inf501 - Environmental Information Systems

Module label: Environmental Information Systems
Module code: inf501
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Master's Programme Business Informatics > Bereichswahlmodule
- Master's Programme Computing Science > Angewandte Informatik
- Master's Programme Environmental Modelling > Mastermodule
- Master's Programme Sustainability Economics and Management > Additional Modules

Contact person:
Module responsibility: Ute Vogel-Sonnenschein
Authorized examiners: Ute Vogel-Sonnenschein

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

Links

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<thead>
<tr>
<th>Language of instruction</th>
<th>German</th>
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<tbody>
<tr>
<td>Duration (semesters)</td>
<td>1 Semester</td>
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<tr>
<td>Module frequency</td>
<td>jährlich</td>
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<td>Module capacity</td>
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<td>Reference text</td>
<td>Associated with the module: inf500 Modellbildg. und Sim. ökol. Systeme</td>
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Module level AS (Akzentsetzung / Accentuation)
Moduleart je nach Studiengang Pflicht oder Wahlpflicht
Lern-/Lehrform / Type of program - Informationssysteme I - Grundlagen der Statistik
Vorkenntnisse / Previous knowledge

<table>
<thead>
<tr>
<th>Examination</th>
<th>Time 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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<th>Comment</th>
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<th>Frequency</th>
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<td>Exercises</td>
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