Subdivided Module Catalogue
for the Subject

Applied Physical Geography
as a Master’s with 1 major
with the degree "Master of Science"
(120 ECTS credits)

Examination regulations version: 2016
Responsible: Faculty of Arts, Historical, Philological, Cultural and Geographical Studies
Responsible: Institute of Geography and Geology
Course of Studies - Contents and Objectives

The major objective of geographic-geoscientific research and teaching is to gain a better understanding of the Earth System. Therefore, it is based on the analysis of the processes on and near the surface of the earth which characterize the landscape and are controlled by the geofactors substratum, relief, climate, soil, water, flora, and fauna. These factors determine the structure, function and dynamics of the physical region (the natural environment) and its anthropogenic reshaping (of the environment transformed by human land use, settlements, roads, etc.). The quantitative assessment of the current process structures not only provides the source for conclusions regarding the potential and resilience of geoecosystems, but the analysis of the development and modification of geographic spaces in the past also allow a prediction for future changes. These key criteria to decision making in planning and management as well as the utilization and development are particularly significant in the applied field. Closely linked to the orientation of research activities, the general objective of the "Applied Physical Geography" study program – in addition to providing deeper interdisciplinary comprehension of the Earth system, the structure, function and dynamics of the natural environment and its utilization by the humans - is the promotion of skills for the management of sustainable utilization and development of the habitat Earth.

The students are thereby enabled to understand complex system relationships and to assess them related to their spatiality, to comprehend interdisciplinary connections and to apply scientific topic-based methods and knowledge to solve spatial and geoscientific problems. The study program is particularly designed to enable the students to assess aspects of social acceptance, economic adequacy, administrative feasibility, and legal admissibility. Through the dual focus of application-oriented study and the introduction of autonomous scientific analysis, the Master's study program qualifies the student for professional activities in addition to extended doctoral studies. It prepares the students for the theoretically and methodologically evolving professional requirements thereby allowing them not only to master the methodology and understand the scientific findings of their field of study and to apply them in practice, but also to comprehend and moderate ways of thinking and working that go beyond their own subject area. Furthermore, learning objectives reach beyond the acquisition of subject expertise by developing the ability for interdisciplinary cooperation, the acquirement of communicative and social competency and the capability to apply the knowledge gained, or, in short, to use the theoretical know-how for the solution of concrete problems.
Abbreviations used

Course types: E = field trip, K = colloquium, O = conversatorium, P = placement/lab course, R = project, S = seminar, T = tutorial, Ü = exercise, V = lecture

Term: SS = summer semester, WS = winter semester

Methods of grading: NUM = numerical grade, B/NB = (not) successfully completed

Regulations: (L)ASPO = general academic and examination regulations (for teaching-degree programmes), FSB = subject-specific provisions, SFB = list of modules

Other: A = thesis, LV = course(s), PL = assessment(s), TN = participants, VL = prerequisite(s)

Conventions

Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not creditable for bonus.

Notes

Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the method of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.

Should the module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.

Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.

In accordance with

the general regulations governing the degree subject described in this module catalogue:

ASPO2015

associated official publications (FSB (subject-specific provisions)/SFB (list of modules)):

04-Apr-2016 (2016-57)

This module handbook seeks to render, as accurately as possible, the data that is of statutory relevance according to the examination regulations of the degree subject. However, only the FSB (subject-specific provisions) and SFB (list of modules) in their officially published versions shall be legally binding. In the case of doubt, the provisions on, in particular, module assessments specified in the FSB/SFB shall prevail.
## Subdivided Module Catalogue for the Subject

**Applied Physical Geography**

**Master's with 1 major, 120 ECTS credits**

The subject is divided into

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<td>04-Geo-APG-EX-162-m01</td>
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<td>Special Issues of Advanced Physical Geography 1</td>
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<td>Special Issues of Advanced Physical Geography 2</td>
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<td>04-Geo-MAT1-152-m01</td>
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<td>Methods in Physical Geography - Practice and consolidating 1</td>
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<td>04-Geo-MAAK1-152-m01</td>
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Module title | Abbreviation
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Final Colloquium of Master Thesis by Students of Geography | 04-Geo-MAAK2-152-m01

### Module coordinator
Chairperson of examination committee Master Geographie (Geography)

### Module offered by
Institute of Geography and Geology

### ECTS
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### Duration
<table>
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<td>1 semester</td>
<td>graduate</td>
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### Contents
During the colloquium, the results of the master's thesis will be presented and defended in an adjacent scientific discussion. The colloquium lasts 45 minutes: Students will defend their thesis for 30 minutes (presentation) and will answer questions concerning the student's thesis and adjacent topics for 15 minutes.

### Intended learning outcomes
Presentation of the final Msc thesis

### Courses (type, number of weekly contact hours, language — if other than German)
K (0)
Module taught in: German and/or English

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)
talk (approx. 30 minutes) with subsequent discussion (approx. 15 minutes)
Language of assessment: German and/or English

### Allocation of places
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### Additional information
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### Referred to in LPO I (examination regulations for teaching-degree programmes)
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Module title: Applied Project: Change and protection of geosystems
Abbreviation: 04-Geo-MPP-152-m01

Module coordinator: holder of the Professorship of Physical Geography
Module offered by: Institute of Geography and Geology

ECTS: 15
Method of grading: Numerical grade
Duration: 1 semester
Module level: Graduate
Other prerequisites: --

Contents
The applied project combines aspects of the problem analysis, work organisation, methodological approaches and evaluation processes and analysis methods. In particular, this project prepares for the independent work, implementation and the completion of academic issues with different specific focuses. As a result from this combination, e.g. geomorphology, remote sensing, GIS, students will be able to form an individual specific focus. The data collection from their work placement project can be used as a basis in order to produce a comprehensive master’s thesis.

Intended learning outcomes
Students acquire advanced skills and use them in selected topic areas of Physical Geography. The work placement is designed as a project work placement. Skills of defining, organising and planning work flows, which have been acquired during the bachelor’s project seminars, as well as collecting data and to process, analyse and present them, should be consolidated. A project should be processed independently by using different technical methods. Thus, the students acquire advanced skills of project coordination, problem analysis and presentation of results.

Courses (type, number of weekly contact hours, language — if other than German)
R (8)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)
term paper (approx. 30 pages)
Language of assessment: German and/or English

Allocation of places
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Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
--
### Module title
Subsidiary subject-specific development for Students of Applied Physical Geography 1

### Abbreviation
04-Geo-BGPGM1-152-m01

### Module coordinator
holder of the Professorship of Physical Geography

### Module offered by
Institute of Geography and Geology

### ECTS
5

### Method of grading
numerical grade

### Only after succ. compl. of module(s)
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### Duration
1 semester

### Module level
graduate

### Other prerequisites
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### Contents
Courses that lead to additional skills in the field of study "Applied Human Geography", e.g. courses from other natural and environmental sciences

### Intended learning outcomes
Students acquire additional skills of the neighbouring sciences of the Applied Human Geography. They acquire knowledge of contents and problem areas, which are necessary for interdisciplinary work. They are also able to communicate within the related sciences technically.

### Courses (type, number of weekly contact hours, language — if other than German)
S (2)
Module taught in: German and/or English

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)
written examination (approx. 60 minutes)
Language of assessment: German and/or English

### Allocation of places
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### Additional information
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### Referred to in LPO I (examination regulations for teaching-degree programmes)
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<tbody>
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<td>holder of the Professorship of Physical Geography</td>
<td>Institute of Geography and Geology</td>
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<td>1 semester</td>
<td>graduate</td>
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**Contents**

Courses that lead to additional skills in the field of study "Applied Human Geography", e.g. courses from other natural and environmental sciences

**Intended learning outcomes**

Students acquire additional skills of the neighbouring sciences of the Applied Human Geography. They acquire knowledge of contents and problem areas, which are necessary for interdisciplinary work. They are also able to communicate within the related sciences technically.

**Courses** (type, number of weekly contact hours, language — if other than German)

S (2)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (approx. 60 minutes)

Language of assessment: German and/or English

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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<td>Subsidiary subject-specific development for Students of Applied Physical Geography 3</td>
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**Contents**
Courses that lead to additional skills in the field of study "Applied Human Geography", e.g. courses from other natural and environmental sciences

**Intended learning outcomes**
Students acquire additional skills of the neighbouring sciences of the Applied Human Geography. They acquire knowledge of contents and problem areas, which are necessary for interdisciplinary work. They are also able to communicate within the related sciences technically.

**Courses** (type, number of weekly contact hours, language — if other than German)

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**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

written examination (approx. 60 minutes)
Language of assessment: German and/or English

**Allocation of places**
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**Additional information**
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**Referred to in LPO 1** (examination regulations for teaching-degree programmes)
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<td>graduate</td>
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The work placement has to be completed in a module-relevant office or company, which fits the professional career the student is looking for or must be completed by field work for eight weeks outside of Europe. The work placement should comprise tasks that provides the intern with a comprehensive and adequate insight into the vocational world.

**Intended learning outcomes**

The work placement should provide insights into practical work processes. The graduates will learn how to implement independent project-related works, i.e. they will acquire skills during the project preparation and planning and/or during the project schedule or evaluation of tasks and how to turn this into reports. Vocational skills can be acquired by learning or deepening of methods.

**Courses**

(type, number of weekly contact hours, language — if other than German)

P (0)

Module taught in: German and/or English

**Method of assessment**

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

report on practical course (approx. 20 pages)

Language of assessment: German and/or English

**Allocation of places**

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**Additional information**

Students must submit a letter issued by the institution at which they completed their placement. This letter must confirm the start and end dates as well as the contents of the placement.

**Referred to in LPO I**

(examination regulations for teaching-degree programmes)
### Soil geography: Lab-analytical and microscopical training course

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### Contents

The practice transfers knowledge on basic and advanced analyses in the laboratory and at the microscope. Soils and Quaternary sediments are in the centre of own investigations. Selected samples are investigated by sedimentological and pedochemical analyses in the laboratory. Furthermore, microscopic methods related to heavy mineral analyses and micromorphology can be learned. Data from field and lab analyses are merged together independently by the students at the end of the practice.

### Intended learning outcomes

Students learn different methods of laboratory and microscopic works. Applied requests in Physical Geography as well as their transfer and assessment in form of a project report are in the centre of interest. Students develop competences in the application of methods related to job practice and are able to deal with current problems self-dependent.

### Courses (type, number of weekly contact hours, language — if other than German)

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### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

| talk (approx. 30 minutes) and term paper (approx. 10 pages) |
| Assessment offered: Once a year, summer semester |
| Language of assessment: German and/or English |

### Allocation of places

15 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information

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### Referred to in LPO I (examination regulations for teaching-degree programmes)

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### Module title

**Soil and Landscape change**

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### Module coordinator

holder of the Professorship of Soil Science

### Module offered by

Institute of Geography and Geology

### ECTS

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<th>Other prerequisites</th>
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</thead>
<tbody>
<tr>
<td>5</td>
<td>numerical grade</td>
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</table>

### Duration

1 semester

### Contents

The module aims to communicate knowledge on characteristic landscape with a main aspect on Central Europe. Topics on the interrelations between soils, geology, geomorphology, and landscape ecology play a major role. Quaternary research requests form an important section in the framework of the course. Beside spatial approaches, landscape formation on chronological scales is further considered. The relevance and the impact of soil and landscape genesis for geosystems and human societies are in the centre of interest. Moreover, the relevance of formation processes for applied problems, first of all for natural hazards, is considered. Further requests in the frame of human impact and its consequences to landscape change are discussed.

### Intended learning outcomes

The students gain profound knowledge in form of case studies related to present research projects in selected landscapes. Learning and recognition of interrelations are in the center of competences. On the base of scientific results students have state-of-the-art understanding for research examples. Beside knowledge on text books, study of international scientific literature is obligatory.

### Courses

(type, number of weekly contact hours, language — if other than German)

- **V (2)**
  - Module taught in: German and/or English

### Method of assessment

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

- written examination (approx. 45 minutes)
- Assessment offered: Once a year, winter semester
- Language of assessment: German and/or English

### Allocation of places

40 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

--
Module title | Dynamics of the land surfaces
---|---
Abbreviation | 04-Geo-RELA2-152-m01

Module coordinator | holder of the Professorship of Remote Sensing
Module offered by | Institute of Geography and Geology

ECTS | 5
Method of grading | numerical grade
Only after succ. compl. of module(s) | --

Duration | 1 semester
Module level | graduate
Other prerequisites | --

Contents
This module focusses on the observation of land cover and land cover change (intra- and inter-annual vegetation dynamics) by the means of remote sensing for subcontinental to global scales. The gained knowledge about the dynamics of the earth’s surface is strengthened by self-contained answering of questions on climate change (interactions between the land surface and the atmosphere), sustainable land and water management, land degradation and desertification as well as biodiversity research. The methodological focus lies on the derivation and analysis of multi-temporal geo- and biophysical parameters, quantification of remotely sensed fluxes at the earth surface (CO₂, energy balance) and scale issues.

Intended learning outcomes
The students acquire methodological knowledge and deepening textual knowings about the assessment and evaluation of the land surface dynamics from different perspectives. The carefully selected scientific problems on global change encourage interdisciplinary and holistic thinking and approaches.

Courses (type, number of weekly contact hours, language — if other than German)
Ü (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)
a) term paper (approx. 20 pages) or b) preparing a poster (approx. 10 hours)
Assessment offered: Once a year, summer semester
Language of assessment: German and/or English

Allocation of places
15 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.

Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
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<table>
<thead>
<tr>
<th>Module title</th>
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<tbody>
<tr>
<td>Mineral exploration methods</td>
<td>04-Geo-MLG2-152-m01</td>
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<thead>
<tr>
<th>Module coordinator</th>
<th>Module offered by</th>
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<tbody>
<tr>
<td>holder of the Professorship of Geodynamics and Geomaterials Research</td>
<td>Institute of Geography and Geology</td>
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<tr>
<td>1 semester</td>
<td>graduate</td>
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</table>

**Contents**

Students will be provided with essential geological, geochemical and geophysical methods for the discovery of new mineral deposits, integrated in a global context. Thus, the main focus will be on the practical application and usability in diverse stages of exploration.

**Intended learning outcomes**

Students acquire state-of-the-art basics of common, modern methods for exploration and evaluation of new mineral deposits. The basics range from consolidated understanding of structural geological contexts and geochemical hints up to basically geophysical methods for an improved characterisation and limitation of economically relevant mineral deposits.

**Courses** (type, number of weekly contact hours, language — if other than German)

V (1) + Ü (1)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) term paper (10 to 15 pages) or b) oral examination of one candidate each or oral examination in groups (approx. 30 minutes per candidate each)

Assessment offered: Once a year, summer semester

Language of assessment: German and/or English

**Allocation of places**

25 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

---
### Module title

Subject disciplinary development for Students of Applied Physical Geography

| Abbreviation                      | 04-Geo-FwVPGM1-152-m01 |

### Module coordinator

holder of the Professorship of Physical Geography

### Module offered by

Institute of Geography and Geology

<table>
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<tr>
<th>ECTS</th>
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</table>

### Duration

1 semester

### Contents

Courses that consolidate technical skills, e.g. seminars like "Special or Applied Physical Geography".

### Intended learning outcomes

Students deepen their knowledge of processes that are dominating the landscape on the Earth's surface and which are driven by the geological factors rocks, relief, climate, soil, water, flora and fauna even further.

### Courses

(S (2)

Module taught in: German and/or English

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<th>Type of Assessment</th>
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<th>Language</th>
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<th>Information about whether module can be chosen to earn a bonus</th>
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<td>b) presentation</td>
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<tr>
<td>and term paper</td>
<td>approx. 20 pages</td>
<td>German and/or English</td>
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### Language of assessment

German and/or English

### Allocation of places

20 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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<tr>
<th>Duration</th>
<th>Module level</th>
<th>Other prerequisites</th>
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<tbody>
<tr>
<td>1 semester</td>
<td>undergraduate</td>
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</tbody>
</table>

### Contents

Courses that consolidate technical skills, e.g. seminars like "Special or Applied Physical Geography".

### Intended learning outcomes

Students deepen their knowledge of processes that are dominating the landscape on the Earth’s surface and which are driven by the geological factors rocks, relief, climate, soil, water, flora and fauna even further.

### Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: German and/or English

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) written examination (approx. 45 minutes) or b) presentation (approx. 30 minutes) and term paper (approx. 20 pages)
Language of assessment: German and/or English

### Allocation of places

20 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information

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### Referred to in LPO I (examination regulations for teaching-degree programmes)

--
### Module title
Remote sensing of land surface parameters  

### Abbreviation
04-Geo-RELA1-152-m01

### Module coordinator
holder of the Professorship of Remote Sensing

### Module offered by
Institute of Geography and Geology

### ECTS
5

### Method of grading
numerical grade

### Only after succ. compl. of module(s)
--

### Duration
1 semester

### Module level
graduate

### Other prerequisites
--

### Contents
This module deals with the characterisation of the earth’s surface by assessing relevant remotely sensed parameters. These parameters are seen as resources of different land surfaces. Presented are methods for the assessment of vegetation, water, soils and urban areas as well as techniques for deriving bio- and geophysical parameters (e.g. vegetation and soil indices and parameters, imperviousness). Methodological skills are imparted for landscape analysis (e.g. analysis of topology, fragmentation of landscape elements, urban structures) as well as (inter)national assessment approaches, monitoring methods and programmes and practical application examples.

### Intended learning outcomes
The students acquire skills concerning the methodological acquisition and textual assessment of land surface parameters in the context of different geographical applications. Thereby, fundamentals of the understanding of remote sensing data and methods as well of observed land surface processes are provided. The scientific problem's type and complexity encourage interdisciplinary work.

### Courses
(type, number of weekly contact hours, language — if other than German)

| Ü (2) |
| Module taught in: German and/or English |

### Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

- a) term paper (approx. 20 pages) or b) preparing a poster (approx. 10 hours)

Assessment offered: Once a year, winter semester

Language of assessment: German and/or English

### Allocation of places
15 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information
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### Referred to in LPO I
(examination regulations for teaching-degree programmes)
--
Module title
Field Course for Students of Applied Physical Geography

Abbreviation
04-Geo-GPPGM-152-m01

Module coordinator
holder of the Professorship of Physical Geography

Module offered by
Institute of Geography and Geology

ECTS
5

Method of grading
numerical grade

Only after succ. compl. of module(s)

Duration
1 semester

Module level
graduate

Other prerequisites
--

Contents
Project seminars, during which the application of geographical field methods based on a specific issue will be practised.

Intended learning outcomes
Students achieve deepened skills of additional geographical methods and their application. With these methods, they are able to process little problems in a solution-orientated and target-orientated way.

Courses (type, number of weekly contact hours, language — if other than German)
P (4)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)
term paper (approx. 15 pages) and talk (approx. 15 minutes)
Language of assessment: German and/or English

Allocation of places
15 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.

Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
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<thead>
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<th>Module title</th>
<th>Abbreviation</th>
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<tr>
<td>Geoinformatics / GIS / Data bank management</td>
<td>04-Geo-MMT-152-m01</td>
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<td>Institute of Geography and Geology</td>
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<th>Other prerequisites</th>
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<tr>
<td>1 semester</td>
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### Contents

No information on contents available.

### Intended learning outcomes

No information on intended learning outcomes available.

### Courses (type, number of weekly contact hours, language — if other than German)

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Module taught in: German and/or English

### Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) exercises (approx. 15 pages) or b) oral examination of one candidate each (approx. 15 minutes)

Language of assessment: German and/or English

### Allocation of places

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### Additional information

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### Referred to in LPO I (examination regulations for teaching-degree programmes)

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<th>Module title</th>
<th>Field trip</th>
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<tr>
<td>Abbreviation</td>
<td>04-Geo-APG-EX-162-m01</td>
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<tbody>
<tr>
<td>holder of the Chair of Physical Geography</td>
<td>Institute of Geography and Geology</td>
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<tr>
<td>1 semester</td>
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</table>

**Contents**

German contents available but not translated yet.


**Intended learning outcomes**

German intended learning outcomes available but not translated yet.


**Courses** (type, number of weekly contact hours, language — if other than German)

E (0)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) field trip log (approx. 15 pages) or b) presentation (approx. 30 minutes) with handout (approx. 3 pages)

Language of assessment: German and/or English

**Allocation of places**

--

**Additional information**

--

**Referred to in LPO I** (examination regulations for teaching-degree programmes)

--
Module title
Climate change, implications and protection

Abbreviation
04-Geo-MAT1-152-m01

Module coordinator
holder of the Professorship of Climatology

Module offered by
Institute of Geography and Geology

ECTS
5

Method of grading
numerical grade

Only after succ. compl. of module(s)

Duration
1 semester

Module level
graduate

Other prerequisites
--

Contents
The focus is on the variability of atmospheric features at climatological time scales. In particular, anthropogenic climate change is assessed against the background of natural climate variations. Observed indications of climate change and climate model projections will be illustrated, ecological and socioeconomic implications be derived and needs of climate protection be discussed.

Intended learning outcomes
The students gain substantial insights into the mechanisms of climate variability on the basis of physically and mathematically explicit assessments of atmospheric processes. Especially, the interplay between natural and anthropogenic climate factors will be elucidated.

Courses (type, number of weekly contact hours, language — if other than German)
V (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)
written examination (approx. 60 minutes)
Assessment offered: Once a year, winter semester
Language of assessment: German and/or English

Allocation of places
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Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
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<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>Geology of mineral deposits</td>
<td>04-Geo-MLG1-152-m01</td>
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**Module coordinator**
holder of the Professorship of Geodynamics and Geomaterials Research

**Module offered by**
Institute of Geography and Geology

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**Duration**

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<tr>
<td>1 semester</td>
<td>graduate</td>
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</table>

**Contents**

The variety of mineral resources will be presented in their entirety. In particular processes that lead to an economical accumulation of such raw materials will be processed exemplarily. This comprises igneous, hydrothermal and sedimentary processes, from which usable ore deposits, solid energy sources, industrial minerals as well as rocks and earths emerged.

**Intended learning outcomes**

Students acquire on the base of state-of-the-art basics, deposit geology by means of current examples. Further, they acquire the ability to genetically classify existing and new mineral deposits and thus, also the basis of the assessment of prospective exploitation and exploration strategies.

**Courses** (type, number of weekly contact hours, language — if other than German)

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<tr>
<td>Module taught in: German and/or English</td>
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**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

- a) written examination (30 minutes) or b) oral examination of one candidate each (approx. 30 minutes)

Assessment offered: Once a year, winter semester
Language of assessment: German and/or English

**Allocation of places**

25 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

--

**Referred to in LPO I** (examination regulations for teaching-degree programmes)

--
**Module title**
Master Thesis by Students of Geography

**Abbreviation**
04-Geo-MAAK1-152-m01

**Module coordinator**
chairperson of examination committee Master Geographie (Geography)

**Module offered by**
Institute of Geography and Geology

**ECTS**
28

**Method of grading**
umerical grade

**Only after succ. compl. of module(s)**
--

**Duration**
--

**Module level**
graduate

**Other prerequisites**
--

**Contents**
Adhering to the principles of good scholarly practice, students will independently draw up a master's thesis

**Intended learning outcomes**
Students achieve the following skills:
- Ability to produce a scientific work independently (description and analysis of a problem, literary research, theory reference, interpretation of data, logical conclusions and solution approaches of a scientific issue)
- Linguistic competence
- Ability to accomplish tasks in a given time period

**Courses**
(type, number of weekly contact hours, language — if other than German)
No courses assigned to module

**Method of assessment**
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)
Master's thesis (approx. 100 pages)
Language of assessment: German and/or English

**Allocation of places**
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**Additional information**
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**Referred to in LPO I**
(examination regulations for teaching-degree programmes)
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</table>

**Contents**

Courses that consolidate skills of geographical methods and their application, e.g. thematic Cartography, GIS courses for advanced students or project seminars, in which the application of geographical field methods will be practised with the help of a specific issue.

**Intended learning outcomes**

Students achieve deepened skills of additional geographical methods and their application. With these methods, they are able to process little problems in a solution-orientated and target-orientated way.

**Courses** (type, number of weekly contact hours, language — if other than German)

Ü (2)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) presentation (approx. 15 minutes) and term paper (approx. 15 pages) or b) exercises (approx. 30 hours)

Language of assessment: German and/or English

**Allocation of places**

15 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Subdivided Module Catalogue for the Subject
Applied Physical Geography
Master's with 1 major, 120 ECTS credits

<table>
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<tr>
<th>Duration</th>
<th>Module level</th>
<th>Other prerequisites</th>
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</thead>
<tbody>
<tr>
<td>1 semester</td>
<td>graduate</td>
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</table>

**Contents**
Courses that consolidate skills of geographical methods and their application, e.g. thematic Cartography, GIS courses for advanced students or project seminars, in which the application of geographical field methods will be practised with the help of a specific issue.

**Intended learning outcomes**
Students achieve deepened skills of additional geographical methods and their application. With these methods, they are able to process little problems in a solution-orientated and target-orientated way.

**Courses** (type, number of weekly contact hours, language — if other than German)

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<th>Ü (2)</th>
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<tbody>
<tr>
<td>Module taught in: German and/or English</td>
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</table>

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) presentation (approx. 30 minutes) and term paper (approx. 15 pages) or b) exercises (approx. 30 hours)
Language of assessment: German and/or English

**Allocation of places**
15 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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### Module title
Special Issues of Advanced Physical Geography 1

### Abbreviation
04-Geo-MPG4-152-m01

### Module coordinator
holder of the Professorship of Physical Geography

### Module offered by
Institute of Geography and Geology

### ECTS
5

### Method of grading
numerical grade

### Only after succ. compl. of module(s)
--

### Duration
1 semester

### Module level
graduate

### Other prerequisites
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### Contents
In the tutorial and using current academic knowledge, complex issues of physical-geographical topics will be developed. Students will be provided with theoretical and methodological approaches as well as their regional application or relevance in particular. Under tutelage, students will be able to present and evaluate new issues to “Geography” on the basis of an established understanding of common scientific methods in presentations and discussions.

### Intended learning outcomes
Students acquire consolidated skills in selected topic areas of Physical Geography. They will be introduced to the state of research and learn to process and evaluate scientific results as well as to use them context-related. Students acquire the ability to prepare scientific specialised literature themed, to conceptualise and present scientific texts as well as to analyse, structure and process issues of Physical Geography by theoretical and methodological research approaches.

### Courses
(type, number of weekly contact hours, language — if other than German)

**Ü (2)**
Module taught in: German and/or English

### Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

presentation (approx. 30 minutes) and term paper (approx. 30 pages)

Assessment offered: Once a year, winter semester

Language of assessment: German and/or English

### Allocation of places
25 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.

### Additional information
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### Referred to in LPO I (examination regulations for teaching-degree programmes)
--
**Module title**

Special Issues of Advanced Physical Geography 2

**Abbreviation**

04-Geo-MPG5-152-m01

**Module coordinator**

holder of the Professorship of Physical Geography

**Module offered by**

Institute of Geography and Geology

**ECTS**

5

**Method of grading**

Only after succ. compl. of module(s)

**Duration**

1 semester

**Module level**

graduate

**Other prerequisites**

--

**Contents**

Students will be made familiar with the latest state-of-the-art by the analysis of scientific literature. By the independent preparation and presentation of presentations, students learn to draw up academic papers and the analysis and discussion about papers from fellow students and technical skills, the ability to take criticism and the current status of academic discussion as well as methodological knowledge during the processing of scientific issues. The themes of the papers give all an overview of the latest state-of-the-art in this topic area. The analysis of the latest state-of-the-art, which can particularly be found in scientific journals, is a precondition in order to process successfully. During the tutorial, feedback will take place through the direct discussion and the preliminary discussion and debriefing with the conference manager.

**Intended learning outcomes**

Students acquire consolidated skills in selected topic areas of Physical Geography. They will be introduced to the state of research and learn to process and evaluate scientific results as well as to use them context-related. Students acquire the ability to prepare scientific specialised literature themed, to conceptualise and present scientific texts as well as to analyse, structure and process issues of Physical Geography by theoretical and methodological research approaches.

**Courses** (type, number of weekly contact hours, language — if other than German)

Ü (2)

Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

presentation (approx. 30 minutes) and term paper (approx. 30 pages)

Assessment offered: Once a year, summer semester

Language of assessment: German and/or English

**Allocation of places**

25 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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Module title: Planning Law
Abbreviation: 04-Geo-PlanR-152-m01

Module coordinator: holder of the Professorship of Geography and Regional Science
Module offered by: Institute of Geography and Geology

ECTS: 5
Method of grading: numerical grade
Only after succ. compl. of module(s): --

Duration: 1 semester
Module level: graduate
Other prerequisites: --

Contents
Introduction to the regional development, regional planning and public construction law; Overview of legal bases and fields of application; Discussion of regional planning and urban land-use plans. Theoretical, terminological and methodological foundations of the regional planning as well as its legal basis and most common fields of application.

Intended learning outcomes
Students get a consolidated insight into the basics of the planning regulations and develop skills in regional planning scientific nomenclature and its handling, which affects the array and interpretation of plans and different benchmark levels.

Courses (type, number of weekly contact hours, language — if other than German)
V (2)
Module taught in: German and/or English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)
written examination (approx. 45 minutes)
Language of assessment: German and/or English

Allocation of places
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Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
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<tbody>
<tr>
<td>Regional and environmental planning</td>
<td>04-Geo-RUmwP-152-m01</td>
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**Contents**

The course will provide students with in-depth knowledge of former and modern planning models and planning works, spatial structural categories, conceptions as well as formal and informal tools of regional development planning and regional planning and further, students will be able to the qualified application and use of spatial analytical and spatial planning tools.

**Intended learning outcomes**

Students achieve in-depth knowledge of former and modern planning models, categories of spatial structure, conceptions as well as formal and informal tools of spatial planning and regional development and develop skills of qualified applications and the use of spatial analytical and regional planning tools.

**Courses** (type, number of weekly contact hours, language — if other than German)

- V (2)
  - Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

- written examination (approx. 45 minutes)
  - Language of assessment: German and/or English

**Allocation of places**

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**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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<tr>
<td>Computer-based statistical data analysis</td>
<td>04-Geo-MSTAT-152-m01</td>
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<tr>
<td>holder of the Professorship of Climatology</td>
<td>Institute of Geography and Geology</td>
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**Contents**

Thus, in the module "Statistics III" common and specific processes of univariate and multivariate statistic will be implemented on the computer with the help of basic programming language FORTRAN and by plausible examples from different areas of "Geography".

**Intended learning outcomes**

Based on the theoretical knowledge of univariate and multivariate statistics from the Bachelor level, the students will be enabled to apply statistical issues by means of programming.

**Courses** (type, number of weekly contact hours, language — if other than German)

Ü (2)
Module taught in: German and/or English

**Method of assessment** (type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

a) exercises (approx. 15 pages) or b) oral examination of one candidate each or oral examination in groups (each approx. 15 minutes per candidate)
Language of assessment: German and/or English

**Allocation of places**

--

**Additional information**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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### Module title
Synoptic meteorology and weather forecasting

### Abbreviation
04-Geo-MAT2-152-m01

### Module coordinator
holder of the Professorship of Climatology

### Module offered by
Institute of Geography and Geology

### ECTS
5

### Method of grading
numerical grade

### Only after succ. compl. of module(s)
--

### Duration
1 semester

### Module level
graduate

### Other prerequisites
--

## Contents
This module deals with the variability of atmospheric dynamics at the synoptic time scale, i.e. hours to days. The main focus is on synoptic meteorology which describes weather phenomena in the extratropics and aims at weather forecasting. The module presents numerical methods in atmospheric physics, meteorological field measurements, interpretation of forecasted atmospheric fields and computer-based data analyses.

## Intended learning outcomes
The students gain substantial insights into the mechanisms of weather variability on the basis of physically and mathematically explicit assessments of atmospheric processes. The module aims at enhancing skills in maths and physics, in meteorological measurement techniques, in programming and in writing of measurement reports.

## Courses
(type, number of weekly contact hours, language — if other than German)

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## Method of assessment
(type, scope, language — if other than German, examination offered — if not every semester, information on whether module can be chosen to earn a bonus)

| oral examination of one candidate each or oral examination in groups (approx. 15 minutes per candidate each) |
| Assessment offered: Once a year, summer semester |
| Language of assessment: German and/or English |

## Allocation of places
15 places. Should the number of applications exceed the number of available places, places will be allocated according to the number of subject semesters. Among applicants with the same number of subject semesters, places will be allocated by lot. A waiting list will be maintained and places re-allocated by lot as they become available.

## Additional information
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## Referred to in LPO I
(examination regulations for teaching-degree programmes)
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