

Study Plan
for the International Masters Programme in Geophysics

Credits 6 12 18 24 30

1 st Semester	P1 Mathematical Geophysics	P2 Statistical Geophysics	P 3 Earth System Science	P 4 Geocontinua	
	P1.1 Mathematical Geophysics (Lecture) [4 SWS, 6 ECTS] P1.2 Mathematical Geophysics (Exercise) [2 SWS, 3 ECTS]	P2.1 Statistics for Geosciences (Lecture) [2 SWS, 3 ECTS] P2.2 Statistics for Geosciences (Exercise) [2 SWS, 3 ECTS]	P3.1 Introduction to Earth System Science 1 [2 SWS, 3 ECTS] P3.2 Introduction to Earth System Science 2 [2 SWS, 3 ECTS] P3.3 Geophysics Research: Overview on Methods and Open Questions [2 SWS, 3 ECTS]	P4.1 Methods of Geocontinua (Lecture) [2 SWS, 3 ECTS] P4.2 Methods of Geocontinua (Exercise) [2 SWS, 3 ECTS]	
2 nd Semester	P 5 Computational Geophysics	P6 Scientific Programming	P7 Advanced Geophysics	P8 Geophysical Data Acquisition and Analysis	WP: Specialisation I
	P5.1 Computational Geophysics (Lecture) [2SWS, 3ECTS] P5.2 Computational Geophysics (Exercise) [2SWS, 3ECTS]	P6.1 Scientific Programming (Lecture) [2SWS, 3 ECTS] P6.2 Scientific Programming (Exercise) [2SWS, 3 ECTS]	P7.1 Geodynamics [2 SWS, 3 ECTS] P7.2 Seismology [2 SWS, 3 ECTS] P7.3 Geo- and Paleomagnetism [2 SWS, 3 ECTS]	P8.1 Geophysical Data Analysis: Practical Introduction [2 SWS, 3 ECTS]	Elective Module, 6 ECTS Choose one of WP1, WP2, WP3
3 rd Semester	P9 Research Training	P10 Advanced Topics in Geophysics	Elective Modules: Interdisciplinarity		WP: Specialisation II
	P9.1 Presentation, Communication, Publication (Seminar) [2SWS, 3 ECTS] P9.2 Individual Research Project (Practical) [2 SWS, 3ECTS]	P10.1 Tools, Techniques and current Trends in Geophysical Research 1 [2 SWS, 3 ECTS] P10.2 Tools, Techniques and current Trends in Geophysical Research 2 [2 SWS, 3 ECTS] <i>(meta-courses mapped onto catalogue of courses)</i>	Choose 12 ECTS worth of elective modules from modules WP 7 to WP 21		Elective Module, 6 ECTS Choose one of WP4, WP5, WP6
4 th Semester	P11 Final Module				
	P11.1 Master Thesis [22 weeks, 29 ECTS] P11.2 Thesis Defense [1 ECTS]				

Module Catalogue "Specialisation"

Students need to select one of WP 1, WP 2 or WP 3

WP 1 Geodynamics I (6 ECTS)	WP 2 Seismology I (6 ECTS)	WP 3 Magnetism I (6 ECTS)
WP 1.1 Modern Geodynamics (Seminar) [2 SWS, 3 ECTS]	WP 2.1 Modern Seismology (Lecture) [2 SWS, 3 ECTS]	WP 3.1 Regional Rock- and Paleomagnetism (Lecture) [1 SWS, 2 ECTS]
WP 1.2 Special Topics in Geodynamics (Seminar) [2 SWS, 2 ECTS]	WP 2.2 Special Topics in Seismology (Seminar) [2 SWS, 2 ECTS]	WP 3.2 Rock Sampling for Magnetic Studies (Field Exercise) [1 Day, 1 ECTS]
WP 1.3 Geophysical Colloquium [2 SWS, 1 ECTS]	WP 2.3 Geophysical Colloquium [2 SWS, 1 ECTS]	WP 3.3 Geophysical Colloquium [2 SWS, 1 ECTS]
		WP 3.3 Collecting and Analysing Magnetic Data (Exercise) [2 SWS, 2 ECTS]

Students need to select one of WP 4, WP 5 or WP 6

WP 4 Geodynamics II (6 ECTS)	WP 5 Seismology II (6 ECTS)	WP 6 Magnetism II (6 ECTS)
WP 4.1 Current Questions in Geodynamics 1 (Integ. Learning Activity) [2 SWS, 3 ECTS]	WP 5.1 New Methods in Seismology (Lecture) [2 SWS, 3 ECTS]	WP 6.1 Measurement Techniques in Magnetism (Seminar) [2 SWS, 3 ECTS]
WP 4.2 Current Questions in Geodynamics 2 (Integ. Learning Activity) [2 SWS, 3 ECTS]	WP 5.2 New Methods in Seismology (Exercise) [2 SWS, 3 ECTS]	WP 6.2 Application of Magnetic Methods in Practice (Practical) [2 SWS, 3 ECTS]

Module Catalogue “Interdisciplinarity”

Students need to select 12 ECTS worth of elective modules from modules WP 7 to WP 21.

Modules WP 7 and WP 8 cannot be chosen together.
 Modules WP 13 and WP 14 cannot be chosen together.

Elective modules of size 3 ECTS		Elective modules of size 6 ECTS	
WP 7 Gravity and Magnetic Field from Space WP 7.1 Gravity and Magnetic Field from Space (Lecture) [2 SWS, 3 ECTS]	WP 12 Active Tectonics WP 12.1 Modern Active Tectonics [2 SWS, 3 ECTS]	WP 16 Planetary Geology WP 16.1 Tectonics, Geomorphology and Stratigraphy (Integ. Learning Activity) [2 SWS, 3 ECTS] WP 16.2 Tectonics, Geomorphology and Stratigraphy Tutorial (Exercise) [2 SWS, 3 ECTS]	WP 19 Rheology and Thermal Analysis of Melts WP 19.1 Theory of Physics and Chemistry of Melts (Lecture) [2 SWS, 3 ECTS] WP 19.2 Applied Physics and Chemistry of Melts (Integ Learning Act) [2 SWS, 3 ECTS]
WP 8 Gravity Field and Satellite Missions WP 8.1 Gravity Field and Satellite Missions (Lecture) [3 SWS, 3 ECTS]	WP 13 Geophysical Methods and Archaeology WP 13.1 Archaeological Geophysics and Aerial Archaeology (Lecture) [2 SWS, 3 ECTS]	WP 17 Precise Global Navigation Satellite Systems WP 17.1 Precise Global Navigation Satellite Systems (Lecture) [2SWS, 3ECTS] WP 17.2 Labs in Precise Global Navigation Satellite Systems (Exercise) [2SWS, 3ECTS]	WP 20 Geokinematics and Continental Hydrology WP 20.1 Geokinematics (Lecture) [2 SWS, 3 ECTS] WP 20.2 Continental Hydrology (Lecture) [2 SWS, 3 ECTS]
WP 9 Orbit Mechanics WP 9.1 Orbit Mechanics (Lecture) [2 SWS, 3 ECTS]	WP 14 Geophysics and Engineering WP 14.1 Engineering Geophysics (Lecture) [2 SWS, 3 ECTS]	WP 18 Atmosphere and Oceans WP 18.1 Atmospheric Physics and Remote Sensing (Lecture) [2 SWS, 3 ECTS] WP 18.2 Satellite Altimetry and Physical Oceanography (Lecture) [2 SWS, 3 ECTS]	WP 21 Petrophysics WP 21.1 Petrophysics (Lecture) [2 SWS, 3 ECTS] WP 21.2 Petrophysics (Exercise) [2 SWS, 3 ECTS]
WP 10 Remote Sensing WP 10.1 Photogrammetry and Remote Sensing (Integ Learning Activity) [2 SWS, 3 ECTS]	WP 15 Inverse Problems in Geophysics WP 15.1 Inverse Problems in Geophysics (Lecture) [2 SWS, 3 ECTS]		
WP 11 Deformation and Transformation WP 11.1 Rheology of Rocks (Integrated Learning Activity) [2 SWS, 3 ECTS]			