Seismology

Type of Module	Module Code
Basic Module	BM-GEOSEIS

Identification Number	Workload	Credit Points	Term	Offered Every	Start	Duration
MN-GM-GEOSEIS	180 h	6 CP	1. – 3. Semester	WiSe	Winter Term Only	1 Semester

1	Course Types	Contact Time	Private Study	Planned Group Size
	a) Lectures	45 h	60 h	15
	b) Exercise	30 h	45 h	

2 Aims of the module and acquired skills

Understanding of physical processes that cause and transport seismic energy.

Acquired skills are the ability to determine basic parameters from seismic records for earthquake location. Basic knowledge of seismological measuring techniques and data processing.

In addition: communication skills, capacity for enthusiasm, self-dependency.

3 Contents of the module

- Elasticity theory and seismic waves
- Body waves and ray geometry
- Surface waves and free oscillations of the Earth
- Kinematic and dynamic effects of earthquake sources
- Seismometry and seismogram interpretation
- Seismotectonics
- Local earthquakes
- Earthquakes and buildings
- Time series analysis
- History of seismology

4 Teaching Methods

Lectures and exercises (Compulsory attendance)

5 Prerequisites (for the Module)

Formal: None
With regard to the contents: Basics of mathematics, physics and geophysics

6 Type of Examination

Written examination (graded).

7 Credits Awarded

Successful participation in the exercises (50 % of the possible points have to be obtained) and passing of the examination.

8	**Compatibility with other Curricula** • Other modules of equal value can be admitted and announced by the examination board after agreement. • Suitable as an elective course for mathematics, physics and geoscience students
9	**Proportion of Final Grade** 6/114
10	**Module Coordinator** K.-G. Hinzen
11	**Further Information** **Compulsory Literature:** P.M. Shearer, Introduction to Seismology, Cambridge University Press, 2006. T. Lay and T.C. Wallace, Modern Global Seismology, Acadamic Press, 1995. **Additional Literature:** K. Aki and P.G. Richards, Quantitative Seismology, University Science Books, 2002. D. Gubbins, Time Series Analysis and Inverse Theory for Geophysicists, Cambridge University Press, 2004