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| <b>Modulnummer</b>  | <b>75600 (Onlineanmeldung QIS)</b>  |
| <b>Modulname</b>  | <b>2.2.8 Ecological Indicators / Ökologische Indikatoren</b>  |
| <b>Studiengang und -abschnitt</b>                               | MSc Management natürlicher Ressourcen – Environmental Management  |
| <b>Häufigkeit des Angebots</b>                                  | jährlich im SS  |
| <b>Modulverantwortlicher</b>                                    | Prof. Dr. Felix Müller  |
| <b>Studienberatung zum Modul</b>                                | Prof. Dr. Felix Müller  |
| <b>Lehrveranstaltungen und Dozenten</b>                         | Lectures (30 h/90 h) Prof. Dr. Felix Müller<br>Exercises (30 h/90) Prof. Dr. Felix Müller   |
| <b>Vorkenntnisse</b>  | none  |
| <b>Sprache</b>  | English   |
| <b>Plätze</b>   | 25  |
| <b>Lehrformen (Präsenzstunden/ Workload)</b>                    | Lectures (30 h/90 h) Prof. Dr. Felix Müller<br>Exercises (30 h/90) Prof. Dr. Felix Müller   |
| <b>Ablauf<br/>Art und Gewichtung<br/>der Prüfungsleistungen</b> | Report 100%   |
| <b>Ausweis</b>  |   |
| <b>European Credit Points des Moduls</b>                        | 6   |
| <b>Ziele des Moduls</b>   | Indicators are focal tools of environmental management on several spatial, temporal and administrative levels. To get prepared for the usage of these instruments theoretical and applied items of indication in a human-environmental surrounding are elaborated in the course. The fundamental conceptual knowledge i.e. referring to the requirements for good indicator sets is applied in several case studies, and in the end the participants develop an own index on the base of international data sets. Hence, the students will be prepared for creating and applying indicator sets and for bundling information in order to support decision making processes in their future field of work. |

## Inhalte des Moduls

The first part of the course is related to the elaboration of theoretical framework conditions and to learning indicator methodologies. In a second phase different indicator sets are presented by the students and discussed, and in a final period students are developing new indicator systems and methods referring to relevant environmental problems.

Due to the modified time table in this semester the three elements will be temporally mixed, and the focus will be put on practical works. For this purpose around 7 student projects will be elaborated. The students will work on these projects throughout the whole semester, produce a presentation and write a scientific paper about the results.

The following topics for the projects are proposed:

- An analysis of the state-of-the-art in ecological indication – a literature review in the journal “Ecological Indicators”
  - Indicating ecological integrity
  - Indicating ecosystem services □ potentials of quantification
  - Producing an indicator map on ecosystem services (Region I.)
  - Producing an indicator map on ecosystem services (Region II.)
  - International comparison of national sustainability indicators
  - Indicating development on different scales and in different contexts
  - Worldwide indicator applications concerning the interactions of environmental and socio-economic features (Happy Planet index,...)
  - Comparing footprint calculations and emergy analyses
  - Creating a management schedule to indicate Drivers, Pressures, States, Impacts and Responses within the DPSIR framework
  - Reviewing indicators of landscape quality
  - Indicating resilience (e.g. of urban systems)
- Fach-, Methoden- und Lernkompetenzen

## Vermittelte Kompetenzen

## Studienhilfsmittel

Commission on Geosciences, Environment and Resources - CGER - (2000): Ecological Indicators for the Nation. National Academy Press, Washington DC

Jackson, L., J. Kurtz and W. Fisher (eds. 2000): Evaluation Guidelines for Ecological Indicators, U.S. Environmental Protection Agency, Office of Research and Development, Research Triangle Park, NC

Joergensen, S.E., R. Costanza and Xu, Fu-Liu (eds., 2005): Handbook of Ecological Indicators for Assessment of Ecosystem Health. CRC Press, Boca Raton

Wiggering, H. & F. Müller (eds.) (2003): Umweltziele und Indikatoren. Springer - Verlag, Berlin, Heidelberg, New York.

Wong, C. (2006): Indicators for Urban and Regional Planning: The interplay of policy and methods. Routledge Taylor & Francis Group, London, New York