### Mastermodule

**wcm110 - Case Study**

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<thead>
<tr>
<th><strong>Module name</strong></th>
<th>Case Study</th>
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<tbody>
<tr>
<td><strong>Module code</strong></td>
<td>wcm110</td>
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<tr>
<td><strong>ECTS credit points</strong></td>
<td>12.0 KP</td>
</tr>
<tr>
<td><strong>Workload</strong></td>
<td>360 h</td>
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<tr>
<td><strong>Used in degree programmes</strong></td>
<td>Master Water and Coastal Management &gt; Mastermodule</td>
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</tbody>
</table>

**Contact person**

- **module responsibility**
  - Bernd Siebenhüner
  - Ingo Mose
- **authorized examiners**
  - Ingo Mose

**Prerequisites**

None

**Skills to be acquired in this module**

The students shall carry out a Case Study independently, dealing with scientific questions regarding Coastal Zone Management.

**Module contents**

Selected Topics of the development of the coastal area and coastal zone management in form of a Case Study near Oldenburg (for example the East Frisian Islands, Bremerhaven).

**Recommended reading**

A list of relevant literature will be provided at the beginning of the course.

**Links**

- **Language of instruction**
  - English
- **Duration (semesters)**
  - 1 semester
- **Module frequency**
  - halbjährlich
- **Module capacity**
  - unlimited
- **Information**
  - Literature and information from public media, interviews with stakeholders etc.
- **Modullevel**
  - Abschlussmodul (Abschlussmodul)
- **Modulart**
  - Pflicht
- **Lern-/Lehrform / Type of program**
  - Seminar

**Vorkenntnisse / Previous knowledge**

**Examination**

<table>
<thead>
<tr>
<th><strong>examination periods</strong></th>
<th><strong>Type of examination</strong></th>
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**Final exam of module**
wcm130 - Spatial Planning for Sustainable Development

Module name: Spatial Planning for Sustainable Development

Module code: wcm130

ECTS credit points: 6.0 KP

Workload: 180 h

Used in degree programmes: Master Water and Coastal Management > Mastermodule

Contact person:

Prerequisites:

Skills to be acquired in this module:
Presentation and critical reflection of core demands of a sustainable Spatial Development in selected spheres of activity with special regards of rural development.
Comparison of suitable European examples. Getting to know central controlling tools of structural, regional and agrarian policy on a national and European basis.
Classification of specific demands of Spatial Development in the context of political and social processes of the European development.

Module contents:
Multifunctionality and rural development
Overview of the multifunctionality of rural areas, especially the importance of agriculture and forestry, recreation, living, nature conservation and the implications for Spatial Planning and Regional Development regarding sustainability. Illustrated by selected European examples.
Sustainable tourism
Presentation of various concepts of sustainable tourism and their practical implementation regarding supply and demand. Illustrated by selected European examples.

Media: Lecture room presentations and discussions based on slides and black/white boards.

Recommended reading:
Schmied, D. (ed.): Winning and losing. The changing geography of Europe’s rural areas.
A list of further relevant literature will be provided at the beginning of the course.

Links:

Language of instruction: English

Duration (semesters): 1 semester

Module frequency: halbjährlich

Module capacity: unlimited

Module level: Abschlussmodul (Abschlussmodul)

Moduleart: Ergänzung/Professionalisierung

Lern-/Lehrform / Type of program: Seminar incl. field trip

Vorkenntnisse / Previous knowledge:

Examination examination periods Type of examination
Final exam of module REPresentation with written report or extended term paper

Quality of scientific content (80 %), quality of presentation (20 %)
### wcm140 - Cases in Coastal Zone Management

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<thead>
<tr>
<th>Module name</th>
<th>Cases in Coastal Zone Management</th>
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<tbody>
<tr>
<td>Module code</td>
<td>wcm140</td>
</tr>
<tr>
<td>ECTS credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
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<tr>
<td>Used in degree programmes</td>
<td>Master Water and Coastal Management &gt; Mastermodule</td>
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<tr>
<td>Contact person</td>
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<tr>
<td>module responsibility</td>
<td>Bernd Siebenhüner</td>
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<td></td>
<td>Ingo Mose</td>
</tr>
<tr>
<td>authorized examiners</td>
<td>Ingo Mose</td>
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<td></td>
<td>Leena Karrasch</td>
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<tr>
<td>Module counseling</td>
<td>Leena Karrasch</td>
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<tr>
<td>Prerequisites</td>
<td>None</td>
</tr>
<tr>
<td>Skills to be acquired in this module</td>
<td>The students gain a differentiated understanding of the challenges of Coastal Zone Management in a national and European context; the questions implied therein, the stakeholders and substantial political and legal implications. At the same time they will get a first insight of selected national and international project examples while getting to know a part of their possible future field of action.</td>
</tr>
<tr>
<td>Module contents</td>
<td>Coastal Zone Management</td>
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<tr>
<td></td>
<td>Basic demands and questions of Coastal Zone Management in a spatial planning perspective.</td>
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<td></td>
<td>International Approaches to Coastal Zone Management</td>
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<td>Field trip to a selected (inter)national place at the coast (Germany, The Netherlands) to show selected problem fields of Coastal Zone Management.</td>
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<tr>
<td>Recommended reading</td>
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<tr>
<td>Links</td>
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<tr>
<td>Language of instruction</td>
<td>English</td>
</tr>
<tr>
<td>Duration (semesters)</td>
<td>2 semester</td>
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<tr>
<td>Module frequency</td>
<td>halbjährlich</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
</tr>
<tr>
<td>Information</td>
<td>Lecture room presentations and discussions based on slides and black/white boards. Visit of European sites representative for good practice in Coastal Zone Management; interaction and discussion with local researchers and practitioners</td>
</tr>
<tr>
<td>Modullevel</td>
<td>Abschlussmodul (Abschlussmodul)</td>
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<tr>
<td>Modulart</td>
<td>Pflicht</td>
</tr>
<tr>
<td>Lern-/Lehrform / Type of program</td>
<td>Seminar, flied-trip</td>
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<tr>
<td>Vorkenntnisse / Previous knowledge</td>
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<tr>
<td>Examination</td>
<td>examination periods</td>
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<tr>
<td>Final exam of module</td>
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**wcm150 - River Development, Water Management and Conservation**

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<thead>
<tr>
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<th>River Development, Water Management and Conservation</th>
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<tbody>
<tr>
<td>Module code</td>
<td>wcm150</td>
</tr>
<tr>
<td>ECTS credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
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<tr>
<td>Used in degree programmes</td>
<td>• Master Water and Coastal Management &gt; Mastermodule</td>
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<tr>
<td>Contact person</td>
<td>module responsibility</td>
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<tr>
<td></td>
<td>○ Bernd Siebenhüner</td>
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<td>○ Ingo Mose</td>
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<td></td>
<td>authorized examiners</td>
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<td>○ Ingo Mose</td>
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<tr>
<td>Prerequisites</td>
<td>None</td>
</tr>
<tr>
<td>Skills to be acquired in this module</td>
<td>The participants shall gain a differentiated understanding of the planning challenges of Water and River Management using selected national and international examples. While so, they will be granted insight to actual planning tasks and the implemented conflicts and get into contact with concerned stakeholders.</td>
</tr>
<tr>
<td>Module contents</td>
<td>Greater London and the River Thames</td>
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<td></td>
<td>Selected questions of Water and River Management on the example of the River Thames in the Greater London Area, for example drinking water production, flood protection, nature conservation, water-oriented leisure activities and the revitalization of the (former) ports of London.</td>
</tr>
<tr>
<td></td>
<td>Bremen and the River Weser</td>
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<tr>
<td></td>
<td>Selected questions of Water and River Management on the example of the River Weser in the Bremen area, for example flood protection, nature conservation, water-oriented leisure activities and the revitalization of the former ports of Bremen.</td>
</tr>
<tr>
<td>Recommended reading</td>
<td>A list of relevant literature will be provided at the beginning of the course.</td>
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<tr>
<td>Links</td>
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<td>Language of instruction</td>
<td>English</td>
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<tr>
<td>Duration (semesters)</td>
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<td>Module frequency</td>
<td>halbjährlich</td>
</tr>
<tr>
<td>Module capacity</td>
<td>unlimited</td>
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<tr>
<td>Information</td>
<td>Visit of sites representative for good practice in River and Water Management; interaction and discussion with local researchers and practitioners</td>
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<td>Modulelevel</td>
<td>Abschlussmodul (Abschlussmodul)</td>
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<td>Modulart</td>
<td>Pflicht</td>
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<td>Lern-/Lehrform / Type of program</td>
<td>Seminar and field trips</td>
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<td>Vorkenntnisse / Previous knowledge</td>
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<td>Examination</td>
<td>examination periods</td>
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<td>Type of examination</td>
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**wcm160 - Nature Conservation in Practice**

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<td>Used in degree programmes</td>
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<td>Prerequisites</td>
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<td>Skills to be acquired in this module</td>
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<tr>
<td>Module contents</td>
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<td>Recommended reading</td>
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<td>je nach Studiengang Pflicht oder Wahlpflicht</td>
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<td>Lern-/Lehrform / Type of program</td>
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<td>Vorkenntnisse / Previous knowledge</td>
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<td>Examination</td>
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# wcm170 - Understanding Bioplanet Earth

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<td>Used in degree programmes</td>
<td>Master Water and Coastal Management &gt; Mastermodule</td>
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<td>Contact person</td>
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<td>Skills to be acquired in this module</td>
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<tr>
<td>Module contents</td>
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<td>Recommended reading</td>
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<td>Links</td>
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<td>Languages of instruction</td>
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<td>Duration (semesters)</td>
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<td>Module frequency</td>
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<tr>
<td>Module capacity</td>
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<td>Abschlussmodul (Abschlussmodul)</td>
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<td>Modulart</td>
<td>je nach Studiengang Pflicht oder Wahlpflicht</td>
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<td>Lern-/Lehrform / Type of program</td>
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<td>Vorkenntnisse / Previous knowledge</td>
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<td>Examination</td>
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<td>Final exam of module</td>
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<td>examination periods</td>
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<td>Type of examination</td>
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**wcm190 - Selected Topics in Environmental Sciences**

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<td>Module code</td>
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<td>Used in degree programmes</td>
<td>• Master Water and Coastal Management &gt; Mastermodule</td>
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<td>Contact person</td>
<td>module responsibility</td>
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<td></td>
<td>• Bernd Siebenhüner</td>
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<td>• Thomas Klenke</td>
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<td>authorized examiners</td>
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<td>• Holger Freund</td>
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<td>• Thomas Klenke</td>
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<td>• Joachim Peinke</td>
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<td>• Luise Dorothee Giani</td>
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<td>• Rainer Buchwald</td>
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<td>• Gudrun Massmann</td>
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<td>Module counseling</td>
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<td>• Holger Freund</td>
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<td>• Joachim Peinke</td>
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<td>• Luise Dorothee Giani</td>
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<td></td>
<td>• Rainer Buchwald</td>
</tr>
<tr>
<td></td>
<td>• Gudrun Massmann</td>
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<tr>
<td>Prerequisites</td>
<td>None</td>
</tr>
<tr>
<td>Skills to be acquired in this module</td>
<td>In-depth knowledge about processes and systems relevant for sustainable management using knowledge and methodologies from all science disciplines in an integrated way. Familiarity with approaches to problem-driven, transdisciplinary research and management. Ability to present and evaluate different concepts of environmental science for sustainable management. Skills in elaborating on complex tasks of environmental management using an interdisciplinary science based approach and to present related findings to non-expert audiences.</td>
</tr>
<tr>
<td>Module contents</td>
<td>Problem-driven learning about environmental science in different scientific contexts of water management and regional development. Studies to understanding the complexity of sustainability and science in management. Use of relevant methods in the field or lab. Discussing topics of environmental sciences with researchers, students and practitioners from different scientific disciplines or sectors.</td>
</tr>
<tr>
<td>Recommended reading</td>
<td>A ‘foundation material pool’ will be made available online for students and lecturers providing paper books, reports and media covering the topics of the lecture and the cases</td>
</tr>
<tr>
<td>Links</td>
<td>Language of instruction: English</td>
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<td>Duration (semesters): 1 semester</td>
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<td>Module frequency: halbjährlich</td>
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<td>Module capacity: unlimited</td>
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<tr>
<td></td>
<td>Information: Lecture room presentations and discussions based on slides and black/white board usage. Short films will be presented. Practical work.</td>
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<td></td>
<td>Modullevel: Abschlussmodul (Abschlussmodul)</td>
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<td>Modulart: Ergänzung/Professionalisierung</td>
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<td></td>
<td>Lern-/Lehrform / Type of program: Lecture and seminar Varying lecture (2 contact hours/week) and connected seminar or practical course (2 contact hours/week)</td>
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<td>Vorkenntnisse / Previous knowledge:</td>
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<td></td>
<td>Examination: examination periods</td>
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<tr>
<td></td>
<td>Type of examination</td>
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<tr>
<td>Final exam of module</td>
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</table>
wcm200 - International Sustainability Management

Module name: International Sustainability Management
Module code: wcm200
ECTS credit points: 6.0 KP
Workload: 180 h

Used in degree programmes:
- Master Water and Coastal Management > Mastermodule

Contact person:
- Module responsibility: Bernd Siebenhüner
- Authorized examiners:
  - Bernd Siebenhüner
  - Meike Bukowski
  - Stefanie Sievers-Glotzbach
- Module counseling:
  - Stefanie Sievers-Glotzbach
  - Meike Bukowski

Prerequisites:

Knowledge on the basic concepts and strategies of sustainability management related to corporate practice:
- Sustainability: Basic concepts, strategies,
- Domestic and international challenges for business,
- Business case for sustainable development,
- Integrative concepts of sustainable corporations,
- Sustainable strategies,
- Management instruments

Discussing topics of international sustainability management with students from different scientific disciplines.

Ability to present and evaluate different concepts and instruments of international sustainability management

Module contents:

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

Recommended reading:

- BMU/BDI (Eds.) 2002: Sustainability Management in Business Enterprises. CSM, University of Lueneburg (Schaltegger, Herzig, Kleiber, Müller)
- http://www2.leuphana.de/umanagement/csm/content/nama/downloads/pdf-dateien/nmu_fs_engl_final.pdf

Links:

- Language of instruction: English
- Duration (semesters): 1 semester
- Module frequency: halbjährlich
- Module capacity: unlimited
- Module level: Abschlussmodul (Abschlussmodul)
<table>
<thead>
<tr>
<th>Modulart</th>
<th>Ergänzung/Professionalisierung</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lern-/Lehrform / Type of program</td>
<td>Lecture and seminar</td>
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<tr>
<th>Vorkenntnisse / Previous knowledge</th>
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<thead>
<tr>
<th>Examination</th>
<th>examination periods</th>
<th>Type of examination</th>
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</table>
| Final exam of module | | Two possibilities:  
(i) individual presentation/discussion and written assignment on a case study or  
(ii) group presentation including group work phase & discussion and written assignment on a concept/instrument of sustainability management  
Scientific quality of presentation (40 %), clarity of presentation and discussion (10 %), scientific quality of report (50 %) |
### wcm210 - Resource and Energy Economics

<table>
<thead>
<tr>
<th>Module name</th>
<th>Resource and Energy Economics</th>
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<tbody>
<tr>
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<td>wcm210</td>
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<tr>
<td>ECTS credit points</td>
<td>6.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>180 h</td>
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<tr>
<td>Used in degree programmes</td>
<td>Master Water and Coastal Management &gt; Mastermodule</td>
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<tr>
<td>Contact person</td>
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<td></td>
<td>module responsibility</td>
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<td></td>
<td>o Bernd Siebenhüner</td>
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<tr>
<td>authorized examiners</td>
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<td>o Bernd Siebenhüner</td>
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<tr>
<td></td>
<td>o Christoph Böhringer</td>
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<td></td>
<td>o Heinz Welsch</td>
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<tr>
<td>Module counseling</td>
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<td></td>
<td>o Christoph Böhringer</td>
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<td>o Heinz Welsch</td>
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<tr>
<td>Prerequisites</td>
<td>None</td>
</tr>
<tr>
<td>Skills to be acquired in this module</td>
<td>&amp;lightning;149: Understanding the (normative) problems of resource use</td>
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<tr>
<td></td>
<td>&amp;lightning;149: Rationales and instruments for policy intervention into (energy) markets</td>
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<td>&amp;lightning;149: Command of analytical methods (incl. role of analytical and numerical models in policy analysis)</td>
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<td>&amp;lightning;149: Ability to judge energy policy issues based on sound economic analysis (theory)</td>
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<td>&amp;lightning;149: Ability to quantify the relevance of arguments (empirics).</td>
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<tr>
<td>Module contents</td>
<td>The course deals with the following subjects:</td>
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<tr>
<td></td>
<td>Resource economics</td>
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<tr>
<td></td>
<td>&amp;lightning;149: Economics of sustainable resource use, methods of resource economics, non-renewable resources, renewable resources</td>
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<tr>
<td></td>
<td>Energy economics</td>
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<td>&amp;lightning;149: Markets and regulation: competitive markets as efficiency benchmark; market failures as a rationale for regulation</td>
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<td>&amp;lightning;149: Fundamentals of energy system/market analysis: definitions and concepts; energy statistics and balances; elasticities and incidence of policy interference</td>
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<td>&amp;lightning;149: Market imperfections and regulatory design: environmental externalities, imperfect competition</td>
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<td>Methods of teaching: The course is designed as a lecture that teaches the relevant methods, concepts and models and illustrates them with reference to practical examples.</td>
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<td></td>
<td>Steven Stoft, Power System Economics : Designing Markets for Electricity, New York 2002;</td>
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<td>IEA: World energy outlook, annual.</td>
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### Examination / Previous knowledge

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wcm220 - Selected Topics in Sustainability Economics and Management

Module name
- Selected Topics in Sustainability Economics and Management

Module code
- wcm220

ECTS credit points
- 6.0 KP

Workload
- 180 h

Used in degree programmes
- Master Water and Coastal Management > Mastermodule

Contact person

- Bernd Siebenhüner

Authorized examiners

- Bernd Siebenhüner

Prerequisites

- None

Skills to be acquired in this module
- Learning about sustainability, economics and management in different scientific contexts.
- Understanding the complexity of sustainability, economics and management.
- Discussing topics of sustainability, economics and management with students from different scientific disciplines.
- Ability to present and evaluate different concepts of sustainability, economics and management

Module contents

- This module consists of two seminars (2 weekly contact hours per seminar) dealing with selected topics from the broad field of sustainability, economics and management during term. Out of a variety of several seminars the student can chose two most suitable seminars depending on individual choices. The seminars and the seminar contents vary each semester to provide topics relevant for current discussions within the broad field of sustainability, economics and management.
- Intentionally seminars from several research fields and faculties are offered to also combine different point of views and to bring students from different scientific backgrounds together. The seminars provide the possibilities for inter- and transdisciplinary exchange and discussions.

Recommended reading

- Depending on the topic and content of each seminar

Links

Language of instruction
- English

Duration (semesters)
- 1 semester

Module frequency
- halbjährlich

Module capacity
- unlimited

Modulelevel
- Abschlussmodul (Abschlussmodul)

Modulart
- Wahlpflicht

Lern-/Lehrform / Type of program
- Lecture and Seminar

Vorkenntnisse / Previous knowledge

Examination

- examination periods

Type of examination

Final exam of module
**wcm230 - Dilemmas in Infrastructure Planning**

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**Examination**

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**wcm240 - Planning Methods and Evaluation**

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**wcm250 - Transitions in Water Management**

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**Examination**

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### wcm260 - Comparative Research and Planning Practice

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### wcm270 - Adaptive Governance

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**wcm280 - Reinventing Environmental Planning**

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## wcm310 - GIS for WCM

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## wcm320 - Marine Regulations

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<td>- William Sutton</td>
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### Prerequisites

| Skills to be acquired in this module |

### Module contents

| Recommended reading |

### Links

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**wcm330 - Marine Sediments**

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| **Lern-/Lehrform / Type of program** | |
| **Vorkenntnisse / Previous knowledge** | |
| **Examination** | **examination periods** | **Type of examination** |
| Final exam of module | | Hausarbeit oder mündliche Prüfung |
**wcm340 - Basic Ecological Processes**

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### wcm360 - Fieldwork Water Quality

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Abschlussmodul

**wcm290 - Planning Theory**

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**Contact person**

**Prerequisites**

**Skills to be acquired in this module**

**Module contents**

**Recommended reading**

**Links**

**Languages of instruction**

**Duration (semesters)** 1 semester

**Module frequency**

**Module capacity** unlimited

**Modullevel** BC (Basiscurriculum)

**Modulart** je nach Studiengang Pflicht oder Wahlpflicht

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

**Vorkenntnisse / Previous knowledge**

**Examination**

**examination periods**

**Type of examination**

**Final exam of module**

G
### wcm300 - Environmental and Infrastructure Planning (EIP) Interactive Workshop

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**Frühere Module**

wcm120 - International Research Workshop

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<tr>
<td>Bernd Siebenhüner</td>
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<tr>
<td>Ingo Mose</td>
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<tr>
<td>Johan Woltjer</td>
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<tr>
<td>Skills to be acquired in this module</td>
<td>Students will achieve competences in the interdisciplinary analysis of an actual problem in coastal management and sustainable development of water depending areas and the proper presentation and discussion of own scientific work on a complex topic adjusted to the topic of a workshop setting and the interests of participating researchers.</td>
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<tr>
<td>Module contents</td>
<td>Selected Topics of Spatial Development in the German-Dutch coastal zone and Wadden sea in a theoretic-conceptional as well as empiric-methodological perspective.</td>
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<tr>
<td>Recommended reading</td>
<td>A list of relevant literature will be provided at the beginning of the course.</td>
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<td>Several Master programmes including Bremen and Groningen Universities</td>
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### Module: Aquatic Systems: Marine Biogeophysics

**Module Code:** wcm180  
**ECTS Credit Points:** 6.0 KP  
**Workload:** 180 h

#### Contact Person
- Module responsibility: Bernd Siebenhüner, Helmut Hillebrand
- Authorized examiners: Helmut Hillebrand, Emil Vassilev Stanev
- Module counseling: Emil Vassilev Stanev

#### Prerequisites
None

#### Skills to be acquired in this module
- Knowledge about physical and biotic/microbial processes focusing the aquatic systems (i) river systems, (ii) estuaries, (iii) coastal waters and (iv) marine realms.
- Skills (i) in designing and executing studies on microbial communities and their interaction in aquatic environments, (ii) in evaluating own scientific data in relation to existing data/information on aquatic systems and to problems of environmental management such as monitoring schemes or the use of resources in the framework of ecosystem based management.

#### Module Contents
- Geophysics, physical oceanography and physics of the aquatic environment: Topics, developments and cutting edge fields of geophysics and oceanography, physical properties of coastal and marine waters, basic hydrodynamics and hydrodynamical equations, currents on a rotating planet, waves, tides, regional oceanography (North Sea, Baltic Sea and Atlantic).
- Microbial aquatic ecology: Analysis of the microbial biomass, determination of communities and their species, molecular ecology, analysis of in-situ activities, isolation and cultivation of species, degradation of organic substances - aerobic and anaerobic processes, cascades, food web and systems, interaction of microbes, plants and animals, microbes and biogeochemical cycling in oceans, lakes, sediments and microbial mats, extreme environments &amp; hydrothermal vents, saline and alkaline systems.
- Microbial methods and their application: micro-electrodes and biogeochemical profiles in the environment and cultures, molecular biological, introduction to isotope techniques.

#### Recommended Reading
A foundation material pool will be made available online for students and lecturers providing paper books, reports and analytical data covering the topics of the lecture and the course.

#### Links
- Language of instruction: English
- Duration (semesters): 1 semester
- Module frequency: halbjährlich
- Module capacity: unlimited

#### Information
Lecture room presentations and discussions based on slides and black/white board usage. Short films will be presented. Course will cover field and lab experiments with discussions using black/white boards. Studies/presentation will use IT-infrastructure.

#### Examination
- **Type of examination:** final exam of module