties
- know approaches to the experimental identification of energy technology components.

Methodological competences:
The students
- can apply computer science methods for energy systems and energy research
- can model and simulate simple dynamic systems in a control-oriented form in Matlab/Simulink
- independently acquire knowledge on given questions

Social competences:
The students
- discuss appreciatively in an interdisciplinary context
- work cooperatively in teams to solve given tasks

Self competences:
The students
- deepen their competence in presenting the results they have worked out themselves

Module contents:
The first part of the module gives an introduces the different topics in energy informatics. The role of computer science in this area is explained on the basis of a subject area and the connection between energy technology and energy management issues and
basic IT skills is shown.

**Topics are**

- Foundations of electrical engineering and power management
- Energy markets
- Network planning and management
- Demand Side Management
- Virtual Power Plants

The second part addresses the control-oriented modelling on the example of energy systems and components taking into account their physical and electro-technical features.

We will derive models of system components like battery storage, wind turbines, photovoltaics and fuel cells.

The participants will design first control-oriented Models with MatLab/Simulink and validate them e.g. by using measurements of open circuit voltages of batteries. (Basics of MatLab Simulink will be explained in the tutorials. The batteries’ internal resistances and charge/discharge dynamics are identified by controllable electronic loads in conjunction with programmable rapid control prototyping hardware.)

---

**Literaturempfehlungen**

**Links**

**Languages of instruction**

- German, English

**Duration (semesters)**

- 1 Semester

**Module frequency**

- every summer term

**Module capacity**

- 20

**Teaching/Learning method**

- 1VL + 1Ü (4 SWS)

**Previous knowledge**

- Linear algebra, calculus, basic programming skills

**Examination**

- Prüfungszeiten

<table>
<thead>
<tr>
<th>Final exam of module</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>During the semester</td>
<td>Portfolio</td>
</tr>
</tbody>
</table>

**Form of instruction**

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

**Präsenzzeit Modul insgesamt**

- 56 h
inf521 - Medical Informatics

Module label: Medical Informatics

Modulkürzel: inf521

Credit points: 6.0 KP

Workload: 180 h

Verwendbarkeit des Moduls

- Bachelor’s Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Angewandte Informatik)
- Master of Education Programme (Hauptschule and Realschule) Computing Science (Master of Education) > Mastermodule

Zuständige Personen

- Wulff, Antje (module responsibility)
- Kaspar, Mathias (Module counselling)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

No participant requirement

Skills to be acquired in this module

This module provides an introduction to the medical informatics and medical technology.

Professional competence

The students:

- know the medical and healthcare computer science applications
- know typical IT solutions and infrastructures
- know the legal framework to process care data
- know medical classifications and nomenclatures and the DRG-System and are able to apply them

Methodological competence

The students:

- know bio-medical research requirements and patient data privacy methods
- know communication standards and apply them in small-scale scenarios
- know and apply patient safety and risk management methods
- know and apply biosignal and image processing methods

Social competence

The students:

- realise the importance of communication during the software development process between developer, customer and user of a successful and secure system. Feedback, request, respectful cooperation and the empathy of other disciplines’ working processes are of great importance.

Self-competence

The students:

- realise their responsibility as a medical informatic and reflect their impact on patients, medical employers and hospitals (corporates)

Module contents

- Medical informatics introduction / medical documentation
- Medical documentation / progression of disease
- Healthcare information systems
- Terminology and classification / Medical controlling
- Image processing / interoperability and communication standards
- Medical data privacy
- Medical research
- Analyses of information system data
- Decision making support and process management
- Mi/MT patient safety (Regulatory Affairs)
- Telemedicine / Customer Health informatics
- Medical technology introduction, biomedical technology
- Biosignal processing, sensor technology
- Robotics, prosthetics
**Literaturspfehlungen**

- Jan van Bemmel, M.A. Musen, Mark A. Musen (Hrsg.): *Handbook of Medical Informatics*. Springer, Heidelberg 1997
- Christian Johner und Peter Haas (Hrsg.): *Praxishandbuch IT im Gesundheitswesen*. Carl Hanser Verlag München 2009

<table>
<thead>
<tr>
<th>Links</th>
<th></th>
</tr>
</thead>
<tbody>
<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>
<td>annual</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>1VL + 1Ü</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>none</td>
</tr>
<tr>
<td>Examination</td>
<td>Prüfungszeiten</td>
</tr>
<tr>
<td>Type of examination</td>
<td>Written or oral exam</td>
</tr>
<tr>
<td>Final exam of module</td>
<td>At the end of the lecture period</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td>SoSe</td>
<td>28</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>2</td>
<td>SoSe</td>
<td>28</td>
</tr>
</tbody>
</table>

| Präsenzzzeit Modul insgesamt | 56 h |
### inf528 - Introduction to Medical Informatics

<table>
<thead>
<tr>
<th>Module label</th>
<th>Introduction to Medical Informatics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf528</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**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 of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Praktische Informatik)
- Master of Education Programme (Hauptschule and Realschule) Computing Science (Master of Education) > Mastermodule

**Zuständige Personen**
- Wulff, Antje (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**

### Skills to be acquired in this module

**Professional competences**

The students

- know the application areas of medical informatics
- know the challenges of informatics in the field of health care
- know IT solutions and infrastructures in the field of health care
- know standards for data exchange and data-driven communication in health care

**Methodological competences**

The students

- recognize and be able to apply the basic methods in the field of medical informatics, specifically:
- learn how to analyze and model health care processes, information systems, and data
- understand medical information models and communication standards

**Social competences**

The students

- recognize the importance of interdisciplinary communication and collaboration in digitalisation in medicine
- develop, present and discuss the solutions from the exercises with others

**Self competences**

The students

- are aware of their heterogeneous tasks, responsibility and influence as a computer scientist in the health care sector
- reflect on problems and solutions, incorporating the methods they have learned

**Module contents**

The assigned lectures will provide an overview of the fields of medical informatics and the unique challenges of applying informatics methods and technologies to medicine and health care.

**Literaturempfehlungen**

Will be announced in the course

**Links**

**Language of instruction**

German

**Duration (semesters)**

1 Semester
<table>
<thead>
<tr>
<th><strong>Module frequency</strong></th>
<th>every winter term</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module capacity</strong></td>
<td>unlimited</td>
</tr>
<tr>
<td><strong>Teaching/Learning method</strong></td>
<td>1VL + 1Ü</td>
</tr>
<tr>
<td><strong>Previous knowledge</strong></td>
<td>none</td>
</tr>
</tbody>
</table>

**Examination**

<table>
<thead>
<tr>
<th><strong>Prüfungszeiten</strong></th>
<th><strong>Type of examination</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td>Written or oral exam at the end of the lecture period</td>
</tr>
</tbody>
</table>

**Form of instruction**

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

**Präsenzzeit Modul insgesamt**

56 h
**inf529 - Big Data in Medicine**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module label</td>
<td>Big Data in Medicine</td>
</tr>
<tr>
<td>Modulkürzel</td>
<td>inf529</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**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 of Education Programme (Hauptschule and Realschule) Computing Science (Master of Education) > Mastermodule

**Zuständige Personen**
- Wulff, Antje (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**
- Introduction to the subfield "Big Data in Medicine" from the field of medical informatics.

**Skills to be acquired in this module**

**Professional competences**
The students
- know the definition and meaning of "Big Data" in the medical context
- know the challenges of dealing with healthcare data sets
- know the Big Data pipeline and examples from the different areas of the pipeline for the medical context

**Methodological competences**
The students
- recognize potentials and challenges in data-driven use cases from the healthcare sector
- can describe the characteristics of medical data sets using the methods learned
- can design solutions for medical, data-driven issues using the methods learned

**Social competences**
The students
- recognize the importance of interdisciplinary communication and collaboration in the analysis of medical data
- develop, present and discuss the solutions from the exercises with others

**Self competences**
The students
- know their responsibilities when dealing with medical records
- reflect on problems and solutions, incorporating the methods they have learned

**Module contents**
The assigned lectures will provide an overview of the subject area "Big Data in Medicine" and the particular challenges and characteristics of medical data and its sources, (storage) infrastructures, and processing and presentation options.

**Literaturempfehlungen**
Will be announced in the course

**Links**

**Language of instruction**
German

**Duration (semesters)**
1 Semester

**Module frequency**
every summer term

**Module capacity**
unlimited

**Teaching/Learning method**
1VL + 1Ü oder 1PR

**Previous knowledge**
one
<table>
<thead>
<tr>
<th>Examination</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td>at the end of the lecture period</td>
<td>Written or oral exam</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td>SoSe</td>
<td>28</td>
</tr>
<tr>
<td>Exercise or project</td>
<td></td>
<td>2</td>
<td>SoSe</td>
<td>28</td>
</tr>
</tbody>
</table>

**Präsenzzeit Modul insgesamt** 56 h
inf530 - Artificial Intelligence

<table>
<thead>
<tr>
<th>Module label</th>
<th>Artificial Intelligence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf530</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**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 of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Angewandte Informatik)
- 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) > Akzentsetzungsbereich

**Zuständige Personen**
- Sauer, Jürgen (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**
- Basic knowledge of computer science/business informatics

**Skills to be acquired in this module**
The students are familiar with the basic concepts of artificial intelligence (AI). They know the concept of rational agents and their behavior. They know how to implement expert systems. They also know basic search and problem solving techniques as well as techniques of knowledge representation. The students can compare different problem solving techniques and use them within other problem contexts. **Professional competence**

The students:
- describe the concept of rational agents and their behavior in an agent environment
- name and describe the basic search and problem solving techniques of Artificial Intelligence
- describe and implement expert systems
- describe basic techniques of knowledge representation

**Methodological competence**
The students:
- acknowledge the basic methods of AI
- transfer AI methods to other application areas
- evaluate AI methods regarding their appropriateness for distinct problem areas
- modify and adapt AI methods for specific application areas

**Social competence**
The students:
- work in teams
- present results to groups

**Self-competence**
The students:
- reflect their results with regard to the methods of AI

**Module contents**
- Overview of AI
- Rational agents and agent based systems
- Search and other problem solving techniques
- Knowledge representation
- Planning

**Literaturempfehlungen**
### Links

<table>
<thead>
<tr>
<th>Language of instruction</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (semesters)</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Module frequency</td>
<td>annual</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>1VL + 1Ü</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>Basic knowledge of computer science/business informatics</td>
</tr>
</tbody>
</table>

### Examination

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

### Form of instruction

<table>
<thead>
<tr>
<th>Lecture</th>
<th>2</th>
<th>SoSe</th>
<th>28</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercises</td>
<td>2</td>
<td>SoSe</td>
<td>28</td>
</tr>
</tbody>
</table>

### Präsenzzeit Modul insgesamt

<table>
<thead>
<tr>
<th>56 h</th>
</tr>
</thead>
</table>
inf540 - Applications in Artificial Intelligence

<table>
<thead>
<tr>
<th>Module label</th>
<th>Applications in Artificial Intelligence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf540</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></td>
</tr>
<tr>
<td></td>
<td>• Bachelor's Programme Business Informatics (Bachelor) &gt; Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik</td>
</tr>
<tr>
<td></td>
<td>• Bachelor's Programme Computing Science (Bachelor) &gt; Akzentsetzungsbereich - Wahlbereich Informatik</td>
</tr>
<tr>
<td>Zuständige Personen</td>
<td>• Sauer, Jürgen (module responsibility)</td>
</tr>
<tr>
<td></td>
<td>• Lehrenden, Die im Modul (Prüfungsberechtigt)</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>None</td>
</tr>
</tbody>
</table>
| Skills to be acquired in this module | Upon successful completion of the course students should have acquired the ability to master the presented methods safely in theory and practice. The students solve practical problems in the area of ??AI by themselves in a goal-oriented manner.

**Professional competence**
The students know about

- construction and handling of robotics systems
- 3D orientation (SLAM – self orientation and mapping)
- route Planning
- route optimization and general optimization procedures
- handling and testing of autonomous systems
- handling of hardware
- application of known libraries of machine perception
- openCV
- tensorflow

**Methodological competence**
The students

- discuss critical solution approaches and method selection
- deepen programming skills
- learn how to handle hardware systems

**Social competence**
The students

- develop the solutions independently in small groups
- evaluate their own solutions and compare them with those of your fellow students

**Self-competence**
The students

- develop your own solution approaches
- reflect other approaches
- create your own project and timetables
- recognize your own limits

**Module contents**
In the module “Applications of Artificial Intelligence” the students should gain practical experience in the field of artificial intelligence. The learning objectives should be developed by the students in working groups of 4-5 participants. Simple Robotics systems e.g. in the area of autonomous driving or software simulating AI methods will be developed

**Literaturempfehlungen**
Scientific publications with the tags:
Autonomous drone, robotics, ai, deep drone racing.

See: https://scholar.google.de/scholar?hl=de&as_sdt=0%2C5&q=deep+drone+racing&btnG=

**Links**
https://www.iros2019.org/
<table>
<thead>
<tr>
<th>Language of instruction</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (semesters)</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Module frequency</td>
<td>every winter term</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>VL with independent practical part</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>Introduction to Artificial Intelligence (inf530)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Examination</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td></td>
<td>Portfolio</td>
</tr>
</tbody>
</table>

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

| Präsenzzeit Modul insgesamt | 56 h |

Am Ende der Vorlesungszeit
inf603 - Planning and Simulation in Logistics

<table>
<thead>
<tr>
<th>Module label</th>
<th>Planning and Simulation in Logistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf603</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

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 of Education Programme (Gymnasium) Computing Science (Master of Education) > Wahlpflichtmodule (Angewandte Informatik)

Zuständige Personen

- Sauer, Jürgen (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

No participant requirements

Skills to be acquired in this module

Introduction to the problems/challenges of simulation and planning of applications in production and logistics. The students will learn the simulation with a tool in hands-on exercises.

Learning objectives:

The Students

- have knowledge of basic problems/challenges of simulating and planning in the field of production and logistic
- know approaches and algorithms to solve simulation and planning problems/challenges
- are able to model solutions for simple production problems/challenges with a simulation tool and
- are able to solve given tasks with it
- are able to identify, classify and associate solutions to problems/challenges
- are able to model and implement a production plan with the simulation tool

Professional competence

The students:

- Characterise basic problems/challenges of the production planning and logistic simulation
- Name approaches/concepts and algorithms to solve simulation and planning problems/challenges
- Identify, classify and assign solutions to planning problems/challenges
- Model and implement a given production process with a simulation tool

Methodological competence

The students:

- Model small production problems with a simulation tool and solve given tasks with the tool

Social competence

The students:

- Develop solutions to given simulation problems in small groups
- Present the solutions to other groups

Self-competence

The students:

- Reflect their own solutions in conjunction with other solutions

Module contents

This module provides the basic production and logistic planning and simulation approaches/concepts. Supply chain planning problems are introduced and simple algorithmic solutions are introduced and implemented. The hands-on simulation with a tool is provided by a case study from the production.

Literatureempfehlungen

- selected material on the simulation tool
- others will be announced in the lecture
<table>
<thead>
<tr>
<th>Links</th>
<th></th>
</tr>
</thead>
<tbody>
<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>
<td>annual</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>1VL + 1Ü</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>none</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Examination</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td>At the end of the lecture period</td>
<td>Portfolio consisting of: Active involvement, presentation and documentation of results, hands-on achievements</td>
</tr>
</tbody>
</table>

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

| Präsenzzeit Modul insgesamt | 56 h |

SWS | Frequency | Workload of compulsory attendance |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Prüfungszeiten</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type of examination</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Final exam of module</td>
</tr>
<tr>
<td></td>
<td></td>
<td>At the end of the lecture period</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Portfolio consisting of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Active involvement, presentation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and documentation of results,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>hands-on achievements</td>
</tr>
</tbody>
</table>

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

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

| Präsenzzeit Modul insgesamt | 56 h |

79 / 149
inf609 - Business Process Management

<table>
<thead>
<tr>
<th>Module label</th>
<th>Business Process Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf609</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**Verwendbarkeit des Moduls**
- Bachelor’s Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor’s Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik

**Zuständige Personen**
- Sauer, Jürgen (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**
- Business Informatics I

**Skills to be acquired in this module**
Teaching of the basics of process management. They understand the importance of models for the analysis and design of business processes.

**Professional competence**
The students:
- will be able to model and classify business processes and to optimize them for given goals.

**Methodological competence**
The students:
- can map and evaluate processes in structure models, process chains, and costing models.

**Social competence**
The students:
- recognize the importance of employee empowerment for simple, flexible management of processes
- design processes on case studies interactively with the intended process participants.

**Self competence**
The students:
- are able to independently acquire knowledge and skills within the framework of an eLearning module.

**Module contents**
- The basics of process management
- Strategic Process Management / Strategic Process Planning
- Process design (procedure, actual and target modeling)
- Process implementation (process types, process integration using the example SAP ERP)
- Quality and Change Management (ISO 9000, Total Quality Management)
- Process Controlling
- Process management in service companies

**Literaturempfehlungen**
<table>
<thead>
<tr>
<th>Links</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language of instruction</td>
</tr>
<tr>
<td>Duration (semesters)</td>
</tr>
<tr>
<td>Module frequency</td>
</tr>
<tr>
<td>Module capacity</td>
</tr>
<tr>
<td>Reference text</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
</tr>
<tr>
<td>Previous knowledge</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Examination</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td>At the end of the lecture period</td>
<td>Written exam</td>
</tr>
</tbody>
</table>

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

| Präsenzzeit Modul insgesamt | 56 h |

### Module contents

Enterprise Architecture Management (EAM) is an interdisciplinary approach for the integration of information systems in enterprises and enterprise-like structures to support their business objectives and business processes. EAM addresses the harmonization of these aspects on the basis of the respective IT-architecture and business architectures to a holistic enterprise architecture. The description and development of such architectures is structured by Enterprise Architecture Frameworks like TOGAF and ZACHMAN.

In general, the following architectural perspectives are taken into account:

- business architecture
- information and data architecture
- application architecture
- technology architecture

### Literature recommendations

- Enterprise Architecture Frameworks Kompendium – Dirk Matthes –
<table>
<thead>
<tr>
<th>Links</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language of instruction</td>
</tr>
<tr>
<td>Duration (semesters)</td>
</tr>
<tr>
<td>Module frequency</td>
</tr>
<tr>
<td>Module capacity</td>
</tr>
<tr>
<td>Reference text</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
</tr>
<tr>
<td>Previous knowledge</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Examination</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td>Oral examination or written examination at the end of the semester</td>
<td>With an appropriate number of participants (&lt;12 students), an oral examination will be held. In case of a high number of participants (&gt;12 students), an exam will be held instead. It counts the number of participants in the Stud.IP at the beginning of the first course. Exercises are issued during the semester, the successful completion of them is credited to the examination with a maximum total of 10% bonus.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td>SoSe oder WiSe</td>
<td>28</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>2</td>
<td>SoSe oder WiSe</td>
<td>28</td>
</tr>
<tr>
<td>Präsenzzeit Modul insgesamt</td>
<td></td>
<td>56 h</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
inf611 - Practice Business Informatics

<table>
<thead>
<tr>
<th>Module label</th>
<th>Practice Business Informatics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf611</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>• Bachelor's Programme Business Informatics (Bachelor) &gt; Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik</td>
</tr>
<tr>
<td>Zuständige Personen</td>
<td>• Marx Gómez, Jorge (module responsibility)</td>
</tr>
<tr>
<td></td>
<td>• Lehrenden, Die im Modul (Prüfungsberechtigt)</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>No participant requirements</td>
</tr>
</tbody>
</table>

Skills to be acquired in this module

After finishing this course, students will be able to address and discuss current challenges of the Business Informatics community. In addition, students will be enabled to solve real world problems from the Business Informatics domain with up to date means of ICT.

Professional Competences

The Student

• gain comprehensive knowledge regarding the project life cycle
• will get in touch with current research and challenges regarding project management and implementation
• are aware of stakeholder communication

Methodological Competences

The Student

• provide their own approach to solving a problem or apply already existing approaches to new and unsolved challenges of the domain
• will be enabled to apply different research methods when compiling a product

Social Competences

The Student

• are supposed to work in teams and therefore must identify working packages and must 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-Competences

The Student learn about their own limitations and learn to accept criticism in order to strengthen their own abilities.

Module contents

The rapidly increasing economic and time-related requirements are forcing organizations to question their previous approaches and establish new, faster methods in the development of products. While in the past the waterfall model defined projects over the entire project period, today short-cycle iterations are used. One of the most important skills is communication with stakeholders and focusing on key problems. However, it is no longer enough for project progress to be shown as a slide presentation; instead, new interactive forms of presentation are becoming popular in companies. The course focuses on:

• Target group-oriented stakeholder communication
• Using time efficient approaches to solving problems as well as focusing
on key requirements
- How to deal with resource restrictions.

Literatureempfehlungen

- Jeff Patton (2014): User Story Mapping: Discover the Whole Story, Build the Right Product

Links

<table>
<thead>
<tr>
<th>Links</th>
<th><a href="http://vlba.wi-ol.de">http://vlba.wi-ol.de</a></th>
</tr>
</thead>
</table>

Language of instruction

- German

Duration (semesters)

- 1 Semester

Module frequency

- every winter term

Module capacity

- 25 (max. 25)

Teaching/Learning method

- 4 PR

Previous knowledge

- none

Examination

<table>
<thead>
<tr>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>during the free-time period, as a rule 2 weeks after the end of the free-time period</td>
<td>Portfolio or oral exam</td>
</tr>
</tbody>
</table>

Form of instruction

- Practical training

SWS

- 4

Frequency

- WiSe
### inf612 - Re-engineering of business processes

<table>
<thead>
<tr>
<th>Module label</th>
<th>Re-engineering of business processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf612</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**Verwendbarkeit des Moduls**
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik

**Zuständige Personen**
- Marx Gómez, Jorge (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**
- Business Informatics II

**Skills to be acquired in this module**

**Professional Competence**
The students:
- are able to classify, explain and model business processes.
- are able to explain business process management and re-engineering of business processes as well as their differences.
- have practical knowledge in the field of business process modeling, partly based on scenarios from the topics industry 4.0, sustainability and data science

**Methodological Competence**
The students:
- learn the pros and cons of different methods by applying them to model business processes.

**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 starts with an introduction to business process modeling with a focus on event-driven process chains and BPMN. Second, business process management will be discussed, focusing on discovering, modeling, documenting, implementing, managing and optimizing business processes. Third, business process reengineering will be elaborated, with a focus on driving forces such as industry 4.0, sustainability and data science. The course will implement different research oriented aspects, e.g. the students will elaborate a number of real world examples and present their results within the course.

**Literaturempfehlungen**

**Links**
https://uol.de/vlba/

**Language of instruction**
German
<table>
<thead>
<tr>
<th>Duration (semesters)</th>
<th>1 Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module frequency</td>
<td>every winter term</td>
</tr>
<tr>
<td>Module capacity</td>
<td>30</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>1VL + 1Ü</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>Business Informatics II</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Examination</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td>At the end of the lecture term. written exam and practical exercises</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Präsenzzeit Modul insgesamt</th>
<th>56 h</th>
</tr>
</thead>
</table>
inf801 - Research Seminar in Computer Science

<table>
<thead>
<tr>
<th>Module label</th>
<th>Research Seminar in Computer Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf801</td>
</tr>
<tr>
<td>Credit points</td>
<td>3.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>90 h</td>
</tr>
</tbody>
</table>
| Verwendbarkeit des Moduls | • Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik.  
  • Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik. |
| Zuständige Personen | • Nieße, Astrid (module responsibility)  
  • Sauer, Jürgen (module responsibility)  
  • Lehrenden, Die im Modul (Prüfungsberechtigt) |
| Prerequisites | No participant requirements |
| Skills to be acquired in this module | Supported by a lecturer the students get familiar with literature of a topic. They understand and evaluate the relevance of the literature. After this evaluation the students present and discuss their solutions academically. |
| Professional competence | The students:  
  • characterise and apply computer science basics (algorithms, data structures, programming, basics of practical, technical and theoretical computer science)  
  • reflect a scientific topic and present their solutions |
| Methodological competence | The students:  
  • examine problems, use formal methods to phrase them 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  
  • work scientifically |
| Social competence | The students:  
  • communicate considerately and appropriately with users and experts  
  • use presentation methods |
| Self-competence | The students:  
  • plan their informatical actions independently  
  • reflect their contributions critically and discuss them with users and experts  
  • collect and update their knowledge independently |

<p>| Module contents | according to the assigned task |
| Literatureempfehlungen | according to the assigned task |
| Links | English |
| Language of instruction | German |
| Duration (semesters) | 1 Semester |
| Module frequency | semi-annual |
| Module capacity | unlimited |
| Teaching/Learning method | 1S |
| Previous knowledge | none |
| Examination | Prüfungszeiten |
| Type of examination | Presentation |
| Final exam of module | Seminar |
| Form of instruction | Seminar |
| SWS | 2 |</p>
<table>
<thead>
<tr>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
inf803 - Special Topics in Computer Science I

Module label: Special Topics in Computer Science I

Modulkürzel: inf803

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
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Praktische Vertiefung (60 KP)
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Praktische Vertiefung der Informatik

Zuständige Personen
- Nieße, Astrid (module responsibility)

Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
- The expected previous knowledge is specified in the details of the assigned course.

Skills to be acquired in this module
This module integrates current computer science developments within 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 course

Literaturempfehlungen
According to the assigned course

Languages of instruction
German, English

Duration (semesters)
1 Semester

Module frequency
semi-annual

Module capacity
unlimited

Reference text
Falls mehr dem Modul mehr als eine Veranstaltung zugeordnet ist, wählen Sie in der Regel Veranstaltungen im Gesamtumfang von 4 SWS aus, bspw. eine Vorlesung mit zugehöriger Übung. Weitere Informationen finden Sie in der Beschreibung (Details) der zugeordneten Veranstaltungen.

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

Form of instruction
VA-Auswahl
<table>
<thead>
<tr>
<th>SWS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>siehe Angebotsrhythmus Modul</td>
</tr>
</tbody>
</table>


### Module label
Special Topics in Computer Science II

### Modulkürzel
inf804

### 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
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Praktische Vertiefung (60 KP)
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Praktische Vertiefung der Informatik

### Zuständige Personen
Nieße, Astrid (module responsibility)

### Prerequisites
The expected previous knowledge is specified in the details of the assigned course.

### Skills to be acquired in this module
This module integrates current computer science developments within 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 course

### Literaturempfehlungen
According to the assigned course

### Languages of instruction
German, English

### Duration (semesters)
1 Semester

### Module frequency
irregularly

### Module capacity
unlimited

### Reference text
Falls mehr dem Modul mehr als eine Veranstaltung zugeordnet ist, wählen Sie in der Regel Veranstaltungen im Gesamtumfang von 4 SWS aus, bspw. eine Vorlesung mit zugehöriger Übung. Weitere Informationen finden Sie in der Beschreibung (Details) der zugeordneten Veranstaltungen.

### Examination

#### Prüfungszeiten

| Type of examination | Exercises or presentation or oral exam or written exam |

### Final exam of module

### Form of instruction
VA-Auswahl
<table>
<thead>
<tr>
<th>SWS</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency</strong></td>
<td>siehe Angebotsrhythmus Modul</td>
</tr>
</tbody>
</table>
inf808 - Current Topics in Computer Science

Module label
Current Topics in Computer Science

Modulkürzel
inf808

Credit points
3.0 KP

Workload
90 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
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Praktische Vertiefung (60 KP)
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Praktische Vertiefung der Informatik

Zuständige Personen
- Nieße, Astrid (module responsibility)
- Sauer, Jürgen (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites
Keine

Skills to be acquired in this module
This module integrates current computer science developments within 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 limits 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
- Reflect on a scientific topic and write a scientific seminar paper under guidance and present their findings

Social competence
The students:
- Use presentation methods purposefully

Self-competence
The students:
- Plan their informatical actions independently
- Reflect their contributions critically and discuss them with users and experts
- Collect and update their knowledge 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
unregelmäßig

Module capacity
unlimited

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

Form of instruction
VA-Auswahl
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SWS</td>
<td>2</td>
</tr>
<tr>
<td>Frequency</td>
<td>siehe Angebotsrhythmus Modul</td>
</tr>
</tbody>
</table>
### inf809 - Current Topics in Computer Science II

<table>
<thead>
<tr>
<th>Module label</th>
<th>Current Topics in Computer Science II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf809</td>
</tr>
<tr>
<td>Credit points</td>
<td>3.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>90 h</td>
</tr>
</tbody>
</table>
| Verwendbarkeit des Moduls | - Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik  
                          - Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik |
| Zuständige Personen   | - Nieße, Astrid (module responsibility)  
                          - Sauer, Jürgen (module responsibility)  
                          - der Informatik, Lehrende (Prüfungsberechtigt) |
| Prerequisites         | None                                                        |
| Skills to be acquired in this module | This module integrates current computer science developments within 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 limits 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
  - reflect on a scientific topic and write a scientific seminar paper under guidance and present their findings

**Social competence**
- The students

**Self competence**
- The students
  - plan their informational actions independently
  - reflect their contributions critically and discuss them with users and experts
  - collect and update their knowledge independently

**Module contents**
- According to the assigned task

**Literaturempfehlungen**
- According to the assigned task

**Links**

**Languages of instruction**
- German, English

**Duration (semesters)**
- 1 Semester

**Module frequency**
- irregular

**Module capacity**
- unlimited

**Teaching/Learning method**
- 1 Event from lecture or seminar or exercise or project or internship

**Examination**
- Prüfungszeiten
- Type of examination
  - Final exam of module
    - Portfolio or presentation or oral exam or written exam

**Form of instruction**
- VA-Auswahl

**SWS**
- 2

**Frequency**
- siehe Angebotsrhythmus Modul
### inf853 - Application Fields of Computer Science I

<table>
<thead>
<tr>
<th>Module label</th>
<th>Application Fields of Computer Science I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf853</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>- Bachelor's Programme Business Informatics (Bachelor) &gt; Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik</td>
</tr>
<tr>
<td></td>
<td>- Bachelor's Programme Computing Science (Bachelor) &gt; Akzentsetzungsbereich - Wahlbereich Informatik</td>
</tr>
<tr>
<td>Zuständige Personen</td>
<td>- Nieße, Astrid (module responsibility)</td>
</tr>
<tr>
<td></td>
<td>- Lehrenden, Die im Modul (Prüfungsberechtigt)</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>The required prerequisites are specified in the details of the assigned course.</td>
</tr>
<tr>
<td>Skills to be acquired in this module</td>
<td>The students are introduced into a different subject area and its methods.</td>
</tr>
<tr>
<td></td>
<td><strong>Professional competence</strong></td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>- know a computer science application area</td>
</tr>
<tr>
<td></td>
<td>- transfer computer science methods and development models to/with IT application area requirements</td>
</tr>
<tr>
<td></td>
<td><strong>Methodological competence</strong></td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>- know and name ways of thinking and methods of other subject areas</td>
</tr>
<tr>
<td></td>
<td><strong>Social competence</strong></td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>- communicate considerately and appropriately with users and experts</td>
</tr>
<tr>
<td></td>
<td><strong>Self-competence</strong></td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>- plan their informatical actions independently</td>
</tr>
<tr>
<td></td>
<td>- reflect their contributions critically and discuss them with users and experts</td>
</tr>
<tr>
<td>Module contents</td>
<td>According to the assigned task</td>
</tr>
<tr>
<td>Literatureempfehlungen</td>
<td>According to the assigned task</td>
</tr>
<tr>
<td>Links</td>
<td></td>
</tr>
<tr>
<td>Languages of instruction</td>
<td>German, English</td>
</tr>
<tr>
<td>Duration (semesters)</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Module frequency</td>
<td>irregular</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>2 VA aus VL, Ü, S, P, PR</td>
</tr>
<tr>
<td>Examination</td>
<td>Prüfungszeiten</td>
</tr>
<tr>
<td>Form of instruction</td>
<td>Exercises or presentation or oral exam or written exam</td>
</tr>
<tr>
<td>Final exam of module</td>
<td>Exercises or presentation or oral exam or written exam</td>
</tr>
<tr>
<td>SWS</td>
<td>4</td>
</tr>
<tr>
<td>Frequency</td>
<td>siehe Angebotsrhythmus Modul</td>
</tr>
</tbody>
</table>
Module label: Application Fields of Computer Science II

Module label: Application Fields of Computer Science II

Modulkürzel: inf854

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

Zuständige Personen:
- Nieße, Astrid (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites:
The required prerequisites are specified in the details of the assigned course.

Skills to be acquired in this module:
The students are introduced into a different subject area and its methods.

Professional competence:
The students:
- know a computer science application area
- transfer computer science methods and development models to/with IT application area requirements

Methodological competence:
The students:
- know and name ways of thinking and methods of other subject areas

Social competence:
The students:
- communicate considerately and appropriately with users and experts

Self-competence:
The students:
- plan their informatical actions independently
- reflect their contributions critically and discuss them with users and experts

Module contents:
According to the assigned task

Literaturempfehlungen:
According to the assigned task

Links:

Languages of instruction:
German, English

Duration (semesters):
1 Semester

Module frequency:
irregular

Module capacity:
unlimited

Examination:
Prüfungszeiten
Type of examination

Final exam of module:
Exercises or presentation or oral exam or written exam

Form of instruction:
VA-Auswahl

SWS:
4

Frequency:
siehe Angebotsrhythmus Modul
**inf855 - Application Fields of Computer Science III**

<table>
<thead>
<tr>
<th><strong>Module label</strong></th>
<th>Application Fields of Computer Science III</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Modulkürzel</strong></td>
<td>inf855</td>
</tr>
<tr>
<td><strong>Credit points</strong></td>
<td>6.0 KP</td>
</tr>
<tr>
<td><strong>Workload</strong></td>
<td>180 h</td>
</tr>
</tbody>
</table>

**Verwendbarkeit des Moduls**
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik

**Zuständige Personen**
- Nieße, Astrid (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**
The required prerequisites are specified in the details of the assigned course.

**Skills to be acquired in this module**
The students are introduced into a different subject area and its methods.

**Professional competence**
The students:
- know a computer science application area
- transfer computer science methods and development models to/with IT application area requirements

**Methodological competence**
The students:
- know and name ways of thinking and methods of other subject areas

**Social competence**
The students:
- communicate considerately and appropriately with users and experts

**Self-competence**
The students:
- plan their informatical actions independently
- reflect their contributions critically and discuss them with users and experts

**Module contents**
According to the assigned course

**Literaturempfehlungen**
According to the assigned course

**Links**

**Languages of instruction**
German, English

**Duration (semesters)**
1 Semester

**Module frequency**
semi-annual

**Module capacity**
unlimited

**Examination**
Prüfungszeiten
Type of examination

**Final exam of module**
Exercises or presentation or oral exam or written exam

**Form of instruction**
VA-Auswahl

**SWS**
4

**Frequency**
siehe Angebotsrhythmus Modul
### inf856 - Application Fields of Computer Science IV

<table>
<thead>
<tr>
<th>Module label</th>
<th>Application Fields of Computer Science IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf856</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></td>
</tr>
<tr>
<td></td>
<td>- Bachelor's Programme Business Informatics (Bachelor) &gt; Akzentrsetzungsbereich Praktische Informatik und Angewandte Informatik</td>
</tr>
<tr>
<td></td>
<td>- Bachelor's Programme Computing Science (Bachelor) &gt; Akzentrsetzungsbereich - Wahlbereich Informatik</td>
</tr>
<tr>
<td>Zuständige Personen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Nieße, Astrid (module responsibility)</td>
</tr>
<tr>
<td></td>
<td>- Lehrenden, Die im Modul (Prüfungsberechtigt)</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>The required prerequisites are specified in the details of the assigned course.</td>
</tr>
<tr>
<td>Skills to be acquired in this module</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The students are introduced into a different subject area and its methods.</td>
</tr>
<tr>
<td></td>
<td><strong>Professional competence</strong></td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>- know a computer science application area</td>
</tr>
<tr>
<td></td>
<td>- transfer computer science methods and development models to/with IT application area requirements</td>
</tr>
<tr>
<td></td>
<td><strong>Methodological competence</strong></td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>- know and name ways of thinking and methods of other subject areas</td>
</tr>
<tr>
<td></td>
<td><strong>Social competence</strong></td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>- communicate considerately and appropriately with users and experts</td>
</tr>
<tr>
<td></td>
<td><strong>Self-competence</strong></td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>- plan their informatical actions independently</td>
</tr>
<tr>
<td></td>
<td>- reflect their contributions critically and discuss them with users and experts</td>
</tr>
<tr>
<td>Module contents</td>
<td>According to the assigned course</td>
</tr>
<tr>
<td>Literaturempfehlungen</td>
<td>According to the assigned course</td>
</tr>
<tr>
<td>Links</td>
<td></td>
</tr>
<tr>
<td>Languages of instruction</td>
<td>German, English</td>
</tr>
<tr>
<td>Duration (semesters)</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Module capacity</td>
<td>semi-annual</td>
</tr>
<tr>
<td>Module frequency</td>
<td>semi-annual</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Examination</td>
<td>Prüfungszeiten</td>
</tr>
<tr>
<td>Final exam of module</td>
<td>Exercises or presentation or oral exam or written exam</td>
</tr>
<tr>
<td>Form of instruction</td>
<td>VA-Auswahl</td>
</tr>
<tr>
<td>SWS</td>
<td>4</td>
</tr>
<tr>
<td>Frequency</td>
<td>siehe Angebotsrhythmus Modul</td>
</tr>
</tbody>
</table>
inf857 - Application Fields of Computer Science V

<table>
<thead>
<tr>
<th>Module label</th>
<th>Application Fields of Computer Science V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf857</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**Verwendbarkeit des Moduls**
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik

**Zuständige Personen**
- Nieße, Astrid (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

**Prerequisites**
The required prerequisites are specified in the details of the assigned course.

**Skills to be acquired in this module**
The students are introduced into a different subject area and its methods.

**Professional competence**
The students:
- know a computer science application area
- transfer computer science methods and development models to with IT application area requirements

**Methodological competence**
The students:
- know and name ways of thinking and methods of other subject areas

**Social competence**
The students:
- communicate considerately and appropriately with users and experts

**Self-competence**
The students:
- plan their informatical actions independently
- reflect their contributions critically and discuss them with users and experts

**Module contents**
According to the assigned course

**Literaturempfehlungen**
According to the assigned course

**Links**

**Languages of instruction**
German, English

**Duration (semesters)**
1 Semester

**Module frequency**
semi-annual

**Module capacity**
unlimited

**Examination**
Prüfungszeiten
Type of examination

**Final exam of module**
Exercises or presentation or oral exam or written exam

**Form of instruction**
VA-Auswahl

**SWS**
4

**Frequency**
siehe Angebotsrhythmus Modul
<table>
<thead>
<tr>
<th>inf860 - Study Abroad I</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module label</strong></td>
</tr>
<tr>
<td><strong>Modulkürzel</strong></td>
</tr>
<tr>
<td><strong>Credit points</strong></td>
</tr>
<tr>
<td><strong>Workload</strong></td>
</tr>
</tbody>
</table>

**Verwendbarkeit des Moduls**
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Praktische Informatik und Angewandte Informatik
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Bachelor's Programme Computing Science (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft

**Zuständige Personen**
- Marx Gómez, Jorge (Module counselling)
- Fränzle, Martin Georg (Module counselling)
- Vogel-Sonnenschein, Ute (module responsibility)
- Sauer, Jürgen (module responsibility)

**Further responsible persons**
Studiengangsverantwortliche der Bachelor-Studiengänge des Departments für Informatik

**Prerequisites**
According to the requirements of the selected courses at the international host university

**Skills to be acquired in this module**

**Professional competence**
- depending on the chosen course at the host university

**Methodological competence**
- depending on the chosen course at the host university

The students
- organize themselves independently in the culture of the host country
- use time and other resources efficiently and in a goal-oriented manner

**Social competence**

The students
- have intercultural competence: they interact successfully and appropriately with individuals and groups from other cultures,
- communicate with people from other cultures in a targeted and respectful manner,
- have in-depth empathic skills. They empathize with other people on a cognitive and emotional level, listen carefully and attentively, and understand the opinions of others.

**Self-competence**

The students
- have generally deepened their skills in a foreign language for subject-related discourse,
- express themselves fluently in the language of their host country,
- adapt to changing living and learning environments,
- deal tolerantly with ambiguities,
- approach other people openly,
- assess their own strengths and weaknesses appropriately,
- make appropriate decisions even in difficult situations,
- work on challenges in a solution- and goal-oriented manner,
- face up to new tasks, challenges and experiences.

**Module contents**
The ongoing process of globalization requires preparation for professional for professional activities that are increasingly internationally oriented.
This requires not only foreign language skills, but also intercultural skills in particular. These skills are intensively promoted during a semester abroad. As courses at the host university can also relate to areas of knowledge that are not included in the Computer Science curriculum or are outside of Computer Science, such coursework completed in the host country can be credited via this module. The choice of courses at the host university is agreed in advance of the stay as part of a learning agreement with the student advisor or, depending on the requirements of the place of study and the study financing, with the international representatives of the Department of Computer Science.

### Literatureempfehlungen
Specification of the foreign university

### Links
- International Student Office of CvO Universität
- Web-Site of the Computer Science Department (in German)

<table>
<thead>
<tr>
<th>Languages of instruction</th>
<th>English, French, German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (semesters)</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Module frequency</td>
<td>individual</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>VA</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>none</td>
</tr>
<tr>
<td>Examination</td>
<td>Prüfungszeiten</td>
</tr>
</tbody>
</table>

#### Final exam of module
- Vorgabe der ausländischen Hochschule
- Specification of the foreign university
- Recognition must be applied for at the Academic Examinations Office.
- Transcripts of records from courses attended at the foreign university must be submitted in German or English translation.

#### Form of instruction
- VA-Auswahl
- Vorgabe der ausländischen Hochschule

#### SWS
4

#### Frequency
siehe Angebotsrhythmus Modul
inf861 - Study Abroad II

Module label  Study Abroad II
Modulkürzel  inf861
Credit points  9.0 KP
Workload  270 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
- Bachelor's Programme Computing Science (Bachelor) >> Wahlbereich Informatik, Kultur und Gesellschaft

Zuständige Personen
- Sauer, Jürgen (module responsibility)
- Vogel-Sonnenschein, Ute (module responsibility)
- Marx Gómez, Jorge (Module counselling)
- Fränzle, Martin Georg (Module counselling)

Further responsible persons
Studiengangsverantwortliche der Bachelor-Studiengänge des Departments für Informatik

Prerequisites
According to the requirements of the selected courses at the international host university

Skills to be acquired in this module

Professional competence
- depending on the chosen course at the host university

Methodological competence
- depending on the chosen course at the host university

The students
- organize themselves independently in the culture of the host country
- use time and other resources efficiently and in a goal-oriented manner

Social competence
The students
- have intercultural competence: they interact successfully and appropriately with individuals and groups from other cultures,
- communicate with people from other cultures in a targeted and respectful manner,
- have in-depth empathic skills. They empathize with other people on a cognitive and emotional level, listen carefully and attentively, and understand the opinions of others.

Self-competence
The students
- have generally deepened their skills in a foreign language for subject-related discourse,
- express themselves fluently in the language of their host country,
- adapt to changing living and learning environments,
- deal tolerantly with ambiguities,
- approach other people openly,
- assess their own strengths and weaknesses appropriately,
- make appropriate decisions even in difficult situations,
- work on challenges in a solution- and goal-oriented manner,
- face up to new tasks, challenges and experiences.

Module contents
The ongoing process of globalization requires preparation for professional activities that are increasingly internationally oriented. This requires not only foreign language skills, but also intercultural skills in particular. These skills are intensively promoted during a semester abroad. As courses at the host university can also relate to areas of knowledge that are not included in the Computer Science curriculum or are outside of Computer...
Science, such coursework completed in the host country can be credited via this module. The choice of courses at the host university is agreed in advance of the stay as part of a learning agreement with the student advisor or, depending on the requirements of the place of study and the study financing, with the international representatives of the Department of Computer Science.

### Literaturempfehlungen

Specification of the foreign university

### Links

- International Student Office of CvO Universität
- Web-Site of the Computer Science Department (in German)

<table>
<thead>
<tr>
<th>Languages of instruction</th>
<th>English, French, German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (semesters)</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Module frequency</td>
<td>individual</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>VA</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>none</td>
</tr>
<tr>
<td>Examination</td>
<td>Prüfungszeiten</td>
</tr>
<tr>
<td>Type of examination</td>
<td>Specification of the foreign university Recognition must be applied for at the Academic Examinations Office. Transcripts of records from courses attended at the foreign university must be submitted in German or English translation.</td>
</tr>
<tr>
<td>Final exam of module</td>
<td>Vorgabe der ausländischen Hochschule</td>
</tr>
<tr>
<td>Form of instruction</td>
<td>VA-Auswahl (Vorgabe der ausländischen Hochschule)</td>
</tr>
<tr>
<td>SWS</td>
<td>6</td>
</tr>
<tr>
<td>Frequency</td>
<td>siehe Angebotsrhythmus Modul</td>
</tr>
</tbody>
</table>
**Akzentsetzungsbereich Wirtschaftswissenschaften**

**wir032 - Managerial Accounting**

<table>
<thead>
<tr>
<th><strong>Module label</strong></th>
<th>Managerial Accounting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Modulkürzel</strong></td>
<td>wir032</td>
</tr>
<tr>
<td><strong>Credit points</strong></td>
<td>6.0 KP</td>
</tr>
<tr>
<td><strong>Workload</strong></td>
<td>180 h</td>
</tr>
</tbody>
</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)

**Prerequisites**

**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

**Examination**

<table>
<thead>
<tr>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>end of term</td>
<td>written exam</td>
</tr>
</tbody>
</table>

**Final exam of module**

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Tutorial</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
</tbody>
</table>

Präsenzzeit Modul insgesamt 56 h
wir041 - Introduction to economics

Module label: Introduction to economics
Modulkürzel: 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) > Wahnbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Comparative and European Law (Bachelor) > Module
- Bachelor's Programme Computing Science (Bachelor) > Wahnbereich Informatik, Kultur und Gesellschaft more...
- Bachelor's Programme Economics and Business Administration (Bachelor) > Basismodule
- Bachelor's Programme Mathematics (Bachelor) > Nebenfachmodule
- Bachelor's Programme Sustainability Economics (Bachelor) > Grundlagen-/Basiscurriculum
- 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

- Rahmeier Seyffarth, Anelise (Module counselling)
- Böhninger, 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
- be 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
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 (Stud IP).

<table>
<thead>
<tr>
<th>Examination</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td>end of semester</td>
<td>written exam; voluntary contributions that improve grades may undertaken as 'portfolio-presentations' during tutorials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>3</td>
<td></td>
<td></td>
<td>42</td>
</tr>
<tr>
<td>Tutorial</td>
<td>1</td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Präsenzzeit Modul insgesamt</td>
<td></td>
<td></td>
<td></td>
<td>56 h</td>
</tr>
</tbody>
</table>
wir060 - Financial Accounting

Module label: Financial Accounting
Modulkürzel: wir060
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 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
- International Financial Reporting Standards (IFRS)
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.

Examination
- Prüfungszeiten
- Type of examination
-written exam

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

Form of instruction
- Comment
- SWS
- Frequency
- Workload of compulsory attendance

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Exercise or tutorial</td>
<td></td>
<td>2</td>
<td>--</td>
<td>28</td>
</tr>
</tbody>
</table>

Präsenzzeit Modul insgesamt
- 56 h
**wir070 - Principles of Marketing**

<table>
<thead>
<tr>
<th>Module label</th>
<th>Principles of Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>wir070</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

### 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 Comparative and European Law (Bachelor) > Module
- Bachelor's Programme Computing Science (Bachelor) > Wahlbereich 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
- Alavi, Sascha (module responsibility)
- Lehrenden, 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 fundaments 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

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

### Form of instruction
<table>
<thead>
<tr>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Seminar und Tutorium</td>
<td>2</td>
<td>WiSe</td>
<td>28</td>
</tr>
</tbody>
</table>

### Präsenzzeit Modul insgesamt
56 h
Module label: Corporate Finance

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:

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

Language of instruction: English

Duration (semesters): 1 Semester
<table>
<thead>
<tr>
<th>Module frequency</th>
<th>jährlich</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Examination</td>
<td>Prüfungszeiten</td>
</tr>
<tr>
<td>Final exam of module</td>
<td>within three weeks after the last lecture</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>2</td>
<td>28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tutorial</td>
<td>2</td>
<td>28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Präsenzzeit Modul insgesamt</td>
<td></td>
<td>56 h</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
wir090 - Human Resource Management

Module label: Human Resource Management

Modulkürzel: wir090

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 Comparative and European Law (Bachelor) > Module
- Bachelor's Programme Computing Science (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft more...
- Bachelor's Programme Economics and Business Administration (Bachelor) > Akzentsetzungsmodule
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich
- 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)

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 heterogenous 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.

**Links**

www.uol.de/orgpers

**Language of instruction**

German

**Duration (semesters)**

1 Semester

**Module frequency**

jährlich

**Module capacity**

unlimited

**Examination**

Prüfungszeiten

Type of examination

Final exam of module

At the end of the lecture period and at the end of the semester

written exam

**Form of instruction**

Comment

SWS

Frequency

Workload of compulsory attendance

<table>
<thead>
<tr>
<th>Lecture</th>
<th>4</th>
<th>56</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercises</td>
<td>freiwillig</td>
<td>2</td>
</tr>
</tbody>
</table>

**Präsenzzeit Modul insgesamt**

84 h
### wr100 - Corporate Strategy

<table>
<thead>
<tr>
<th>Module label</th>
<th>Corporate Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>wir100</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</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) > Studienrichtung Betriebswirtschaftslehre
- 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
- 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.

#### Literatureempfehlungen

#### Links
- Language of instruction: German
- Duration (semesters): 1 Semester
- Module frequency: jährlich
- Module capacity: unlimited
- Examination: Final exam of module

<table>
<thead>
<tr>
<th>Final exam of module</th>
<th>Thesis to be handed in at the end of semester</th>
<th>Thesis</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Exercise or tutorial</td>
<td></td>
<td>2</td>
<td>WiSe</td>
<td>28</td>
</tr>
</tbody>
</table>

| Präsenzezeit Modul insgesamt | 56 h |
wir130 - Civil Law and Commercial Law

<table>
<thead>
<tr>
<th>Module label</th>
<th>Civil Law and Commercial Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>wir130</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></td>
</tr>
<tr>
<td></td>
<td>- Bachelor's Programme Informatics (Bachelor) &gt; Akzentsetzungsbereich Wirtschaftswissenschaften</td>
</tr>
<tr>
<td></td>
<td>- Bachelor's Programme Economics and Business Administration (Bachelor) &gt; Akzentsetzungsmodule</td>
</tr>
<tr>
<td></td>
<td>- Bachelor's Programme Sustainability Economics (Bachelor) &gt; Wahlpflichtbereich</td>
</tr>
<tr>
<td></td>
<td>- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) &gt; Schwerpunkt Berufliche Bildung</td>
</tr>
<tr>
<td></td>
<td>- Dual-Subject Bachelor's Programme Economics and Business Administration (Bachelor) &gt; Schwerpunkt Management und Ökonomie</td>
</tr>
<tr>
<td></td>
<td>- Master's Programme Business Informatics (Master) &gt; Module der Wirtschafts- und Rechtswissenschaften (Master)</td>
</tr>
<tr>
<td>Zuständige Personen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Rott, Peter (module responsibility)</td>
</tr>
<tr>
<td></td>
<td>- Lehrenden, Die im Modul (Prüfungsberechtigt)</td>
</tr>
<tr>
<td>Prerequisites</td>
<td></td>
</tr>
<tr>
<td>Skills to be acquired in this module</td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>- are familiar with the legal working methods, basic concepts of law in general and of civil law and commercial law in particular,</td>
</tr>
<tr>
<td></td>
<td>- 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,</td>
</tr>
<tr>
<td></td>
<td>- are able to solve legal cases in a goal-oriented way,</td>
</tr>
<tr>
<td></td>
<td>- are able to find approaches for legal problems as well as recognize liability risks and how to deal with them,</td>
</tr>
<tr>
<td></td>
<td>- are in case of contract negotiations able to recognize the requirements for regulations and to evaluate consequences of regulation.</td>
</tr>
<tr>
<td>Module contents</td>
<td>In this module students will learn the basic concepts of civil law, commercial law and company law. The mail 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 and possession. 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.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>The module will enable students to evaluate complex legal relationships in the economy discretely.</td>
</tr>
<tr>
<td>Links</td>
<td><a href="http://www.privatrecht.uni-oldenburg.de/">http://www.privatrecht.uni-oldenburg.de/</a></td>
</tr>
<tr>
<td>Language of instruction</td>
<td>German</td>
</tr>
<tr>
<td>Duration (semesters)</td>
<td>2 Semester</td>
</tr>
<tr>
<td>Module frequency</td>
<td>jährlich</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Examination</td>
<td></td>
</tr>
<tr>
<td>Final exam of module</td>
<td>end of semester</td>
</tr>
<tr>
<td>Type of examination</td>
<td>written exam</td>
</tr>
</tbody>
</table>

117 / 149
<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>4</td>
<td></td>
<td>56</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>2</td>
<td>WiSe</td>
<td>28</td>
</tr>
<tr>
<td><strong>Präsenzzeit Modul insgesamt</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>84 h</strong></td>
</tr>
</tbody>
</table>
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) > 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) > Module aus anderen Studiengängen

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
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Language of instruction</strong></td>
<td>German</td>
</tr>
<tr>
<td><strong>Duration (semesters)</strong></td>
<td>1 Semester</td>
</tr>
<tr>
<td><strong>Module frequency</strong></td>
<td>jährlich</td>
</tr>
<tr>
<td><strong>Module capacity</strong></td>
<td>unlimited</td>
</tr>
<tr>
<td><strong>Reference text</strong></td>
<td>The lecture “Strategie und Entrepreneurship” must be attended in combination with the “Tutorium”.</td>
</tr>
<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 semester</td>
</tr>
<tr>
<td><strong>Form of instruction</strong></td>
<td>Comment</td>
</tr>
<tr>
<td>Course or seminar</td>
<td>2</td>
</tr>
<tr>
<td>Tutorial</td>
<td>2</td>
</tr>
<tr>
<td><strong>Präsenzzeit Modul insgesamt</strong></td>
<td>56 h</td>
</tr>
</tbody>
</table>
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) > 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) > 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:
- Lehrende, Die im Modul (Prüfungsberechtigt)
- Bartel, Teodora (Module counselling)
- Breisig, Thomas (Module counselling)
- Prokop, Jörg (module responsibility)
- Breisig, Thomas (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

Type of module: je nach Studiengang Pflicht oder Wahlpflicht

Module level: ---

Examination:
- Prüfungszeiten
- Type of examination

Final exam of module:
- Written exam: end of the lecture period
- portfolio (group seminar paper and online test)
<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Seminar</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td><strong>Präsenzzeit Modul insgesamt</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>56 h</strong></td>
</tr>
</tbody>
</table>
wir210 - Corporate Environmental Management

Module label: Corporate Environmental Management
Modulkürzel: wir210
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 Ökologie und Nachhaltigkeit
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich
- Bachelor's Programme Business Administration (Bachelor) > Studienrichtung Wirtschaftswissenschaften
- Bachelor's Programme Computing Science (Bachelor) > Wahlpflichtbereich
- Bachelor's Programme Business Informatics (Bachelor) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Bachelor's Programme Computing Science (Master) > Module aus anderen Studiengängen

Zuständige Personen
- Siebenhüner, Bernd (module responsibility)
- Lehrenden, Die im Modul (Module counselling)

Prerequisites
- Skills to be acquired in this module
  - The students:
    - 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

Literatureempfehlungen

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

Language of instruction: German
Duration (semesters): 1 Semester
Module frequency: jährlich
Module capacity: unlimited
<table>
<thead>
<tr>
<th>Examination</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Final exam of module</strong></td>
<td>usually around Mid of March</td>
<td>HA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Seminar</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
</tbody>
</table>

**Präsenzzeit Modul insgesamt** 56 h
### Module Label

**Environmental Economics**

<table>
<thead>
<tr>
<th>Modulkürzel</th>
<th>wir260</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**Verwendbarkeit des Moduls**
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Wirtschaftswissenschaften
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Ökologie und Nachhaltigkeit
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Volkswirtschaftslehre
- Bachelor's Programme Sustainability Economics (Bachelor) > Vertiefungsmodule
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)

**Zuständige Personen**
- Lehrenden, Die im Modul (Prüfungsberechtigt)
- Huse, Cristian (module responsibility)

### 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

### Literatureempfehlungen


### Links

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

### Language of instruction

- German

### Duration (semesters)

- 1 Semester

### Module frequency

- jährlich

### Module capacity

- unlimited

### Examination

<table>
<thead>
<tr>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zum Ende der Vorlesungszeit</td>
<td>KL</td>
</tr>
</tbody>
</table>

### Form of instruction

- Lecture

### SWS

- 4

### Frequency
wir360 - Environmental and Sustainability Policies

<table>
<thead>
<tr>
<th>Module label</th>
<th>Environmental and Sustainability Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>wir360</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**Verwendbarkeit des Moduls**
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Wirtschaftswissenschaften
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Ökologie und Nachhaltigkeit
- Bachelor's Programme Sustainability Economics (Bachelor) > Vertiefungsmodule
- Master's Programme Computing Science (Master) > Module aus anderen Studiengängen

**Zuständige Personen**
- Lehrenden, Die im Modul (Prüfungsberechtigt)
- Siebenhüner, Bernd (Module counselling)
- Siebenhüner, Bernd (module responsibility)

**Prerequisites**
- none

**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

**Module contents**
- Development directions of German and European environmental and sustainability governance;
- Analysis of selected topics like energy, agriculture, chemical industry etc.;
- Principles of environmental and sustainability governance;
- Instruments of environmental and sustainability governance compared on international level;
- New mechanisms in governance;
- Relevant actors of environmental and sustainability governance (administration, industry, media, science, NGOs etc.);
- International environmental and sustainability governance

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

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

**Language of instruction**
- German

**Duration (semesters)**
- 1 Semester

**Module frequency**
- yearly

**Module capacity**
- unlimited

**Examination**
- Prüfungszeiten
- Type of examination

**Final exam of module**
- presentation

**Form of instruction**

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

**Präsenzzeit Modul insgesamt**
- 56 h
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) > Akzente- und Fächergrenzen Wirtschaftswissenschaften
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studiengang Betriebswirtschaftlehre
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlprüfungsbereich
- 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
- Alavi, Sascha (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:
- 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

Examination
Prüfungszeiten
Type of examination
Final exam of module
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
Seminar
<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Präsenzzeit Modul insgesamt</td>
<td></td>
<td></td>
<td></td>
<td>56 h</td>
</tr>
</tbody>
</table>
Module label

Computer Science Education I

Modulkürzel

inf700

Credit points

6.0 KP

Workload

180 h

Verwendbarkeit des Moduls

- Bachelor's Programme Business Informatics (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Computing Science (Bachelor) > Akzentsetzungsbereich - Wahlbereich Informatik
- Bachelor's Programme Computing Science (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Aufbaumodule (60 KP)
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Basismodule

Zuständige Personen

- Diethelm, Ira (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)

Prerequisites

- Basic knowledge of computer science

Skills to be acquired in this module

Professional competence

The students:

- characterise the different computer science education (CSE) concepts and approaches, e.g. the early approaches of CSE in school or the concept of computer science (CS) in contexts
- select and discuss teaching subjects by analysing didactic approaches and concepts
- describe the general education character of CS
- compare the different approaches and concepts of CSE and are able to illustrate common features and contradictions
- reflect lesson subjects by the approaches and topics of CSE

Methodological competence

The students:

- link the concepts and approaches of CSE with the educational reconstruction
- classify the similarities and differences of the concepts and approaches of CSE academically

Social competence

The students:

- discuss the concepts and approaches of CSE with students and lectures academically
- accept the thoughts of other students and lectures
- give and accept criticism objectively

Self-competence

The students:

- integrate the concepts and approaches of CSE into their planning and operations - reflect their self-perception with regard to the concepts and approaches of CSE

Module contents

The field of CSE is introduced by this module. Different CSE approaches and concepts are presented. These CSE approaches and concepts are, e.g.:

- early concepts of CS in schools
- general education character of CS
- idea oriented approach of CSE
- information centred approach of CSE
- CSE in elementary school
- system oriented approach Subjects like „CS projects in class“ are also part of this module.
Literaturempfehlungen


Links

<table>
<thead>
<tr>
<th>Language of instruction</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (semesters)</td>
<td>1 Semester</td>
</tr>
<tr>
<td>Module frequency</td>
<td>annual</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>1 VL + 1 Ü</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>Basic knowledge of computer science</td>
</tr>
<tr>
<td>Examination</td>
<td>Prüfungszeiten</td>
</tr>
<tr>
<td>Final exam of module</td>
<td>At the end of the lecture period</td>
</tr>
<tr>
<td>Type of examination</td>
<td>Oral exam</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td>SoSe</td>
<td>28</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>2</td>
<td>SoSe</td>
<td>28</td>
</tr>
</tbody>
</table>

Präsenzzeit Modul insgesamt 56 h
Inf851 - Computer Science and Society

<table>
<thead>
<tr>
<th>Module label</th>
<th>Computer Science and Society</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>inf851</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

Verwendbarkeit des Moduls

- Bachelor's Programme Biology (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Business Administration and Law (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Business Informatics (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Business Informatics (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Chemistry (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Comparative and European Law (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Computing Science (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Computing Science (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Economics and Business Administration (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Wirtschaftsinformatik
- Bachelor's Programme Education (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Engineering Physics (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Environmental Science (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Intercultural Education and Counselling (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Mathematics (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Physics (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Physics, Engineering and Medicine (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Social Studies (Bachelor) > Säule "Überfachliche Professionalisierung"
- Bachelor's Programme Sustainability Economics (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Art and Media (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Biology (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Chemistry (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Computing Science (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Dutch Linguistics and Literary Studies (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Economic Education (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Elementary Mathematics (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme English Studies (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme Gender Studies (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme General Education (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme German Studies (Bachelor) > Säule "Überfachliche Professionalisierung"
- Dual-Subject Bachelor's Programme History (Bachelor) > Säule "Überfachliche Professionalisierung"
• Dual-subject bachelor's programme Low German (Bachelor) > Säule "Überfachliche Professionalisierung"
• Dual-Subject Bachelor's Programme Material Culture: Textiles (Bachelor) > Säule "Überfachliche Professionalisierung"
• Dual-Subject Bachelor's Programme Mathematics (Bachelor) > Säule "Überfachliche Professionalisierung"
• Dual-Subject Bachelor's Programme Music (Bachelor) > Säule "Überfachliche Professionalisierung"
• Dual-Subject Bachelor's Programme Philosophy / Values and Norms (Bachelor) > Säule "Überfachliche Professionalisierung"
• Dual-Subject Bachelor's Programme Politics-Economics (Bachelor) > Säule "Überfachliche Professionalisierung"
• Dual-Subject Bachelor's Programme Protestant Theology and Religious Education (Bachelor) > Säule "Überfachliche Professionalisierung"
• Dual-Subject Bachelor's Programme Slavic Studies (Bachelor) > Säule "Überfachliche Professionalisierung"
• Dual-Subject Bachelor's Programme Social Studies (Bachelor) > Säule "Überfachliche Professionalisierung"
• Dual-Subject Bachelor's Programme Special Needs Education (Bachelor) > Säule "Überfachliche Professionalisierung"
• Dual-Subject Bachelor's Programme Technology (Bachelor) > Säule "Überfachliche Professionalisierung"
• Dual-Subject Bachelor's Programme Technology (Bachelor) > Säule "Überfachliche Professionalisierung"
• Fach-Bachelor Pädagogisches Handeln in der Migrationsgesellschaft (Bachelor) > Säule "Überfachliche Professionalisierung"
• Master of Education Programme (Gymnasium) Computing Science (Master of Education) > Pflichtmodule
• 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

Zuständige Personen

• Lehrenden, Die im Modul (Prüfungsberechtigt)
• Dittert, Nadine (module responsibility)

Prerequisites

no participant requirements

Skills to be acquired in this module

Graduates of the module Informatik und Gesellschaft know the history of the development of Information technology and its impact on society and are familiar with issues of data protection. They will be able, individually or in a team, to analyze the ethical and socio-political implications of different areas and applications of computer science and develop a reasoned own position on this, in particular concerning their professional responsibilities as computer scientists. They have learned to present the results of their work convincingly and suitable for their target group using appropriate media and they are able to organize events such as workshops or small conferences for that purpose.

Professional competence

The students:

• reflect on the ethical and societal aspects of selected areas of computer science
• create and design websites
• create and manage documents in a team

Methodological competence

The students:

• explore methods of structured teamwork
• organize project work
• make presentations with different media

Social competence

The students:

• develop a subject area as a team
• teach a bigger audience to appreciate their knowledge
• discuss their observations and opinions with others

Self-competence

The students:

• reflect their role in a team
• reflect their role as computer scientists in society

Module contents

In brief, topics like the following are covered:
• Computer Crime
• Computer Games
• Data Protection
• Electronic Democracy
• Ethics in Computer Science
• History of Information Technology
• Use of information technology at school
• Internet - integration or division of society?
• Artificial Intelligence
• Manipulation by War Games
• Open Source Software
• Robots in Society
• Trustworthy Systems

Literaturempfehlungen

• See reference books Informatik und Gesellschaft in BIS.
• Joseph Weizenbaum, 2001: Die Macht der Computer und die Ohnmacht der Vernunft.
• H. Klaeren u.a., (Eds.), 1999: Tübinger Studientexte Informatik und Gesellschaft. Universität Tübingen.

Links
https://uol.de/iug

Language of instruction
German

Duration (semesters)
1 Semester

Module frequency
annual

Module capacity
unlimited

Reference text
The topics for the teams are assigned during the first week of the semester

Teaching/Learning method
1VL + 1S

Previous knowledge
none

Examination
Prüfungszeiten
Type of examination

Final exam of module
During semester and at the end
Portfolio (5-6 partial performances)

Form of instruction
Comment
SWS
Frequency
Workload of compulsory attendance

Lecture
2
WiSe
28

Seminar
2
WiSe
28

Präsenzzzeit Modul insgesamt
56 h
wir041 - Introduction to economics

Module label: Introduction to economics

Modulkürzel: wir041

Credit points: 6.0 KP

Workload: 180 h

Verwendbarkeit des Moduls

- Bachelor's Programme Business Administration and Law (Bachelor) > Basisscurriculum Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Akzentsetzungsbereich Wirtschaftswissenschaften
- Bachelor's Programme Business Informatics (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft
- Bachelor's Programme Comparative and European Law (Bachelor) > Module
- Bachelor's Programme Computing Science (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-/Basisscurriculum
- 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

- Rahmeier 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
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).

<table>
<thead>
<tr>
<th>Examination</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td>end of semester</td>
<td>written exam; voluntary contributions that improve grades may undertaken as 'portfolio-presentations' during tutorials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>3</td>
<td></td>
<td>42</td>
</tr>
<tr>
<td>Tutorial</td>
<td></td>
<td>1</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Präsenzzeit Modul insgesamt</td>
<td></td>
<td></td>
<td></td>
<td>56 h</td>
</tr>
</tbody>
</table>
wir070 - Principles of Marketing

<table>
<thead>
<tr>
<th>Module label</th>
<th>Principles of Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>wir070</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**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 Comparative and European Law (Bachelor) > Module
- Bachelor's Programme Computing Science (Bachelor) > Wahlpflichtbereich Informatik, Kultur und Gesellschaft
- 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**

- Alavi, Sascha (module responsibility)
- Lehrenden, 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

**Examination**

Type of examination

- Final exam of module: end of term: written exam; voluntary contributions that improve grades may undertaken as 'portfolio-presentations' during tutorials

**Form of instruction**

<table>
<thead>
<tr>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Seminar und Tutorium</td>
<td>2</td>
<td>WiSe</td>
<td>28</td>
</tr>
<tr>
<td>Präsenzzeit Modul insgesamt</td>
<td></td>
<td></td>
<td>56 h</td>
</tr>
</tbody>
</table>
wir090 - Human Resource Management

<table>
<thead>
<tr>
<th>Module label</th>
<th>Human Resource Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>wir090</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</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 Comparative and European Law (Bachelor) > Module
- Bachelor's Programme Computing Science (Bachelor) > Wahlbereich Informatik, Kultur und Gesellschaft more...
- Bachelor's Programme Economics and Business Administration (Bachelor) > Akzentsetzungsbereich
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlbereichsbereich
- 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)

**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

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

Examination

Prüfungszeiten

Type of examination

Final exam of module

At the end of the lecture period and at the end of the semester

written exam

Form of instruction

Comment

SWS

Frequency

Workload of compulsory attendance

Lecture

freiwillig

2

WiSe

28

Präsenzzeit Modul insgesamt

84 h

139 / 149
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) > Wahlpflichtbereich
- Master of Education Programme (Vocational and Business Education) Economics and Business Administration (Master) > Mastermodule
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Computing Science (Master) > Module aus anderen Studienfächern

Zuständige Personen
- Lehrende, 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
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Language of instruction</strong></td>
<td>German</td>
</tr>
<tr>
<td><strong>Duration (semesters)</strong></td>
<td>1 Semester</td>
</tr>
<tr>
<td><strong>Module frequency</strong></td>
<td>jährlich</td>
</tr>
<tr>
<td><strong>Module capacity</strong></td>
<td>unlimited</td>
</tr>
<tr>
<td><strong>Reference text</strong></td>
<td>The lecture “Strategie und Entrepreneurship” must be attended in combination with the “Tutorium”.</td>
</tr>
<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 semester</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Form of instruction</strong></th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course or seminar</td>
<td>2</td>
<td></td>
<td>WiSe</td>
<td>28</td>
</tr>
<tr>
<td>Tutorial</td>
<td>2</td>
<td></td>
<td></td>
<td>28</td>
</tr>
</tbody>
</table>

| **Präsenzzeit Modul insgesamt** | 56 h |
### Module: 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) > 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) > 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)
- Bartel, Teodora (Module counselling)
- Breisig, Thomas (Module counselling)
- Prokop, Jörg (module responsibility)
- Breisig, Thomas (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

**Literaturempfehlungen**

**Links**
[www.uol.de/orgpers](http://www.uol.de/orgpers)

**Language of instruction**
German

**Duration (semesters)**
1 Semester

**Module frequency**
jährlich

**Module capacity**
unlimited

**Type of module**
je nach Studiengang Pflicht oder Wahlpflicht

**Module level**
---

**Examination**
Prüfungszeiten

**Final exam of module**
Written exam: end of the lecture period  
portfolio (group seminar paper and online test)
<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Seminar</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td><strong>Präsenzzeit Modul insgesamt</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>56 h</strong></td>
</tr>
</tbody>
</table>
wir210 - Corporate Environmental Management

Module label: Corporate Environmental Management
Modulkürzel: wir210
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 more...
- Bachelor's Programme Economics and Business Administration (Bachelor) > Studienrichtung Ökologie und Nachhaltigkeit
- Bachelor's Programme Sustainability Economics (Bachelor) > Wahlpflichtbereich
- Bachelor's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Bachelor's Programme Computing Science (Master) > Module aus anderen Studiengängen

Zuständige Personen
- Siebenhüner, Bernd (module responsibility)
- Lehrenden, Die im Modul (Module counselling)

Prerequisites
The students:
- 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
### Examination

<table>
<thead>
<tr>
<th>Exam Type</th>
<th>Prüfungszeiten</th>
<th>Type of examination</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Final exam of module</strong></td>
<td>usually around Mid of March</td>
<td>HA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Seminar</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Module label</th>
<th>Information Technology Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>wir806</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
</tr>
</tbody>
</table>

**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 (Gymnasium) Computing Science (Master of Education) > Pflichtmodule
- Master of Education Programme (Hauptschule and Realschule) Computing Science (Master of Education) > Mastermodule more...
- Master of Education Programme (Vocational and Business Education) Computing Science (Master of Education) > Recht und Gesellschaft
- Master's programme Business Administration: Management and Law (Master) > Basismodule
- Master's programme Business Administration: Management and Law (Master) > Schwerpunktmodule RdW - Recht
- Master's Programme Business Informatics (Master) > Module der Wirtschafts- und Rechtswissenschaften (Master)
- Master's Programme Computing Science (Master) > Module aus anderen Studiengängen

**Zuständige Personen**

- Rott, Peter (module responsibility)
- Lehrenden, Die im Modul (Prüfungsberechtigt)
- Rott, Peter (Module counselling)

**Prerequisites**

- not applicable

**Skills to be acquired in this module**

The students are familiar with the effects of digitalisation with its chances and risks in European and German private law and, in particular, consumer law. They obtain knowledge of specific areas of digitalised private law and consumer law with particular relevance for their future professional practice, are able to solve consumer law cases in a goal-oriented way, are able to find approaches for legal problems as well as recognise liability risks and how to deal with them, and are, in contract negotiations, able to recognise the requirements for regulation and to evaluate its consequences.

**Module contents**

This module conveys how new technologies impact on private law and, in particular, on consumer law. It focuses on the (modified) interpretation of existing laws but even more on the reactions of the EU and national legislators and of the judiciary to new technological developments. The module discusses, among others, distance selling law, digitalised sales law and product liability law, the law of digital content and digital services, unfair commercial practices on internet and the law of the platform economy. Finally, the module looks at enforcement.

**Literaturempfehlungen**

- to be announced in the first lecture

**Links**

- Language of instruction: German
- Duration (semesters): 1 Semester
- Module frequency: jährlich
- Module capacity: unlimited
- Type of module: Wahlpflicht / Elective
- Module level: MM (Mastermodul / Master module)
- Teaching/Learning method: Lecture and Seminar
- Previous knowledge: basic knowledge of civil law is helpful.

**Examination**

- Prüfungszeiten
- Type of examination: to be taken from the examination regulations

**Final exam of module**

- to be taken from the examination regulations
<table>
<thead>
<tr>
<th>Form of instruction</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload of compulsory attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Seminar</td>
<td></td>
<td>2</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td><strong>Präsenzzeit Modul insgesamt</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>56 h</strong></td>
</tr>
</tbody>
</table>
Abschlussmodul

bam - Bachelor Thesis Module Business Informatics

<table>
<thead>
<tr>
<th>Module label</th>
<th>Bachelor Thesis Module Business Informatics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulkürzel</td>
<td>bam</td>
</tr>
<tr>
<td>Credit points</td>
<td>15.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>450 h</td>
</tr>
<tr>
<td>Verwendbarkeit des Moduls</td>
<td>• Bachelor's Programme Business Informatics (Bachelor) &gt; Abschlussmodul</td>
</tr>
<tr>
<td>Zuständige Personen</td>
<td>• Lehrenden, Die im Modul (Prüfungsberechtigt)</td>
</tr>
<tr>
<td></td>
<td>• der Informatik, Lehrende (module responsibility)</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>No participant requirements</td>
</tr>
<tr>
<td>Skills to be acquired in this module</td>
<td>Students demonstrate the ability to conduct an in-depth scientifically oriented treatment of a topic in computer science.</td>
</tr>
<tr>
<td>Module contents</td>
<td>Current topics in computer science are worked on independently with theoretical, scientific and practical components. The results are presented in the context of a seminar (accompanying seminar, usually upper seminar of the supervising department).</td>
</tr>
<tr>
<td>Literatureempfehlungen</td>
<td>According to specification thematic</td>
</tr>
<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>
<td>every semester</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Teaching/Learning method</td>
<td>1S</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>none</td>
</tr>
<tr>
<td>Examination</td>
<td>Prüfungszeiten</td>
</tr>
<tr>
<td></td>
<td>Type of examination</td>
</tr>
<tr>
<td>Final exam of module</td>
<td>different</td>
</tr>
<tr>
<td></td>
<td>Final paper, seminar presentation</td>
</tr>
<tr>
<td>Form of instruction</td>
<td>Seminar</td>
</tr>
<tr>
<td>SWS</td>
<td>2</td>
</tr>
<tr>
<td>Frequency</td>
<td>SoSe und WiSe</td>
</tr>
</tbody>
</table>