**Institut für Geographie**
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**Elective/Consolidation Module:**

# Modeling Physical Systems in the Climate

Prof. Dr. Thomas Mölg

**Study Program**: MSc Climate & Environmental Sciences
**ECTS**: 5
**No. of Participants**: max. 20
**When & Where:** see UnivIS (no pre-meeting!)

The importance of models in science and in daily life is increasing steadily, which is particularly obvious for the climate system of Earth. This course builds on the "Introduction to Climate Modeling" seminar in the BSc program, and will make some steps further in the application of process-based models to the climate system. We will repeat simple modeling approaches, essential modeling aspects (model uncertainty, evaluation), and inherent system properties (chaotic behavior, non-linearity) in the first part. This will allow us to advance to more sophisticated applications afterwards, including local land-surface models and global climate models of differing complexity. We will practice a "thinking in models", which benefits the potential understanding of any complex system that influences our day-to-day life.

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**Requirements and responsibilities:**

- **Attendance is mandatory**
- **Missing more than 15% of the meetings will result in a fail grade, regardless of your standing**
- **Be punctual; participate and add to the discussions**
- **Follow the rules of science ethics**
- **Good command of a software with programming capabilities (R, Matlab, Python, ...)**
- **Solid knowledge in statistics**