**Module for Environmental Modelling**

**Mastermodule**

inf501 - Environmental Information Systems

<table>
<thead>
<tr>
<th>Module label</th>
<th>Environmental Information Systems</th>
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<tbody>
<tr>
<td>Module code</td>
<td>inf501</td>
</tr>
<tr>
<td>Credit points</td>
<td>6.0 KP</td>
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<tr>
<td>Workload</td>
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</tr>
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</table>

**Used in course of study**

- Master Informatik > Mastermodule
- Master Umweltmodellierung > Mastermodule
- Master Wirtschaftsinformatik > Bereichswahlmodule

**Contact person**

Module responsibility

- Ute Vogel-Sonnenschein
- Die im Modul Lehrenden

**Authorized examiners**

- Ute Vogel-Sonnenschein
- Die im Modul Lehrenden

**Entry requirements**

**Skills to be acquired in this module**

The module gives an overview of the phases and important aspects of the environmental information processing.

**Professional competence**

The students:

- apply basic processing algorithms to classify and process data
- compare, evaluate and design data structures to store spatial data efficiently
- apply basic functions of a geo-information system
- describe, evaluate and apply basic processes of data mining
- describe, evaluate and apply basic geostatistics processes
- evaluate and apply multicriteria decision making processes

**Methodological competence**

The students:

- use geoinformation systems for environmental application
- use data mining tools for data analysis

**Social competence**

The students:

- solve tasks in teams of 2-3 students
- present and discuss their solutions in class

**Self-competence**

The students:

- reflect their own behaviour with regard to the methods of environmental informatics

**Module contents**

Content of the Module: Environmental information systems make information about the general environmental state available for public management and public facilities, enterprises or interested citizens. The collection, storage and evaluation of this information is interesting for computer science.

Within the scope of the lecture we will examine the processing of environmental information step-by-step, this means:

- problems of data acquisition and data processing,
- data structures and database concepts for an efficient access to (usually) spatial data,
- introduction of data analysis (in particular from geostatistics and data mining),
- introduction of multicriteria decision processes, as well as
- the supply of data supported by meta data.
The module "Umweltinformationssysteme" is accompanied by the module "Modellbildung in Simulation ökologischer Systeme". The subjects of "Modellbildung in Simulation ökologischer Systeme" represent the dynamic aspects of environmental systems (mainly of ecological systems). Nevertheless, the modules can be taken independently from each other.

Reader's advisory

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<tr>
<th>Links</th>
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<tbody>
<tr>
<td>Language of instruction</td>
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<td>Duration (semesters)</td>
</tr>
<tr>
<td>Module frequency</td>
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<tr>
<td>Module capacity</td>
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Reference text
Associated with the module:
- inf500 Modellbildg. und Sim. ökol. Systeme

<table>
<thead>
<tr>
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<th>AS (Akzentsetzung / Accentuation)</th>
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<tr>
<td>Modulart</td>
<td>je nach Studiengang Pflicht oder Wahlpflicht</td>
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Lern-/Lehrform / Type of program

<table>
<thead>
<tr>
<th>Vorkenntnisse / Previous knowledge</th>
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<tbody>
<tr>
<td>- Informationssysteme I</td>
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<tr>
<td>- Grundlagen der Statistik</td>
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<th>Time of examination</th>
<th>Type of examination</th>
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<tr>
<td>Final exam of module</td>
<td>Second and third week after the end of the lecture period - retake before the upcoming lecture period</td>
<td>Oral exam</td>
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<table>
<thead>
<tr>
<th>Course type</th>
<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload attendance</th>
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<tr>
<td>Lecture</td>
<td></td>
<td>3.00</td>
<td></td>
<td>42 h</td>
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<td>Exercises</td>
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<td>1.00</td>
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<td>14 h</td>
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| Total time of attendance for the module | 56 h |
inf510 - Energy Information Systems

Module label: Energy Information Systems
Module code: inf510
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Master Informatik > Mastermodule
- Master Umweltmodellierung > Mastermodule
- Master Wirtschaftsinformatik > Bereichswahlmodule

Contact person:
Module responsibility: Sebastian Lehnhoff
Authorized examiners: Sebastian Lehnhoff, Die im Modul Lehrenden

Entry requirements:

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

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

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

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

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

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

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

- Crastan V.: “Elektrische Energieversorgung II”, Springer 2004

Links

- Language of instruction: German
- Duration (semesters): 1 Semester
- Module frequency: jährlich
- Module capacity: unlimited
- Modul level: AS (Akzentsetzung / Accentuation)
- Modulart: je nach Studiengang Pflicht oder Wahlpflicht

Lern- / Lehrform / Type of program

Vorkenntnisse / Previous knowledge

Examination | Time of examination | Type of examination
---|---|---
Final exam of module | At the end of the semester | Student research project or presentation

Course type | Comment | SWS | Frequency | Workload attendance
---|---|---|---|---
Lecture | 2.00 | | 28 h |
Seminar | 2.00 | | 28 h |

Total time of attendance for the module | 56 h |
inf511 - Smart Grid Management

Module label                  Smart Grid Management
Module code                  inf511
Credit points                6.0 KP
Workload                     180 h
Used in course of study      - Master Informatik > Mastermodule
                                - Master Umweltmodellierung > Mastermodule
                                - Master Wirtschaftsinformatik > Bereichswahlmodule

Contact person
Module responsibility
  - Sebastian Lehnhoff
  - Die im Modul Lehrenden

Authorized examiners
  - Sebastian Lehnhoff
  - Die im Modul Lehrenden

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

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

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

Social competence
The students:
  - create solutions in small teams
  - discuss their solutions

Self-competence
The students:
  - reflect their own use of electricity as a limited resource

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

This module deals with the technical and economical framework for a permissible electrical network as well as mathematical modelling and calculation methods to analyse conditions of electrical energy networks (in stationary conditions).
These are:

- The organisation of the EU energy market (regulatory framework, responsibility in liberalisation of electrical energy systems)
- Establishment and operation of electrical energy supply networks (network topology, statutory duties of supply, supply quality/system services, malfunctions and protection systems)
- Intelligent network management (Smart Grids), aggregation forms, machine learning approaches

### Reader’s advisory

<table>
<thead>
<tr>
<th>Suggested reading:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crastan V.: &quot;Elektrische Energieversorgung II&quot;, Springer 2004</td>
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### Links

<table>
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<tr>
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<tr>
<td>Module capacity</td>
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<tr>
<td>Modulelevel</td>
<td>AS (Akzentsetzung / Accentuation)</td>
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<tr>
<td>Modulart</td>
<td>je nach Studiengang Pflicht oder Wahlpflicht</td>
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### Lern-Lehrform / Type of program

<table>
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<td>Final exam of module</td>
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<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload attendance</th>
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<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>3.00</td>
<td></td>
<td>42 h</td>
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<tr>
<td>Exercises</td>
<td></td>
<td>1.00</td>
<td></td>
<td>14 h</td>
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### Total time of attendance for the module

| 56 h |
### Computational Intelligence I

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<td>Workload</td>
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<td>- Master Informatik &gt; Mastermodule</td>
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<td>- Master Umweltmodellierung &gt; Mastermodule</td>
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<td>Module responsibility</td>
</tr>
<tr>
<td></td>
<td>- Oliver Kramer</td>
</tr>
<tr>
<td></td>
<td>- Die im Modul Lehrenden</td>
</tr>
<tr>
<td>Authorized examiners</td>
<td>- Oliver Kramer</td>
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<td>- Die im Modul Lehrenden</td>
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<tr>
<td>Entry requirements</td>
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<tr>
<td>Skills to be acquired in this module</td>
<td>Professional competence:</td>
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<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>- recognise optimisation problems</td>
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<td></td>
<td>- implement simple algorithms of heuristic optimisation</td>
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<td></td>
<td>- critically discuss solutions and selection of methods</td>
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<td></td>
<td>- deepen previous knowledge of analysis and linear algebra</td>
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<td></td>
<td>Methodological competence</td>
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<td></td>
<td>The students:</td>
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<tr>
<td></td>
<td>- deepen programming skills</td>
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<td></td>
<td>- apply modelling skills</td>
</tr>
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<td></td>
<td>- learn about the relation between problem class and method selection</td>
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<td>Social competence</td>
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<tr>
<td></td>
<td>The students:</td>
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<td></td>
<td>- cooperatively implement content introduced in lecture</td>
</tr>
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<td></td>
<td>- evaluate own solutions and compare them with those of their peers</td>
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<td>Self-competence</td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>- evaluate own skills with reference to peers</td>
</tr>
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<td></td>
<td>- realize personal limitations</td>
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<td></td>
<td>- adapt own problem solving approaches with reference to required method competences</td>
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<tr>
<td>Module contents</td>
<td>Computational Intelligence comprises intelligent and adaptive methods for optimisation and learning. The module &quot;Computational Intelligence I&quot; concentrates on methods for evolutionary optimisation and heuristic approaches. The exercises introduce and deepen practical aspects of the implementation and algorithmic design, also taking into account application aspects.</td>
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<td>Overview of Content:</td>
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<tr>
<td></td>
<td>- foundations of optimisation</td>
</tr>
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<td></td>
<td>- genetic algorithms and evolution strategies</td>
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<td>- parameter control and self-adaptation</td>
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<td>- runtime analysis</td>
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<td>- swarm algorithms</td>
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<td>- constrained optimisation</td>
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<td></td>
<td>- multi-objective optimisation</td>
</tr>
<tr>
<td></td>
<td>- meta-modeling</td>
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**Links**

**Language of instruction**
German

**Duration (semesters)**
1 Semester

**Module frequency**
jährlich

**Module capacity**
unlimited

**Module level**
AS (Akzentsetzung / Accentuation)

**Modulart**
je nach Studiengang Pflicht oder Wahlpflicht

**Lern-Lehrform / Type of program**

**Vorkenntnisse / Previous knowledge**
- Grundlagen der Statistik

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<td>Final exam of module</td>
<td>At the end of the lecture period</td>
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<td>Written or oral exam</td>
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**Course type**

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**Workload attendance**

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**Total time of attendance for the module**
56 h
inf536 - Computational Intelligence II

Module label: Computational Intelligence II
Module code: inf536
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Master Engineering of Socio-Technical Systems > Embedded Brain Computer Interaction
- Master Informatik > Mastermodule
- Master Umweltmodellierung > Mastermodule

Contact person
Module responsibility: Oliver Kramer
Authorized examiners:
- Die im Modul Lehrenden
- Oliver Kramer

Entry requirements
Skills to be acquired in this module

Professional competence
The students:
- Recognise machine learning problems
- Implement simple algorithms of machine learning
- Critically discuss solutions and selection of methods
- Deepen previous knowledge of analysis and linear algebra

Methodological competence
The students:
- Deepen programming skills
- Apply modelling skills
- Learn about the relation between problem class and method selection

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

Self-competence
The students:
- Evaluate own skills w.r.t. peers
- Realise personal limitations
- Adapt own problem solving approaches w.r.t. required method competences

Module contents
Computational Intelligence comprises intelligent and adaptive methods for optimisation and learning. The module "Computational Intelligence II" concentrates on methods for machine learning and data mining. The exercises introduce and deepen practical aspects of the implementation and algorithmic design, also taking into account application aspects.

Overview of Content:
- Foundations of learning and classification
- Nearest neighbouring methods
- Model selection and parameter tuning
- Regression
- Support vector and kernel methods
- Clustering
- Dimensionality reduction

Reader's advisory
- HASTIE, T., TIBSHIRANI, R., FRIEDMAN, J.H.: The Elements of Statistical Learning, Springer 2009
<table>
<thead>
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<th><strong>Links</strong></th>
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<tr>
<td><strong>Languages of instruction</strong></td>
<td>German, English</td>
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<td><strong>Duration (semesters)</strong></td>
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<td><strong>Module frequency</strong></td>
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<td><strong>Module level</strong></td>
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<td><strong>Module type</strong></td>
<td>Pflicht o. Wahlpflicht / compulsory or optional</td>
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<td><strong>Lern-Lehrform / Type of program</strong></td>
<td>V+Ü</td>
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| **Vorkenntnisse / Previous knowledge** | - inf535 Computational Intelligence I  
- Statistics |
| **Examination** |    |
| **Time of examination** |    |
| **Type of examination** |    |
| **Final exam of module** | At the end of the semester | Written or oral exam |
| **Course type** | **Comment** | **SWS** | **Frequency** | **Workload attendance** |
| Lecture | 2.00 | SuSe | 28 h |
| Exercises | 2.00 | SuSe | 28 h |
| **Total time of attendance for the module** | 56 h |
inf651 - Environmental Management Information Systems I

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<td>Master Sustainability Economics and Management &gt; Ergänzungsmodule</td>
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<td>Master Umweltmodellierung &gt; Mastermodule</td>
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<td>Master Wirtschaftsinformatik &gt; Akzentsetzungsmodule Bereich Wirtschaftsinformatik</td>
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<td>Contact person</td>
<td>Module responsibility</td>
</tr>
<tr>
<td></td>
<td>• Jorge Marx Gomez</td>
</tr>
<tr>
<td></td>
<td>• Die im Modul Lehrenden</td>
</tr>
<tr>
<td>Authorized examiners</td>
<td>• Jorge Marx Gomez</td>
</tr>
<tr>
<td></td>
<td>• Die im Modul Lehrenden</td>
</tr>
<tr>
<td>Entry requirements</td>
<td>This module completes the knowledge and abilities gained in the field of Environmental Informatics and it creates a strong reference to up to date topics in the field of sustainability. The content taught in this module can directly be applied in an upcoming study and professional career.</td>
</tr>
<tr>
<td>Skills to be acquired in this module</td>
<td>Professional competence</td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>• are able to classify and explain the sustainability paradigm</td>
</tr>
<tr>
<td></td>
<td>• are aware of the current status of sustainability reporting</td>
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<tr>
<td></td>
<td>• are able to define and to model material flows</td>
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<tr>
<td></td>
<td>• have obtained know-how in the field of corporate environmental management information systems (CEMIS)</td>
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<tr>
<td></td>
<td>Methodological competence</td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>• implement CEMIS</td>
</tr>
<tr>
<td></td>
<td>• apply different techniques and methods to case studies</td>
</tr>
<tr>
<td></td>
<td>• develop new case studies in teams</td>
</tr>
<tr>
<td></td>
<td>Social competence</td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>• 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</td>
</tr>
<tr>
<td></td>
<td>• present and discuss their own results with the team and the other members of the course</td>
</tr>
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<td></td>
<td>Self-competence</td>
</tr>
<tr>
<td></td>
<td>The students:</td>
</tr>
<tr>
<td></td>
<td>• learn about their own limitations and learn to accept criticism in order to strengthen their own abilities</td>
</tr>
<tr>
<td>Module contents</td>
<td>This course teaches methods, approaches and techniques in the field of information processing in order to support solutions to problems that arise from companies' impact on the environment. In particular, ICT supported approaches of production-integrated environmental protection, environmental controlling and reporting are introduced and discussed. In order to enable the integration of such approaches into environmental protection, environmental management and its systems are taught as well.</td>
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<tr>
<td></td>
<td>The content in detail:</td>
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<tr>
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<td>• environmental management as a basis for sustainability</td>
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<td>• sustainability and material flow management</td>
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<td>• strategic environmental management</td>
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<td>• eco-controlling life cycle</td>
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<td>• characteristics and system architectures of CEMIS</td>
</tr>
<tr>
<td></td>
<td>• standard software systems</td>
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</table>
- environmental accounting systems

Reader's advisory


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

Language of instruction
German

Duration (semesters)
1 Semester

Module frequency
jährlich

Module capacity
unlimited

Modullevel
AS (Akzentsetzung / Accentuation)

Modulart
je nach Studiengang Pflicht oder Wahlpflicht

Lern-/Lehrform / Type of program
V+Ü

Previous knowledge

<table>
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<tr>
<th>Examination</th>
<th>Time of examination</th>
<th>Type of examination</th>
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<tbody>
<tr>
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<td>At the end of the lecture period</td>
<td>exercises and written exam (max. 120 min.)</td>
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Course type

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Total time of attendance for the module
56 h
inf659 - Environmental Management Information Systems II

Module label: Environmental Management Information Systems II
Module code: inf659
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Master Informatik > Mastermodule
- Master Sustainability Economics and Management > Ergänzungsmodule
- Master Umweltmodellierung > Mastermodule
- Master Wirtschaftsinformatik > Akzentsetzungsmodule Bereich Wirtschaftsinformatik

Contact person
Module responsibility: Jorge Marx Gomez

Authorized examiners:
- Jorge Marx Gomez
- Die im Modul Lehrenden

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

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

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

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

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

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

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

Hershey (PA), London

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

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<th><a href="http://www.wi-ol.de">http://www.wi-ol.de</a></th>
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inf980 - Introduction to Computer Science for Natural Science Students

Module label
Introduction to Computer Science for Natural Science Students

Module code
inf980

Credit points
6.0 KP

Workload
180 h

Used in course of study

- Fach-Bachelor Betriebswirtschaftslehre für Leistungssportlerinnen und Leistungssportler > PP
  "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Fach-Bachelor Betriebswirtschaftslehre für Leistungssportlerinnen und Leistungssportler > Säule
  "Überfachliche Professionalisierung"
- Fach-Bachelor Betriebswirtschaftslehre mit juristischem Schwerpunkt > PP "Medieninformatik für
  Studierende musisch-künstlerischer Fächer"
- Fach-Bachelor Betriebswirtschaftslehre mit juristischem Schwerpunkt > Säule "Überfachliche
  Professionalisierung"
- Fach-Bachelor Biologie > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer" more...
- Fach-Bachelor Biologie > Säule "Überfachliche Professionalisierung"
- Fach-Bachelor Business Administration in mittelständischen Unternehmen > PP "Medieninformatik für
  Studierende musisch-künstlerischer Fächer"
- Fach-Bachelor Business Administration in mittelständischen Unternehmen > Säule "Überfachliche
  Professionalisierung"
- Fach-Bachelor Chemie > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Fach-Bachelor Chemie > Säule "Überfachliche Professionalisierung"
- Fach-Bachelor Comparative and European Law > PP "Medieninformatik für Studierende musisch-
  künstlerischer Fächer"
- Fach-Bachelor Comparative and European Law > Säule "Überfachliche Professionalisierung"
- Fach-Bachelor Engineering Physics > PP "Medieninformatik für Studierende musisch-künstlerischer
  Fächer"
- Fach-Bachelor Engineering Physics > Säule "Überfachliche Professionalisierung"
- Fach-Bachelor Informatik > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Fach-Bachelor Informatik > Säule "Überfachliche Professionalisierung"
- Fach-Bachelor Interkulturelle Bildung und Beratung > PP "Medieninformatik für Studierende musisch-
  künstlerischer Fächer"
- Fach-Bachelor Interkulturelle Bildung und Beratung > Säule "Überfachliche Professionalisierung"
- Fach-Bachelor Mathematik > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Fach-Bachelor Mathematik > Säule "Überfachliche Professionalisierung"
- Fach-Bachelor Nachhaltigkeitsökonomik > PP "Medieninformatik für Studierende musisch-
  künstlerischer Fächer"
- Fach-Bachelor Nachhaltigkeitsökonomik > Säule "Überfachliche Professionalisierung"
- Fach-Bachelor Pädagogik > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Fach-Bachelor Pädagogik > Säule "Überfachliche Professionalisierung"
- Fach-Bachelor Pädagogisches Handeln in der Migrationsgesellschaft > PP "Medieninformatik für
  Studierende musisch-künstlerischer Fächer"
- Fach-Bachelor Pädagogisches Handeln in der Migrationsgesellschaft > Säule "Überfachliche
  Professionalisierung"
- Fach-Bachelor Physik > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Fach-Bachelor Physik > Säule "Überfachliche Professionalisierung"
- Fach-Bachelor Physik, Technik und Medizin > PP "Medieninformatik für Studierende musisch-
  künstlerischer Fächer"
- Fach-Bachelor Physik, Technik und Medizin > Säule "Überfachliche Professionalisierung"
- Fach-Bachelor Sozialwissenschaften > PP "Medieninformatik für Studierende musisch-künstlerischer
  Fächer"
- Fach-Bachelor Sozialwissenschaften > Säule "Überfachliche Professionalisierung"
- Fach-Bachelor Umweltwissenschaften > PP "Medieninformatik für Studierende musisch-künstlerischer
  Fächer"
- Fach-Bachelor Umweltwissenschaften > Säule "Überfachliche Professionalisierung"
- Fach-Bachelor Wirtschaftsinfomatik > PP "Medieninformatik für Studierende musisch-künstlerischer
  Fächer"
- Fach-Bachelor Wirtschaftswissenschaften > PP "Medieninformatik für Studierende musisch-
  künstlerischer Fächer"
- Fach-Bachelor Wirtschaftswissenschaften > Säule "Überfachliche Professionalisierung"
- Master Umweltmodellierung > Mastermodule
- Zwei-Fächer-Bachelor Anglistik > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Anglistik > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Biologie > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Biologie > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Chemie > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Chemie > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Elementarmathematik > PP "Medieninformatik für Studierende musisch-
  künstlerischer Fächer"
- Zwei-Fächer-Bachelor Elementarmathematik > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Ev. Theologie und Religionspädagogik > PP "Medieninformatik für Studierende
musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Ev. Theologie und Religionspädagogik > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Gender Studies > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Gender Studies > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Germanistik > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Germanistik > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Geschichte > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Geschichte > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Informatik > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Informatik > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Interdisziplinäre Sachbildung > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Interdisziplinäre Sachbildung > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Kunst und Medien > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Kunst und Medien > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Materiele Kultur: Textil > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Materiele Kultur: Textil > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Mathematik > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Mathematik > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Musik > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Musik > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Niederlandistik > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Niederlandistik > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Ökonomische Bildung > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Ökonomische Bildung > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Pädagogik > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Pädagogik > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Philosophie / Werte u. Normen > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Philosophie / Werte u. Normen > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Physik > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Physik > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Politik-Wirtschaft > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Politik-Wirtschaft > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Sozialwissenschaften > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Sozialwissenschaften > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Sportwissenschaft > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Sportwissenschaft > Säule "Überfachliche Professionalisierung"
- Zwei-Fächer-Bachelor Wirtschaftswissenschaften > PP "Medieninformatik für Studierende musisch-künstlerischer Fächer"
- Zwei-Fächer-Bachelor Wirtschaftswissenschaften > Säule "Überfachliche Professionalisierung"

Contact person

Module responsibility
- Ute Vogel-Sonnenschein

Authorized examiners
- Die im Modul Lehrenden

Entry requirements

Skills to be acquired in this module

Module contents

Reader's advisory

Links

Language of instruction German
<table>
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mar353 - Grundlagen mathematischer Modellierung

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| Used in course of study   | Master Marine Umweltwissenschaften > Mastermodule  
|                           | Master Umweltmodellierung > Mastermodule |
| Contact person            |                                       |
| Entry requirements        |                                       |
| Skills to be acquired in this module |                       |
| Module contents           |                                       |
| Reader's advisory         |                                       |
| Links                     |                                       |
| Language of instruction   | German                                |
| Duration (semesters)      | 1 Semester                            |
| Module frequency          |                                       |
| Module capacity           | unlimited                             |
| Modulelevel               | ---                                   |
| Modulart                  | je nach Studiengang Pflicht oder Wahlpflicht |

Lern-/Lehrform / Type of program

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Total time of attendance for the module 56 h
mar354 - Advanced mathematical modelling

Module label: Advanced mathematical modelling
Module code: mar354
Credit points: 6.0 KP
Workload: 180 h
Used in course of study:
- Master Marine Umweltwissenschaften > Mastermodule
- Master Umweltmodellierung > Mastermodule

Contact person
Entry requirements
Skills to be acquired in this module
Module contents
Reader's advisory
Links
Language of instruction: German
Duration (semesters): 1 Semester

Module frequency
Module capacity: unlimited
Modullevel: ---
Modulart: je nach Studiengang Pflicht oder Wahlpflicht

Lern-/Lehrform / Type of program
Vorkenntnisse / Previous knowledge

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mar355 - Physikalische Ozeanographie

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**Used in course of study**
- Master Marine Umweltwissenschaften > Mastermodule
- Master Umweltmodellierung > Mastermodule

**Language of instruction**
German

**Duration (semesters)**
1 Semester

**Module frequency**
unlimited

**Lern-Lehrform / Type of program**
je nach Studiengang Pflicht oder Wahlpflicht

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**Total time of attendance for the module**
56 h
mar356 - Ozean-Klima-Umweltphysik

Module label: Ozean-Klima-Umweltphysik
Module code: mar356
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Master Marine Umweltwissenschaften > Mastermodule
- Master Umweltmodellierung > Mastermodule

Contact person
Entry requirements
Skills to be acquired in this module
Module contents
Reader's advisory
Links
Language of instruction: German
Duration (semesters): 1 Semester

Module frequency
Module capacity: unlimited
Lern-/Lehrform / Type of program
Vorkenntnisse / Previous knowledge

Examination
Type of examination
Final exam of module
KL

Course type
Comment
SWS
Frequency
Workload attendance
Lecture
2.00
SuSe or WiSe
28 h
Exercises
2.00
SuSe or WiSe
28 h

Total time of attendance for the module
56 h
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Master Umweltmodellierung > Mastermodule |
| **Contact person** | |
| **Entry requirements** | |
| **Skills to be acquired in this module** | |
| **Module contents** | |
| **Reader's advisory** | |
| **Links** | |
| **Language of instruction** | German |
| **Duration (semesters)** | 1 Semester |
| **Module frequency** | |
| **Module capacity** | unlimited |
| **Modullevel** | --- |
| **Modulart** | je nach Studiengang Pflicht oder Wahlpflicht |
| **Lern-Lehrform / Type of program** | |
| **Vorkenntnisse / Previous knowledge** | |
| **Examination** | **Time of examination** | **Type of examination** |
| **Final exam of module** | | KL |
| **Course type** | Lecture |
| **SWS** | 4.00 |
| **Frequency** | SuSe or WiSe |
| **Workload attendance** | 56 h |
mar363 - Theorie ökologischer Gemeinschaften

Module label: Theorie ökologischer Gemeinschaften
Module code: mar363
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Master Marine Umweltwissenschaften > Mastermodule
- Master Umweltmodellierung > Mastermodule

Contact person

Entry requirements

Skills to be acquired in this module

Module contents

Reader's advisory

Links

Language of instruction: German
Duration (semesters): 1 Semester

Module frequency: unlimited
Module level: ---
Module art: je nach Studiengang Pflicht oder Wahlpflicht

Lern-/Lehrform / Type of program

Vorkenntnisse / Previous knowledge

Examination: Time of examination: Type of examination

Final exam of module: KL

Course type: Comment: SWS Frequency: Workload attendance
Lecture: 2.00 SuSe or WiSe 28 h
Exercises: 2.00 SuSe or WiSe 28 h

Total time of attendance for the module: 56 h
mar364 - Zeitreihenanalyse

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</table>
  - Master Marine Sensorik > Mastermodule  
  - Master Marine Umweltwissenschaften > Mastermodule  
  - Master Umweltmodellierung > Mastermodule |

**Contact person**

**Entry requirements**

**Skills to be acquired in this module**

**Module contents**

**Reader's advisory**

**Links**

**Language of instruction** | German |
|-----------------------------|--------|
**Duration (semesters)** | 1 Semester |

**Module frequency**

**Module capacity** | unlimited |

**Modul level** | --- |

**Modulart** | je nach Studiengang Pflicht oder Wahlpflicht |

**Lern-/Lehrform / Type of program**

**Vorkenntnisse / Previous knowledge**

**Examination** | Time of examination | Type of examination |
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**Course type** | Comment | SWS | Frequency | Workload attendance |
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**Total time of attendance for the module** | 56 h |
mar365 - Stochastische Prozesse

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**Used in course of study**
- Master Marine Umweltwissenschaften > Mastermodule
- Master Umweltmodellierung > Mastermodule

**Contact person**

**Entry requirements**

**Skills to be acquired in this module**

**Module contents**

**Reader's advisory**

**Links**

**Language of instruction**
- German

**Duration (semesters)**
- 1 Semester

**Module frequency**

**Module capacity**
- unlimited

**Module level**
- ---

**Module art**
- je nach Studiengang Pflicht oder Wahlpflicht

**Lern-/Lehrform / Type of program**

**Vorkenntnisse / Previous knowledge**

**Final exam of module**

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mar367 - Ozeanmodelle

Module label | Ozeanmodelle
--- | ---
Module code | mar367
Credit points | 6.0 KP
Workload | 180 h

Used in course of study
- Master Marine Sensorik > Mastermodule
- Master Marine Umweltwissenschaften > Mastermodule
- Master Umweltmodellierung > Mastermodule

Contact person

Entry requirements

Skills to be acquired in this module

Module contents

Reader's advisory

Links

Language of instruction | German
Duration (semesters) | 1 Semester

Module frequency

Module capacity | unlimited

Modullevel | ---

Modulart | je nach Studiengang Pflicht oder Wahlpflicht

Lern-/Lehrform / Type of program

Vorkenntnisse / Previous knowledge

Examination | Time of examination | Type of examination
--- | --- | ---

Final exam of module | KL

Course type | Comment | SWS | Frequency | Workload attendance
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Lecture | | 2.00 | SuSe or WiSe | 28 h
Exercises | | 2.00 | SuSe or WiSe | 28 h

Total time of attendance for the module | 56 h
mar368 - Klimamodelle

Module label: Klimamodelle
Module code: mar368
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Master Marine Umweltwissenschaften > Mastermodule
- Master Umweltmodellierung > Mastermodule

Contact person:

Entry requirements:

Skills to be acquired in this module:

Module contents:

Reader's advisory:

Links:

Language of instruction: German
Duration (semesters): 1 Semester

Module frequency:
Module capacity: unlimited
Module level: ---
Module art: je nach Studiengang Pflicht oder Wahlpflicht

Lern-Lehrform / Type of program:

Vorkenntnisse / Previous knowledge:

Examination Time of examination Type of examination

Final exam of module

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mar369 - Kritische Zustände im System Erde: Kipppunkte und Resilienz

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Duration (semesters): 1 Semester
Module capacity: unlimited
Modulart: je nach Studiengang Pflicht oder Wahlpflicht

Lern-Lehrform / Type of program

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Total time of attendance for the module: 56 h
mar374 - Nichtlineare Dynamik im Erdsystem

Module label: Nichtlineare Dynamik im Erdsystem
Module code: mar374
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Master Marine Umweltwissenschaften > Mastermodule
- Master Umweltmodellierung > Mastermodule

Contact person
Entry requirements
Skills to be acquired in this module

Module contents
Reader's advisory
Links

Language of instruction: German
Duration (semesters): 1 Semester

Module frequency: unlimited
Module level: ---
Module type: je nach Studiengang Pflicht oder Wahlpflicht

Lern-/Lehrform / Type of program

Vorkenntnisse / Previous knowledge

Examination Time of examination Type of examination

Final exam of module

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**Used in course of study**
- Master Marine Umweltwissenschaften > Mastermodule
- Master Umweltmodellierung > Mastermodule

**Contact person**

**Entry requirements**

**Skills to be acquired in this module**

**Module contents**

**Reader's advisory**

**Links**

**Language of instruction**

**Duration (semesters)**

1 Semester

**Module frequency**

**Module capacity**

unlimited

**Modulart**

---

**Lern-/Lehrform / Type of program**

**Vorkenntnisse / Previous knowledge**

**Examination**

**Time of examination**

**Type of examination**

**Final exam of module**

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**Total time of attendance for the module**

56 h
**mar376 - Statistische Ökologie**

**Module label**  
Statistische Ökologie

**Module code**  
mar376

**Credit points**  
6.0 KP

**Workload**  
180 h

**Used in course of study**  
- Master Marine Umweltwissenschaften > Mastermodule
- Master Umweltmodelierung > Mastermodule

**Contact person**

**Entry requirements**

**Skills to be acquired in this module**

**Module contents**

**Reader's advisory**

**Links**

**Language of instruction**  
German

**Duration (semesters)**  
1 Semester

**Module frequency**

**Module capacity**  
unlimited

**Module level**  
---

**Moduleart**  
je nach Studiengang Pflicht oder Wahlpflicht

**Lern-Lehrform / Type of program**

**Vorkenntnisse / Previous knowledge**

**Examination**  
Time of examination  
Type of examination

**Final exam of module**  

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**Total time of attendance for the module**  
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  - Master Marine Umweltwissenschaften > Mastermodule  
  - Master Umweltmodellierung > Mastermodule |
| Contact person |  
| Entry requirements |  
| Skills to be acquired in this module |  
| Module contents |  
| Reader's advisory |  
| Links |  
| Language of instruction | German |
| Duration (semesters) | 1 Semester |
| Module frequency |  
| Module capacity | unlimited |
| Module level | --- |
| Moduleart | je nach Studiengang Pflicht oder Wahlpflicht |
| Lern-Lehrform / Type of program |  
| Vorkenntnisse / Previous knowledge |  
| Examination | Time of examination | Type of examination |
| Final exam of module |  
| Course type | Lecture |
| SWS | 4.00 |
| Frequency | SuSe or WiSe |
| Workload attendance | 56 h |
mar432 - Biogeochemie

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**Used in course of study**
- Master Marine Umweltwissenschaften > Mastermodule
- Master Umweltmodellierung > Mastermodule

**Contact person**

**Entry requirements**

**Skills to be acquired in this module**

**Module contents**

**Reader's advisory**

**Links**

**Language of instruction**
- German

**Duration (semesters)**
- 1 Semester

**Module frequency**

**Module capacity**
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**Modulart**
- je nach Studiengang Pflicht oder Wahlpflicht

**Lern-/Lehrform / Type of program**

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**Vorkenntnisse / Previous knowledge**

**Course type** | **Comment** | **SWS** | **Frequency** | **Workload attendance**
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Seminar | | 2.00 | SuSe or WiSe | 28 h

**Total time of attendance for the module**
- 56 h
**mar438 - Marine Umweltchemie**

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Duration (semesters): 1 Semester

Module capacity: unlimited

Moduleart: je nach Studiengang Pflicht oder Wahlpflicht

Language of instruction: German

Lern-/Lehrform / Type of program: 

Examination: 

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mar457 - Ökologie benthischer Mikroorganismen

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mar458 - Gewässerökologie

Module label | Gewässerökologie
Module code | mar458
Credit points | 6.0 KP
Workload | 180 h

Used in course of study
- Master Marine Umweltwissenschaften > Mastermodule
- Master Umweltmodellierung > Mastermodule

Contact person

Entry requirements

Skills to be acquired in this module

Module contents

Reader’s advisory

Links

Language of instruction | German
Duration (semesters) | 1 Semester

Module frequency

Module capacity | unlimited
Module level | ---
Module type | je nach Studiengang Pflicht oder Wahlpflicht

Lern-Lehrform / Type of program

Vorkenntnisse / Previous knowledge

Examination | Time of examination | Type of examination
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Final exam of module | | KL

Course type

SWS | 4.00
Frequency | SuSe or WiSe
Workload attendance | 56 h
mar459 - Macrobenthos communities

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**Used in course of study**
- Master Marine Umweltwissenschaften > Mastermodule
- Master Umweltmodellierung > Mastermodule

**Contact person**

**Entry requirements**

**Skills to be acquired in this module**

**Module contents**

**Reader's advisory**

**Links**

**Language of instruction**
- German

**Duration (semesters)**
- 1 Semester

**Module frequency**

**Module capacity**
- unlimited

**Modulart**
- ---

**Lern-/Lehrform / Type of program**

**Vorkenntnisse / Previous knowledge**

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**Total time of attendance for the module**
- 56 h
mar461 - Functional marine biodiversity

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Module level: ---
Modulart: je nach Studiengang Pflicht oder Wahlpflicht

Language of instruction: German

Vorkenntnisse / Previous knowledge:

Exam type:
- KL

Course type:
- Vorlesung und Übung

SWS:
- 4.00

Frequency:
- SuSe or WiSe

Workload attendance:
- 56 h
mar671 - Statistik-Software R: Einführung

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Lern-Lehrform / Type of program

Vorkenntnisse / Previous knowledge

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Total time of attendance for the module | 56 h
**mar672 - Bodenkunde, Hydrologie und Ökosystem**

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**Lern-/Lehrform / Type of program**

**Vorkenntnisse / Previous knowledge**

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mar673 - Hydrogeologie

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**Total time of attendance for the module**: 56 h
mar700 - Introduction to Environmental Modelling

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Entry requirements

Skills to be acquired in this module

Module contents

Reader's advisory

Links

Language of instruction | German
Duration (semesters)    | 1 Semester
Module frequency
Module capacity | unlimited
Module level | ---
Moduleart | je nach Studiengang Pflicht oder Wahlpflicht

Lern-Lehrform / Type of program

Vorkenntnisse / Previous knowledge

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Course type | Comment | SWS | Frequency | Workload attendance |
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Lecture     |         | 2.00| WiSe      | 28 h                |
Exercises   |         | 2.00| WiSe      | 28 h                |

Total time of attendance for the module | 56 h
mar710 - Fundamental Competences

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Entry requirements

Skills to be acquired in this module

Module contents

Reader's advisory

Links

Languages of instruction | German, English
Duration (semesters)     | 1 Semester
Module frequency         | ---
Module capacity          | unlimited
Modullevel               | ---
Modulart                 | je nach Studiengang Pflicht oder Wahlpflicht

Lern-Lehrform / Type of program

Vorkenntnisse / Previous knowledge

Examination | Time of examination | Type of examination
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Final exam of module

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Total time of attendance for the module | 56 h

Comment | SWS | Frequency | Workload attendance
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mar715 - Grundlagen Biologie/Ökologie

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**Language of instruction:** German

**Duration (semesters):** 1 Semester

**Module capacity:** unlimited

**Modulart:** je nach Studiengang Pflicht oder Wahlpflicht

**SWS:** 4.00

**Frequency:** SuSe or WiSe

**Workload attendance:** 56 h
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**Vorkenntnisse / Previous knowledge**

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**Course type**

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**SWS**

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mar717 - Statistische Umweltmodellierung

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| Workload attendance | 180 h |
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mar719 - Mathematische Modellierung

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| Contact person          |                          |

| Skills to be acquired in this module |                          |

| Module contents          |                          |

| Reader's advisory        |                          |

| Links                    |                          |

| Entry requirements       |                          |

| Language of instruction  | German                   |
| Duration (semesters)     | 1 Semester               |
| Module frequency         |                          |
| Module capacity          | unlimited                |
| Modullevel               | ---                      |
| Modulart                 | je nach Studiengang Pflicht oder Wahlpflicht |

| Lern-Lehrform / Type of program |                          |

| Vorkenntnisse / Previous knowledge |                          |

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mar720 - Environmental Systems and Biodiversity

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Entry requirements

Skills to be acquired in this module

Module contents

Reader's advisory

Links

Languages of instruction | German, English
Duration (semesters)     | 2 Semester
Module frequency

Module capacity | unlimited
Module level | ---
Modulart | je nach Studiengang Pflicht oder Wahlplicht

Lern-Lehrform / Type of program

Vorkenntnisse / Previous knowledge

Examination | Time of examination | Type of examination
Final exam of module | M

Course type | Course selection
SWS | 4.00
Frequency | WiSe
Workload attendance | 56 h
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mar723 - Biodiversität der Pflanzen

Module label: Biodiversität der Pflanzen
Module code: mar723
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Master Umweltmodellierung > Mastermodule

Contact person

Entry requirements

Skills to be acquired in this module

Module contents

Reader's advisory

Links

Language of instruction: German

Duration (semesters): 1 Semester

Module frequency

Module capacity: unlimited

Modullevel: ---

Modulart: je nach Studiengang Pflicht oder Wahlpflicht

Lern-Lehrform / Type of program

Vorkenntnisse / Previous knowledge

Examination Time of examination Type of examination

Final exam of module

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**Contact person**

- Module responsibility
  - Detlev Heinemann
  - Alle hier genannten

- Module counseling
  - Joachim Peinke
  - Jürgen Parisi
  - Gerald Steinfeld
  - Bernhard Stoevesandt

**Entry requirements**

**Skills to be acquired in this module**

**Module contents**

**Reader's advisory**

**Links**

- Languages of instruction: German, English
- Duration (semesters): 2 Semester
- Module frequency: ---
- Module capacity: unlimited
- Modulart: je nach Studiengang Pflicht oder Wahlpflicht

**Lern-Lehrform / Type of program**

**Vorkenntnisse / Previous knowledge**

**Examination**

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**Total time of attendance for the module**

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### Course type

- Vorlesung und Übung

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**Total time of attendance for the module**

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mar734 - Solar Resource and its Application

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Skills to be acquired in this module

Module contents

Reader's advisory

Language of instruction | German |
Duration (semesters)    | 1 Semester |
Module frequency        |            |
Module capacity         | unlimited  |
Modullevel              | ---       |
Moduleart               | je nach Studiengang Pflicht oder Wahlpflicht |

Lern-Lehrform / Type of program

Vorkenntnisse / Previous knowledge

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Total time of attendance for the module 56 h
mar735 - Bioenergy

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mar736 - Energy Systems

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Lern-Lehrform / Type of program

Vorkenntnisse / Previous knowledge

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Course type

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mar740 - Environmental and Resource Economy

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<td>• Carsten Helm</td>
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Entry requirements

Skills to be acquired in this module

Module contents

Reader's advisory

Links

Languages of instruction German, English

Duration (semesters) 2 Semester

Module capacity unlimited

Module level ---

Modulart je nach Studiengang Pflicht oder Wahlpflicht

Lern-Lehrform / Type of program

Vorkenntnisse / Previous knowledge

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Course type Lecture

SWS 0.00

Frequency WiSe

Workload attendance 0 h
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mar743 - Energie- und Klimawandel-Ökonomie

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Lern-Lehrform / Type of program

Vorkenntnisse / Previous knowledge

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Course type

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SWS

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Contact person
- Module responsibility
  - Ulrike Feudel
- Authorized examiners
  - Alle hier genannten
- Module counciling
  - Jan Freund
  - Bernd Blasius
  - Jörg-Olaf Wolff
  - Emil Vassilev Stanev
  - Joachim Peinke

Entry requirements

Skills to be acquired in this module

Module contents

Reader's advisory

Links

Languages of instruction | German, English
Duration (semesters) | 2 Semester

Module frequency

Module capacity | unlimited

Module level | ---

Module art | je nach Studiengang Pflicht oder Wahlpflicht

Lern-Lehrform / Type of program

Vorkenntnisse / Previous knowledge

Examination | Time of examination | Type of examination
--- | --- | ---
Final exam of module | G

Course type | Course selection

SWS | 4.00
Frequency | WiSe
Workload attendance | 56 h
### mar754 - Modellierung komplexer Systeme

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**Reader's advisory**: 

**Links**: 

**Language of instruction**: German

**Duration (semesters)**: 1 Semester

**Module frequency**: 

**Module capacity**: unlimited

**Modullevel**: ---

**Modulart**: je nach Studiengang Pflicht oder Wahlpflicht

**Lern-Lehrform / Type of program**: 

**Vorkenntnisse / Previous knowledge**: 

**Examination**: 

**Course type**: Seminar

**SWS**: 4.00

**Frequency**: SuSe or WiSe

**Workload attendance**: 56 h
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| <strong>Time</strong>        | 4.00    |
| <strong>Frequency</strong>   | SuSe or WiSe |
| <strong>Workload attendance</strong> | 56 h |</p>
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mar760 - Statistical Environmental Modelling

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Entry requirements

Skills to be acquired in this module

Module contents

Reader's advisory

Links

Languages of instruction | German, English |
Duration (semesters)      | 2 Semester     |
Module frequency          | ---            |
Module capacity           | unlimited      |
Module level              | ---            |
Modulart                  | je nach Studiengang Pflicht oder Wahlpflicht |

Lern-Lehrform / Type of program

Vorkenntnisse / Previous knowledge

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Total time of attendance for the module | 56 h
mar768 - Statistische Analyse

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<td>Skills to be acquired in this module</td>
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<td>Module contents</td>
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| Workload attendance | 67 / 82 |
mar770 - Modelling of Large Systems

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<tr>
<td>Michael Sonnenschein</td>
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<tr>
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<td>Ute Vogel-Sonnenschein</td>
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<td>Angelika May</td>
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<td>Andreas Winter</td>
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Entry requirements

Skills to be acquired in this module

Module contents

Reader's advisory

Links

Languages of instruction German, English

Duration (semesters) 2 Semester

Module frequency

Module capacity unlimited

Module level ---

Modulart je nach Studiengang Pflicht oder Wahlpflicht

Lern-Lehrform / Type of program

Vorkenntnisse / Previous knowledge

Examination Time of examination Type of examination

Final exam of module G

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Total time of attendance for the module 56 h
mar779 - Computerorientierte Physik

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mar780 - Practical Seminar Modelling Study

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<td>• Ulrike Feudel</td>
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**Entry requirements**

**Skills to be acquired in this module**

**Module contents**

**Reader's advisory**

**Links**

**Languages of instruction** German, English

**Duration (semesters)** 1 Semester

**Module frequency**

**Module capacity** unlimited

**Modulart** je nach Studiengang Pflicht oder Wahlpflicht

**Lern-Lehrform / Type of program**

**Vorkenntnisse / Previous knowledge**

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**Course type** Course selection

**SWS** 4.00

**Frequency** WiSe

**Workload attendance** 56 h
mar790 - Supplementary Modules

Module label: Supplementary Modules
Module code: mar790
Credit points: 18.0 KP
Workload: 540 h

Used in course of study:
- Master Umweltmodellierung > Mastermodule

Contact person:

Entry requirements:

Skills to be acquired in this module:

Module contents:

Reader's advisory:

Links:

Languages of instruction:

Duration (semesters): 1 Semester
Module frequency:
Module capacity: unlimited
Modullevel: ---
Modulart: je nach Studiengang Pflicht oder Wahlpflicht

Lern-Lehrform / Type of program:

Vorkenntnisse / Previous knowledge:

Examination | Time of examination | Type of examination
---|---|---
Final exam of module | G

Course type | Comment | SWS | Frequency | Workload attendance
---|---|---|---|---
Lecture | 2.00 | WiSe | 28 h
Seminar | 0 h
Exercises | 2.00 | WiSe | 28 h

Total time of attendance for the module: 56 h
mar800 - Research Project

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**Contact person**

- Module responsibility
  - Ulrike Feudel
- Authorized examiners
  - Alle hier genannten
- Module counseling
  - Lehrende Umweltmodellierung

**Entry requirements**

**Skills to be acquired in this module**

**Module contents**

**Reader's advisory**

**Links**

**Languages of instruction**

- German, English

**Duration (semesters)**

- 1 Semester

**Module frequency**

**Module capacity**

- unlimited

**Modullevel**

---

**Modulart**

- je nach Studiengang Pflicht oder Wahlpflicht

**Lern-Lehrform / Type of program**

**Vorkenntnisse / Previous knowledge**

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<td>Final exam of module</td>
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**Examination | Time of examination | Type of examination**

**Course type | Comment | SWS | Frequency | Workload attendance**

- Seminar | 1.00 | | 14 h |
- Practical | 5.00 | | 70 h |

**Total time of attendance for the module**

- 84 h
mar997 - Applied Statistics in Biology and Environmental Science

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**Used in course of study**

- Fach-Bachelor Betriebswirtschaftslehre für Leistungssportler und Leistungssportler > Fachnahe Angebote Biologie
- Fach-Bachelor Betriebswirtschaftslehre für Leistungssportlerinnen und Leistungssportler > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Betriebswirtschaftslehre mit juristischem Schwerpunkt > Fachnahe Angebote Biologie
- Fach-Bachelor Betriebswirtschaftslehre mit juristischem Schwerpunkt > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Biologie > Fachnahe Angebote Biologie more...
- Fach-Bachelor Biologie > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Business Administration in mittelständischen Unternehmen > Fachnahe Angebote Biologie
- Fach-Bachelor Business Administration in mittelständischen Unternehmen > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Chemie > Fachnahe Angebote Biologie
- Fach-Bachelor Chemie > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Comparative and European Law > Fachnahe Angebote Biologie
- Fach-Bachelor Comparative and European Law > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Engineering Physics > Fachnahe Angebote Biologie
- Fach-Bachelor Engineering Physics > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Informatik > Fachnahe Angebote Biologie
- Fach-Bachelor Informatik > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Interkulturelle Bildung und Beratung > Fachnahe Angebote Biologie
- Fach-Bachelor Interkulturelle Bildung und Beratung > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Mathematik > Fachnahe Angebote Biologie
- Fach-Bachelor Mathematik > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Nachhaltigkeitsökonomik > Fachnahe Angebote Biologie
- Fach-Bachelor Nachhaltigkeitsökonomik > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Pädagogik > Fachnahe Angebote Biologie
- Fach-Bachelor Pädagogik > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Pädagogisches Handeln in der Migrationsgesellschaft > Fachnahe Angebote Biologie
- Fach-Bachelor Pädagogisches Handeln in der Migrationsgesellschaft > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Physik > Fachnahe Angebote Biologie
- Fach-Bachelor Physik > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Physik, Technik und Medizin > Fachnahe Angebote Biologie
- Fach-Bachelor Physik, Technik und Medizin > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Sozialwissenschaften > Fachnahe Angebote Biologie
- Fach-Bachelor Sozialwissenschaften > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Umweltwissenschaften > Fachnahe Angebote Biologie
- Fach-Bachelor Umweltwissenschaften > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Wirtschaftsinformatik > Fachnahe Angebote Biologie
- Fach-Bachelor Wirtschaftsinformatik > Fachnahe Angebote Umweltwissenschaften
- Fach-Bachelor Wirtschaftswissenschaften > Fachnahe Angebote Biologie
- Fach-Bachelor Wirtschaftswissenschaften > Fachnahe Angebote Umweltwissenschaften
- Master Umweltmodellierung > Mastern module
- Zwei-Fächere-Bachelor Anglistik > Fachnahe Angebote Biologie
- Zwei-Fächere-Bachelor Anglistik > Fachnahe Angebote Umweltwissenschaften
- Zwei-Fächere-Bachelor Biologie > Fachnahe Angebote Biologie
- Zwei-Fächere-Bachelor Biologie > Fachnahe Angebote Umweltwissenschaften
- Zwei-Fächere-Bachelor Chemie > Fachnahe Angebote Biologie
- Zwei-Fächere-Bachelor Chemie > Fachnahe Angebote Umweltwissenschaften
- Zwei-Fächere-Bachelor Elementarmathematik > Fachnahe Angebote Biologie
- Zwei-Fächere-Bachelor Elementarmathematik > Fachnahe Angebote Umweltwissenschaften
- Zwei-Fächere-Bachelor Ev. Theologie und Religionspädagogik > Fachnahe Angebote Biologie
- Zwei-Fächere-Bachelor Ev. Theologie und Religionspädagogik > Fachnahe Angebote Umweltwissenschaften
- Zwei-Fächere-Bachelor Gender Studies > Fachnahe Angebote Biologie
- Zwei-Fächere-Bachelor Gender Studies > Fachnahe Angebote Umweltwissenschaften
- Zwei-Fächere-Bachelor Germanistik > Fachnahe Angebote Biologie
- Zwei-Fächere-Bachelor Germanistik > Fachnahe Angebote Umweltwissenschaften
- Zwei-Fächere-Bachelor Geschichte > Fachnahe Angebote Biologie
- Zwei-Fächere-Bachelor Geschichte > Fachnahe Angebote Umweltwissenschaften
- Zwei-Fächere-Bachelor Informatik > Fachnahe Angebote Biologie
- Zwei-Fächere-Bachelor Informatik > Fachnahe Angebote Umweltwissenschaften
- Zwei-Fächere-Bachelor Interdisziplinäre Sachbildung > Fachnahe Angebote Biologie
- Zwei-Fächere-Bachelor Interdisziplinäre Sachbildung > Fachnahe Angebote Umweltwissenschaften
Zwei-Fächer-Bachelor Kunst und Medien > Fachnahe Angebote Biologie
Zwei-Fächer-Bachelor Kunst und Medien > Fachnahe Angebote Umweltwissenschaften
Zwei-Fächer-Bachelor Materielle Kultur: Textil > Fachnahe Angebote Biologie
Zwei-Fächer-Bachelor Materielle Kultur: Textil > Fachnahe Angebote Umweltwissenschaften
Zwei-Fächer-Bachelor Mathematik > Fachnahe Angebote Biologie
Zwei-Fächer-Bachelor Mathematik > Fachnahe Angebote Umweltwissenschaften
Zwei-Fächer-Bachelor Musik > Fachnahe Angebote Biologie
Zwei-Fächer-Bachelor Musik > Fachnahe Angebote Umweltwissenschaften
Zwei-Fächer-Bachelor Niederlandistik > Fachnahe Angebote Biologie
Zwei-Fächer-Bachelor Niederlandistik > Fachnahe Angebote Umweltwissenschaften
Zwei-Fächer-Bachelor Ökonomische Bildung > Fachnahe Angebote Biologie
Zwei-Fächer-Bachelor Ökonomische Bildung > Fachnahe Angebote Umweltwissenschaften
Zwei-Fächer-Bachelor Pädagogik > Fachnahe Angebote Biologie
Zwei-Fächer-Bachelor Pädagogik > Fachnahe Angebote Umweltwissenschaften
Zwei-Fächer-Bachelor Philosophie / Werte u. Normen > Fachnahe Angebote Biologie
Zwei-Fächer-Bachelor Philosophie / Werte u. Normen > Fachnahe Angebote Umweltwissenschaften
Zwei-Fächer-Bachelor Physik > Fachnahe Angebote Biologie
Zwei-Fächer-Bachelor Physik > Fachnahe Angebote Umweltwissenschaften
Zwei-Fächer-Bachelor Politik-Wirtschaft > Fachnahe Angebote Biologie
Zwei-Fächer-Bachelor Politik-Wirtschaft > Fachnahe Angebote Umweltwissenschaften
Zwei-Fächer-Bachelor Slavistik > Fachnahe Angebote Biologie
Zwei-Fächer-Bachelor Slavistik > Fachnahe Angebote Umweltwissenschaften
Zwei-Fächer-Bachelor Sonderpädagogik > Fachnahe Angebote Biologie
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Zwei-Fächer-Bachelor Sozialwissenschaften > Fachnahe Angebote Umweltwissenschaften
Zwei-Fächer-Bachelor Sportwissenschaft > Fachnahe Angebote Biologie
Zwei-Fächer-Bachelor Sportwissenschaft > Fachnahe Angebote Umweltwissenschaften
Zwei-Fächer-Bachelor Technik > Fachnahe Angebote Biologie
Zwei-Fächer-Bachelor Technik > Fachnahe Angebote Umweltwissenschaften
Zwei-Fächer-Bachelor Wirtschaftswissenschaften > Fachnahe Angebote Biologie
Zwei-Fächer-Bachelor Wirtschaftswissenschaften > Fachnahe Angebote Umweltwissenschaften

Contact person
Module responsibility
  - Jan Freund
Authorized examiners
  - Alle hier genannten
Module counseling
  - Cord Peppler-Lisbach
  - Gerhard Wolfgang Zotz
  - Helmut Hillebrand
  - Michael Winklhofer

Entry requirements
Skills to be acquired in this module
Module contents
Reader's advisory
Links
Language of instruction German
Duration (semesters) 1 Semester
Module frequency
Module capacity 45
Module level ---
Modulart je nach Studiengang Pflicht oder Wahlpflicht
Lern-Lehrform / Type of program
Vorkenntnisse / Previous knowledge
Examination Time of examination Type of examination
Final exam of module KL
Course type Comment SWS Frequency Workload attendance
Lecture 2.00 28 h
Exercises 2.00 28 h
Total time of attendance for the module 56 h
mat837 - Extreme Value Statistics and Applications

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<td>Angelika May</td>
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<tr>
<td>Final exam of module</td>
<td>KL</td>
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<table>
<thead>
<tr>
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<th>Comment</th>
<th>SWS</th>
<th>Frequency</th>
<th>Workload attendance</th>
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</thead>
<tbody>
<tr>
<td>Lecture</td>
<td></td>
<td>3.00</td>
<td>--</td>
<td>42 h</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>1.00</td>
<td>--</td>
<td>14 h</td>
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### mat839 - Time Series Models resp. State Space Models

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<tr>
<td>Credit points</td>
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<tr>
<td>Workload</td>
<td>180 h</td>
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<tr>
<td>Used in course of study</td>
<td>• Master Mathematik &gt; Mastermodule</td>
</tr>
<tr>
<td></td>
<td>• Master Umweltmodellierung &gt; Mastermodule</td>
</tr>
<tr>
<td>Contact person</td>
<td>Module responsibility</td>
</tr>
<tr>
<td></td>
<td>♦ Marcus Christiansen</td>
</tr>
<tr>
<td></td>
<td>♦ Angelika May</td>
</tr>
<tr>
<td></td>
<td>♦ Peter Ruckdeschel</td>
</tr>
</tbody>
</table>

### Entry requirements

#### Skills to be acquired in this module

#### Module contents

#### Reader’s advisory

#### Languages of instruction

German, English

#### Duration (semesters)

1 Semester

#### Module frequency

unlimited

#### Module level

---

#### Modulart

je nach Studiengang Pflicht oder Wahlpflicht

### Lern-/Lehrform / Type of program

### Vorkenntnisse / Previous knowledge

<table>
<thead>
<tr>
<th>Examination</th>
<th>Time of examination</th>
<th>Type of examination</th>
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<table>
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<th>Frequency</th>
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<tbody>
<tr>
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<td>3.00</td>
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<td>Exercises</td>
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Total time of attendance for the module 56 h
### mat843 - Elements of Multivariate Statistics

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<tbody>
<tr>
<td><strong>Module code</strong></td>
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<tr>
<td><strong>Credit points</strong></td>
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<tr>
<td><strong>Workload</strong></td>
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**Used in course of study**
- Master Mathematik > Mastermodule
- Master Umweltmodellierung > Mastermodule

**Contact person**
- Module responsibility
  - Angelika May
  - Marcus Christiansen
  - Peter Ruckdeschel

**Entry requirements**

**Skills to be acquired in this module**

**Module contents**

**Reader’s advisory**

**Languages of instruction**
- German, English

**Duration (semesters)**
- 1 Semester

**Module frequency**
- ---

**Module capacity**
- unlimited

**Lern-/Lehrform / Type of program**
- je nach Studiengang Pflicht oder Wahlpflicht

**Vorkenntnisse / Previous knowledge**

**Examination**

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**Course type**

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<th><strong>Workload attendance</strong></th>
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<tbody>
<tr>
<td>Lecture</td>
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<td>42 h</td>
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<tr>
<td>Exercises</td>
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**Total time of attendance for the module**
- 56 h
## mat847 - Elements of Exploratory Data Analysis, Robust Statistics, and Diagnostics

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<tr>
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| Used in course of study | Master Mathematik > Mastermodule  
|               | Master Umweltmodellierung > Mastermodule                                         |
| Contact person| Module responsibility |
|              | Marcus Christiansen  
|              | Angelika May  
|              | Peter Ruckdeschel |

### Entry requirements

#### Skills to be acquired in this module

#### Module contents

#### Reader's advisory

#### Languages of instruction
German, English

### Links

### Duration (semesters)
1 Semester

### Module frequency
---

### Module capacity
unlimited

### Lern-/Lehrform / Type of program
je nach Studiengang Pflicht oder Wahlpflicht

### Vorkenntnisse / Previous knowledge

### Examination

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### Course type

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<th>Workload attendance</th>
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<tr>
<td>Exercises</td>
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### Total time of attendance for the module
56 h
**mat849 - Statistical Algorithms**

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<td>Used in course of study</td>
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<td></td>
<td>Master Mathematik &gt; Mastermodule</td>
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<td>Master Umweltmodellierung &gt; Mastermodule</td>
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**Contact person**
- Module responsibility
  - Marcus Christiansen
  - Angelika May
  - Peter Ruckdeschel

**Entry requirements**

**Skills to be acquired in this module**

**Module contents**

**Reader’s advisory**

**Languages of instruction**
- German, English

**Duration (semesters)**
- 1 Semester

**Module frequency**
- ---

**Module capacity**
- unlimited

**Modulart**
- je nach Studiengang Pflicht oder Wahlpflicht

**Lern-/Lehrform / Type of program**

**Vorkenntnisse / Previous knowledge**

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**Final exam of module**

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<th>Frequency</th>
<th>Workload attendance</th>
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<tbody>
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<tr>
<td>Exercises</td>
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**Total time of attendance for the module**
- 56 h
wir808 - Multivariate Statistics

<table>
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<td>Workload</td>
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</tr>
<tr>
<td>Used in course of study</td>
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<td></td>
<td>Master Sustainability Economics and Management &gt; Ergänzungsmodule</td>
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<td></td>
<td>Master Umweltmodellierung &gt; Mastermodule</td>
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<tr>
<td></td>
<td>Master Wirtschaftsinformatik &gt; Module der Wirtschafts- und Rechtswissenschaften (Master)</td>
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<td>Master Wirtschafts- und Rechtswissenschaften &gt; Mantelmodule</td>
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<td>Module responsibility</td>
</tr>
<tr>
<td></td>
<td>Bernd Siebenhüner</td>
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<tr>
<td></td>
<td>Ralf Werner Stecking</td>
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<tr>
<td>Authorized examiners</td>
<td></td>
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<tr>
<td></td>
<td>Ralf Werner Stecking</td>
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<tr>
<td></td>
<td>Anelise Rahmeier Seyffarth</td>
</tr>
<tr>
<td>Module counseling</td>
<td></td>
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<tr>
<td></td>
<td>Anelise Rahmeier Seyffarth</td>
</tr>
<tr>
<td>Entry requirements</td>
<td>With successful completion of the course, students shall:</td>
</tr>
<tr>
<td></td>
<td>be aware of and be able to evaluate advanced methods of multivariate data analysis.</td>
</tr>
<tr>
<td></td>
<td>be able to select adequate methods in relevant fields of application, like prediction, classification, and segmentation analysis.</td>
</tr>
<tr>
<td></td>
<td>be able to run computer-aided analyses and to interpret the results properly.</td>
</tr>
<tr>
<td>Skills to be acquired in this module</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Various methods of quantitative data analysis such as:</td>
</tr>
<tr>
<td></td>
<td>Linear Regression,</td>
</tr>
<tr>
<td></td>
<td>Logistic Regression,</td>
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<tr>
<td></td>
<td>Linear Discriminant Analysis,</td>
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<td>Principal Component Analysis,</td>
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<tr>
<td></td>
<td>Feature selection and evaluation methods.</td>
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</table>

Module contents

Reader's advisory

Links

Language of instruction | German |
Duration (semesters)    | 1 Semester |
Module frequency        | jährlich |
Module capacity         | unlimited |
Module level            | MM-PB (Professionalisierungsbereichsmodul im Master) |
Modulart                | Wahlpflicht |

Lern-/Lehrform / Type of program

Vorkenntnisse / Previous knowledge

<table>
<thead>
<tr>
<th>Examination</th>
<th>Time of examination</th>
<th>Type of examination</th>
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<tbody>
<tr>
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<td>at the end of the semester</td>
<td>written exam or oral exam (30 minutes)</td>
</tr>
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<tr>
<td>Lecture</td>
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<td>Exercises</td>
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<td>2.00</td>
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Total time of attendance for the module | 56 h |
Abschlussmodul

mam - Master´s Thesis Module

Module label: Master´s Thesis Module
Module code: mam
Credit points: 30.0 KP
Workload: 900 h

Used in course of study: Master Umweltmodellierung > Abschlussmodul

Contact person: Ulrike Feudel

Authorized examiners:
- Lehrende Umweltmodellierung
- Lehrende Umweltmodellierung

Entry requirements:

Skills to be acquired in this module:

Module contents:

Reader's advisory:

Links:
- Languages of instruction: German, English
- Duration (semesters): 1 Semester
- Module capacity: unlimited
- Modulelevel: ---
- Modulart: je nach Studiengang Pflicht oder Wahlpflicht

Lern-Lehrlform / Type of program:

Vorkenntnisse / Previous knowledge:

Examination:
- Time of examination: G
- Type of examination: Seminar

Course type: Seminar

SWS:
- Frequency:
- Workload attendance: 0 h