Philipps Universität Marburg

Module Handbook

Faculty 19
Geography

As of December 2024

Geology (Minor Subject)

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One credit point (ECTS) is based on 30 hours of work by an average student in the modules of this program.

1. Basics of Geology

1.1 Basics of Geology I: Planet Earth and Its Building Blocks

Module Title	**Basics of Geology I: Planet Earth and Its Building Blocks**
Credit Points	6 credits (ECTS)
Degree of Obligation	Compulsory
Level	Basic module
Contents and Qualification Objectives	The aim of the module is to provide a fundamental understanding of the Earth as a system. Upon completion of the module, students will be able to describe endogenic processes, the Earth's structure, magmatism, metamorphism, tectonics, structural geology, and sedimentation. They will recognize the connections between plate tectonics, volcanism, and earthquakes. Students will be able to distinguish between different rock types and explain their formation.
Teaching and Learning Methods, Types of Courses	Lecture 2 contact hours Exercise 2 contact hours
Workload	Lecture: attendance, preparations and follow-up (60 hours) Exercise: attendance, preparations and follow-up (60 hours) Exam preparation and exam (60 hours)
Teaching and Examination Language	German
Prerequisites for Participation	None
Applicability of the Module	Compulsory module in the minor subject Geology
Prerequisites for the Awarding of Credit Points	**Coursework:** Successful completion of 6-10 exercise tasks *or* report (1.500 – 2.000 words) **Examination:** Written exam *or* colloquium
Grades	The grading is conducted in accordance with § 30 General Regulations.
Duration of the Module	One semester
Frequency of the Module	Every second semester
Start of the Module	Winter semester

1.2 Basics of Geology II: The Formation of the Earth's Surface

Module Title	**Basics of Geology II: The Formation of the Earth's Surface**
Credit Points	6 credits (ECTS)
Degree of Obligation	Compulsory
Level	Basic module
Contents and Qualification Objectives	The aim of the module is to provide a fundamental understanding of exogenic, surface-forming processes. Students will learn about weathering processes, gravitational mass movements, as well as fluvial, aeolian, and glacial shaping. They will understand the formation of sedimentary rocks, be able to name the corresponding depositional environments, and associate relevant fossil organisms. Upon completion of the module, students will be able to describe the basics of geological history of the Earth and the temporal dimensions along with their organizational principles.
Teaching and Learning Methods, Types of Courses	Lecture 2 contact hours Exercise 2 contact hours
Workload	Lecture: attendance, preparations and follow-up (60 hours) Exercise: attendance, preparations and follow-up (60 hours) Exam preparation and exam (60 hours)
Teaching and Examination Language	German
Prerequisites for Participation	None
Applicability of the Module	Compulsory module in the minor subject Geology
Prerequisites for the Awarding of Credit Points	**Coursework:** Successful completion of 6-10 exercise tasks *or* report (1.500 – 2.000 words) **Examination (= module examination):** Written exam *or* colloquium
Grades	The grading is conducted in accordance with § 30 General Regulations.
Duration of the Module	One semester
Frequency of the Module	Every second semester
Start of the Module	Summer semester

1.3 Geological Maps

Module Title	**Geological Maps**
Credit Points	6 credits (ECTS)
Degree of Obligation	Compulsory
Level	Basic module
Contents and Qualification Objectives	After completing the module, students will be able to create and interpret geological maps using various techniques. They can generate geological sections and interpret the sections of geology and morphology. They will be able to train their spatial sense and spatial thinking and apply these skills in the creation of geological maps.
Teaching and Learning Methods, Types of Courses	Lecture 2 contact hours Exercise 2 contact hours
Workload	Lecture: attendance, preparations and follow-up (60 hours) Exercise: attendance, preparations and follow-up (60 hours) Exam preparation and exam (60 hours)
Teaching and Examination Language	German
Prerequisites for Participation	None
Applicability of the Module	Compulsory module in the minor subject Geology
Prerequisites for the Awarding of Credit Points	**Coursework:** Successful completion of 6-10 exercise tasks **Examination (= module examination):** Written exam *or* project work
Grades	The grading is conducted in accordance with § 30 General Regulations.
Duration of the Module	One semester
Frequency of the Module	Every second semester
Start of the Module	Winter semester

1.4 Geological Field Work and Exercise

Module Title	**Geological Field Work and Exercise**
Credit Points	6 credits (ECTS)
Degree of Obligation	Compulsory
Level	Basic module
Contents and Qualification Objectives	The students will learn about geological relationships using specific selected regional sites as examples. They will practice geological field methods and will be able to apply and assess these methods purposefully. The module typically includes a field exercise.
Teaching and Learning Methods, Types of Courses	Field work and exercise 3 contact hours
Workload	Field work and exercise: attendance, preparations and follow-up (120 hours) Exam preparation and exam (60 hours)
Teaching and Examination Language	German
Prerequisites for Participation	None Recommendation: Completion of the modules "Basics of Geology I" and "Basics of Geology II"
Applicability of the Module	Compulsory module in the minor subject Geology
Prerequisites for the Awarding of Credit Points	**Compulsory attendance** **Coursework:** Successful completion of 6-10 exercise tasks **Examination (= module examination):** Project work *or* report *or* portfolio
Grades	The grading is conducted in accordance with § 30 General Regulations.
Duration of the Module	One semester
Frequency of the Module	Every second semester
Start of the Module	Summer semester

2. Specialization Geology

2.1 Geology of Central Europe

Module Title	**Geology of Central Europe**
Credit Points	6 credits (ECTS)
Degree of Obligation	Compulsory elective
Level	Specialization module
Contents and Qualification Objectives	After completing this module, students will be able to name and explain the fundamental models of the geological development of Central Europe. They will be able to present the regional geology of Central Europe in its basic outlines and derive regional as well as stratigraphic references. They will develop a fundamental understanding of geological processes in space and time.
Teaching and Learning Methods, Types of Courses	Lecture 2 contact hours Exercise 2 contact hours
Workload	Lecture: attendance, preparations and follow-up (60 hours) Exercise: attendance, preparations and follow-up (60 hours) Exam preparation and exam (60 hours)
Teaching and Examination Language	German
Prerequisites for Participation	None Recommendation: Completion of the modules "Basics of Geology I" and "Basics of Geology II"
Applicability of the Module	Compulsory module in the minor subject Geology
Prerequisites for the Awarding of Credit Points	**Coursework:** Successful completion of 6-10 exercise tasks *or* report (1.500 – 2.000 words) **Examination (= module examination):** Written exam *or* term paper
Grades	The grading is conducted in accordance with § 30 General Regulations.
Duration of the Module	One semester
Frequency of the Module	Every second semester
Start of the Module	Winter semester

2.2 Sedimentology

Module Title	**Sedimentology**
Credit Points	6 credits (ECTS)
Degree of Obligation	Compulsory elective
Level	Specialization module
Contents and Qualification Objectives	After completing this module, students will be able to explain fundamental relationships regarding sediment provenance, sediment classification, and sediment structures. They will be able to identify and describe diagenetic processes, various sedimentary depositional environments, and their hydrodynamic and chemical characteristics. They will apply sedimentology in the fields of geo- and environmental sciences, resource exploration, and hydrogeology.
Teaching and Learning Methods, Types of Courses	Lecture 2 contact hours Exercise 2 contact hours
Workload	Lecture: attendance, preparations and follow-up (60 hours) Exercise: attendance, preparations and follow-up (60 hours) Exam preparation and exam (60 hours)
Teaching and Examination Language	German
Prerequisites for Participation	None Recommendation: Completion of the modules "Basics of Geology I" and "Basics of Geology II"
Applicability of the Module	Compulsory elective module in the minor subject Geology
Prerequisites for the Awarding of Credit Points	**Coursework:** Successful completion of 6-10 exercise tasks *or* report (1.500 – 2.000 words) **Examination (= module examination):** Written exam *or* project work
Grades	The grading is conducted in accordance with § 30 General Regulations.
Duration of the Module	One semester
Frequency of the Module	Every second semester
Start of the Module	Summer semester

2.3 Mineralogy

Module Title	**Mineralogy**
Credit Points	6 credits (ECTS)
Degree of Obligation	Compulsory elective
Level	Specialization module
Contents and Qualification Objectives	After completing the module, students will have a fundamental understanding of the composition and structure of minerals and will be familiar with their most important morphological and physical properties. They will be able to distinguish and identify minerals using basic methods. They will learn the classification of minerals and, through hand specimens, will become acquainted with the most important representatives of the respective mineral classes.
Teaching and Learning Methods, Types of Courses	Lecture 2 contact hours Exercise 2 contact hours
Workload	Lecture: attendance, preparations and follow-up (60 hours) Exercise: attendance, preparations and follow-up (60 hours) Exam preparation and exam (60 hours)
Teaching and Examination Language	German
Prerequisites for Participation	None Recommendation: Completion of the modules "Basics of Geology I" and "Basics of Geology II"
Applicability of the Module	Compulsory elective module in the minor subject Geology
Prerequisites for the Awarding of Credit Points	**Coursework:** Successful completion of 6-10 exercise tasks *or* report (1.500 – 2.000 words) **Examination (= module examination):** Written exam *or* project work *or* colloquium
Grades	The grading is conducted in accordance with § 30 General Regulations.
Duration of the Module	One semester
Frequency of the Module	Every four semesters
Start of the Module	Summer semester

2.4 Volcanology

Module Title	**Volcanology**
Credit Points	6 credits (ECTS)
Degree of Obligation	Compulsory elective
Level	Specialization module
Contents and Qualification Objectives	After successfully completing the module, students will be able to identify the fundamental processes during a volcanic eruption. They will describe the processes involved in the formation of pyroclastic and volcanic rock types in relation to their respective formation conditions, and they will be able to identify volcanic rocks based on external characteristics. The module typically includes a field work and exercise.
Teaching and Learning Methods, Types of Courses	Lecture 2 contact hours Field work and exercise 2 contact hours
Workload	Lecture: attendance, preparations and follow-up (60 hours) Field work and exercise: attendance, preparations and follow-up (60 hours) Exam preparation and exam (60h)
Teaching and Examination Language	German
Prerequisites for Participation	None Recommendation: Completion of the modules "Basics of Geology I" and "Basics of Geology II"
Applicability of the Module	Compulsory elective module in the minor subject Geology
Prerequisites for the Awarding of Credit Points	**Compulsory attendance** **Coursework:** Protocol (1.500 – 2.000 words) **Examination (= module examination):** Written exam *or* project work *or* colloquium
Grades	The grading is conducted in accordance with § 30 General Regulations.
Duration of the Module	One semester
Frequency of the Module	Every four semesters
Start of the Module	Summer semester

2.5 Hydrogeology

Module Title	**Hydrogeology**
Credit Points	6 credits (ECTS)
Degree of Obligation	Compulsory elective
Level	Specialization module
Contents and Qualification Objectives	After completing the module, students will be able to name important fundamental concepts of hydrogeology and groundwater in general, as well as describe and explain the hydraulics and dynamics of groundwater, groundwater morphology, the water balance, and groundwater quality. They will develop problem-solving strategies based on applied questions related to groundwater extraction and groundwater protection.
Teaching and Learning Methods, Types of Courses	Lecture 2 contact hours Exercise 2 contact hours
Workload	Lecture: attendance, preparations and follow-up (60 hours) Exercise: attendance, preparations and follow-up (60 hours) Exam preparation and exam (60 hours)
Teaching and Examination Language	German
Prerequisites for Participation	None Recommendation: Completion of the modules "Basics of Geology I" and "Basics of Geology II"
Applicability of the Module	Compulsory elective module in the minor subject Geology
Prerequisites for the Awarding of Credit Points	**Coursework:** Successful completion of 6-10 exercise tasks **Examination (= module examination):** Written exam *or* project work *or* colloquium
Grades	The grading is conducted in accordance with § 30 General Regulations.
Duration of the Module	One semester
Frequency of the Module	Every four semesters
Start of the Module	Winter semester

2.6 Engineering Geology

Module Title	**Engineering Geology**
Credit Points	6 credits (ECTS)
Degree of Obligation	Compulsory elective
Level	Specialization module
Contents and Qualification Objectives	After completing this module, students will be able to characterize the behavior of mountains and rocks based on geological material properties and their geological-historical-tectonic development for engineering-geotechnical requirements. Students will engage with the interactions between the geo- and anthroposphere in order to assess the consequences of human interventions and to develop solutions for the evaluation of natural hazards as well as construction projects.
Teaching and Learning Methods, Types of Courses	Lecture 2 contact hours Exercise 2 contact hours
Workload	Lecture: attendance, preparations and follow-up (60 hours) Exercise: attendance, preparations and follow-up (60 hours) Exam preparation and exam (60 hours)
Teaching and Examination Language	German
Prerequisites for Participation	None Recommendation: Completion of the modules Basics of Geology I" and "Basics of Geology II"
Applicability of the Module	Compulsory elective module in the minor subject Geology
Prerequisites for the Awarding of Credit Points	**Coursework:** Successful completion of 6-10 exercise tasks **Examination (= module examination):** Written exam *or* project work *or* colloquium
Grades	The grading is conducted in accordance with § 30 General Regulations.
Duration of the Module	One semester
Frequency of the Module	Every four
Start of the Module	Winter semester