A module focusing on decision analysis is described. It covers methods and concepts developed to support and improve rational decision making in various areas. Topics include decisions under certainty and risk, decisions with single and multiple objectives, and decisions given incomplete information about probabilities or preferences. The course also covers descriptive decision theories such as Prospect Theory. An introduction to probability calculus including Bayes Theorem is provided. Various visualization techniques like influence diagrams and decision trees are discussed.

**Learning outcomes:**
After completing the course, students will be able to:
- Understand rational decision processes
- Structure and visualize decision problems
- Use decision analysis techniques at an easy level
- Handle multiple objectives, risk, intertemporal outcomes, and incomplete information
- Be aware of typical behavioral findings that conflict with prescriptive methods.

**Prerequisites:**
- Formal:
- Recommended:
The lecture assumes basic knowledge in mathematics such as calculus, optimization, and statistics (mean, variance, standard deviation).

**Obligatory registration:** No

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<th>Courses</th>
<th>Hours per week</th>
<th>Self-study</th>
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<td>Lecture</td>
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ECTS in total: 6

**Form of assessment**
Written exam (90 min.)

**Preliminary course work**
-

**Lecturer/Pers. in charge**
Jun.-Prof. Dr. Danja Sonntag

**Duration of module**
1 semester

**Offering**
Fall semester and Spring semester

**Language**
English

**Program-specific educational goals**
LG 3

**Grade**
graded

**Range of application**