wir905 - Environmental Sciences

**Module label**  Environmental Sciences
**Module code**  wir905
**Credit points**  6.0 KP
**Workload**  180 h

**Used in course of study**
- Master's Programme Sustainability Economics and Management > Basic and Accentuation Modules
- Master's Programme Water and Coastal Management > Science

**Contact person**

- **Module responsibility**
  - Thomas Klenke

- **Authorized examiners**
  - Holger Freund
  - Jürgen Köster
  - Thomas Klenke

- **Module counseling**
  - Holger Freund
  - Jürgen Köster
  - Gast Dozent

**Entry requirements**

- **Skills to be acquired in this module**
  - The Introduction to processes and systems of the dynamic Earth constituting the foundation for sustainable management is presented to produce:
    - Knowledge about processes and systems relevant for sustainable management using knowledge and methodologies from all science disciplines in an integrated way.
    - Skills in elaborating on complex tasks of environmental management using an interdisciplinary science based approach and to present related findings to non-expert audiences.
    - Lecture room presentations and discussions based on slides and black/white board usage.
  - Short films will be presented to endorse the intended achievements.

**Module contents**

- **Lecture:** Understanding the Bioplanet Earth (2 contact hours/week) (Vorlesung, 2 LVS: Aufbau und Entwicklungsgeschichte der Erde; Dynamik der Erde: Kreisläufe und Evolutionsprozesse; Lebensraum Boden; Wasser; Klima; Biodiversität; Lagerstätten und Ressourcenerschließung; Ökosysteme der Erde.)

- **Seminar:** Cases in Understanding the Bioplanet Earth (2 contact hours/week)

Introduction to key processes and to systems dynamics of the Earth representing a planet being alive driven by external and internal forces interacting with biological activities. Topics of the lecture comprise introductions to the evolution of the universe and solar systems, the differentiation and subsystems of the Earth’s interior, minerals and rock cycle, soils, ocean and climate, evolution and biodiversity, organisms and physiology, water and element cycling plus insights into ecosystems under different climate conditions. The cases are selected in order to (i) highlight certain principles and theories in geo- and biosciences and (ii) exemplify critical objects and phenomena in modern practice of resource and environmental management.

This module consists of topical programmes of the Master Cluster Environment and Sustainability.

**Reader’s advisory**

- 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

**Links**

- Language of instruction: English
- Duration (semesters): 1 Semester
- Module frequency: jährlich
- Module capacity: unlimited
- Modullevel: BM (Basismodul)
- Modulart: Ergänzung/Professionalisierung

**Examination**

- **Time of examination:** By the end of the lecture period.
- **Type of examination:** Presentation/discussion and written report on a case; Scientific quality of presentation (40 %) Clarity of presentation and discussion (20 %) Scientific quality of report (40 %)

**Course type**

- **Comment**
- **SWS**
- **Frequency**
- **Workload attendance**
<table>
<thead>
<tr>
<th>Activity</th>
<th>Credit</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>2.00</td>
<td>28 h</td>
</tr>
<tr>
<td>Seminar</td>
<td>2.00</td>
<td>28 h</td>
</tr>
</tbody>
</table>

**Total time of attendance for the module**
56 h