

# Subdivided Module Catalogue for the Subject

## Geography

with the degree "Exchange Austauschprogramm" (ECTS credits)

Examination regulations version: 2025

Responsible: Faculty of Arts, Historical, Philological, Cultural and Geographical

Studies

Responsible: Institute of Geography and Geology

Responsible:



#### **Abbreviations used**

Course types:  $\mathbf{E} = \text{field trip}$ ,  $\mathbf{K} = \text{colloquium}$ ,  $\mathbf{O} = \text{conversatorium}$ ,  $\mathbf{P} = \text{placement/lab course}$ ,  $\mathbf{R} = \text{project}$ ,  $\mathbf{S} = \text{seminar}$ ,  $\mathbf{T} = \text{tutorial}$ ,  $\ddot{\mathbf{U}} = \text{exercise}$ ,  $\mathbf{V} = \text{lecture}$ 

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:

#### unknown

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

#### unknown

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.



## The subject is divided into

Abbreviation	Module title		Method of grading	page				
EAGLE								
04-GEO-TB2-162-m01	Applications of Earth Observation	5	NUM	20				
04-GEO-MB1-162-m01	Digital Image Analysis and GIS	5	NUM	8				
04-GEO-MB1-242-m01	Introduction to Spatial Data Analysis Software	5	NUM	9				
04-GEO-MET5-212-m01	Cloud Computing in Remote Sensing	5	NUM	10				
04-GEO-OMA11-242-m01	Earth Observation Cloud Computing	5	NUM	12				
04-GEO-MET8-212-m01	Active Remote Sensing Systems	5	NUM	11				
04-GEO-OMA2-242-m01	Introduction to Active remote sensing systems	5	NUM	13				
04-GEO-TB3-242-m01	Scientific Publishing and Writing in Earth Observation	5	B/NB	21				
04-GEO-SOS5-212-m01	Scientific Writing	5	NUM	19				
04-GEO-OMA7-242-m01	Introduction to Spatial Python	5	NUM	15				
04-GEO-OMA24-242-m01	Innovative Earth Observation Methods	5	NUM	14				
04-GEO-URB1-242-m01	Global to local Earth Observation of Urbanization	5	NUM	23				
04-GEO-RE4-212-m01	Urban Remote Sensing	5	NUM	16				
04-GEO-URB2-242-m01	Urban Remote Sensing	5	NUM	25				
04-GEO-URB12-242-m01	Remote Sensing of Urban Areas	5	NUM	22				
04-GEO-URB13-242-m01	Risk and Disaster Earth Observation	5	NUM	24				
04-GEO-RE5-212-m01	Risk and Disaster Earth Observation	5	NUM	17				
04-GEO-SOS12-242-m01	Science Communication	5	B/NB	18				
GEOSPHERE				•				
04-Geo-GS-RV1-252-m01	Environmental challenges I	5	NUM	7				
04-Geo-GS-PG1-252-m01	Earth surface processes and landforms in a changing world	5	NUM	5				
04-Geo-GS-PG2-252-m01	Human-environmental interactions	5	NUM	6				
04-Geo-GS-Clim1-252- m01	Man-made climate change, implications and mitigation	5	NUM	4				
Interdisciplinary Courses								



Module title Abbreviation					
Man-made climate change, imp		04-Geo-GS-Clim1-252-m01			
Module coordinator		Module offered	by		
		Institute of Geog	graphy and Geology		
ECTS Method of grading	Only after succ. co	ompl. of module(s)			
5 numerical grade					
Duration Module level	Other prerequisite	es			
1 semester					
Contents	,				
<u></u>					
Intended learning outcomes					
Courses (type, number of weekl	y contact hours, language	— if other than Gei	rman)		
V (2)					
Module taught in: English					
<b>Method of assessment</b> (type, so ster, information on whether mo			nination offered — if not every seme-		
written examination (approx. 45 Language of assessment: Englis Assessment offered: once a yea	h				
Allocation of places					
			ng applicants with the same number intained and places re-allocated by		
Additional information					
Workload					
150 h					
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					



Module coordinator   Institute of Geography and Geology	Modul	Module title Abbreviation					
Institute of Geography and Geology  CTS   Method of grading   Only after succ. compl. of module(s)	Earth surface processes and landforms in a changing world					04-Geo-GS-PG1-252-m01	
Method of grading   Only after succ. compl. of module(s)	Modul	e coord	inator		Module offered by		
Ouration Module level Other prerequisites Semester					Institute of Geogra	phy and Geology	
Other prerequisites Semester  Contents  Courses (type, number of weekly contact hours, language — if other than German)  Gourses (type, number of weekly contact hours, language — if other than German)  Gourses (type, number of weekly contact hours, language — if other than German)  Gourses (type, number of weekly contact hours, language — if other than German)  Gourses (type, number of weekly contact hours, language — if other than German)  Gourses (type, number of weekly contact hours, language — if other than German)  Gourses (type, number of weekly contact hours, language — if other than German)  Gourses (type, number of weekly contact hours, language — if other than German)  Gourses (type, number of subject sement of sementary sementary in the sementary sementary sementary in the sementary s	ECTS			Only after succ. con	pl. of module(s)		
Intended learning outcomes  Courses (type, number of weekly contact hours, language — if other than German)  (is (2)  Module taught in: English  Method of assessment (type, scope, language — if other than German, examination offered — if not every semeter, information on whether module can be chosen to earn a bonus)  (i) presentation (approx. 30 minutes) with related term paper (approx. 20 pages) or only written examination (approx. 45 minutes)  anguage of assessment: English  kssessment offered: once a year, winter semester  No 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 ot as they become available.  Moditional information  Vorkload  50 h	5	nume	rical grade				
Intended learning outcomes  Courses (type, number of weekly contact hours, language — if other than German)  (a)  Module taught in: English  Method of assessment (type, scope, language — if other than German, examination offered — if not every semeter, information on whether module can be chosen to earn a bonus)  (a) presentation (approx. 30 minutes) with related term paper (approx. 20 pages) or  (b) written examination (approx. 45 minutes)  (a) anguage of assessment: English  (a) assessment offered: once a year, winter semester  Milocation of places  (c) places.  (c) places.  (d) 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 ot as they become available.  Moditional information  (b) Workload  (50 h)	Duration	on	Module level	Other prerequisites			
Intended learning outcomes  Courses (type, number of weekly contact hours, language — if other than German)  So (2)  Module taught in: English  Method of assessment (type, scope, language — if other than German, examination offered — if not every semeter, information on whether module can be chosen to earn a bonus)  In presentation (approx. 30 minutes) with related term paper (approx. 20 pages) or  In written examination (approx. 45 minutes)  In anguage of assessment: English  In assessment offered: once a year, winter semester  Mollocation of places  In places  In places  In places  In 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 on as they become available.  Moditional information  Workload  50 h	1 seme	ester					
Courses (type, number of weekly contact hours, language — if other than German)  6 (2)  Module taught in: English  Method of assessment (type, scope, language — if other than German, examination offered — if not every semeter, information on whether module can be chosen to earn a bonus)  a) presentation (approx. 30 minutes) with related term paper (approx. 20 pages) or o) written examination (approx. 45 minutes)  anguage of assessment: English  assessment offered: once a year, winter semester  Milocation of places  to 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 ot as they become available.  Morkload  For h	Conter	nts					
Courses (type, number of weekly contact hours, language — if other than German)  6 (2)  Module taught in: English  Method of assessment (type, scope, language — if other than German, examination offered — if not every semeter, information on whether module can be chosen to earn a bonus)  a) presentation (approx. 30 minutes) with related term paper (approx. 20 pages) or o) written examination (approx. 45 minutes)  anguage of assessment: English  assessment offered: once a year, winter semester  Milocation of places  to 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 ot as they become available.  Morkload  For h							
Module taught in: English  Method of assessment (type, scope, language — if other than German, examination offered — if not every semeter, information on whether module can be chosen to earn a bonus)  A) presentation (approx. 30 minutes) with related term paper (approx. 20 pages) or  b) written examination (approx. 45 minutes)  canguage of assessment: English  cassessment offered: once a year, winter semester  Milocation of places  co 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 ot as they become available.  Moditional information  Workload  50 h	Intend	ed lear	ning outcomes				
Module taught in: English  Method of assessment (type, scope, language — if other than German, examination offered — if not every semeter, information on whether module can be chosen to earn a bonus)  A) presentation (approx. 30 minutes) with related term paper (approx. 20 pages) or  b) written examination (approx. 45 minutes)  canguage of assessment: English  cassessment offered: once a year, winter semester  Milocation of places  co 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 ot as they become available.  Moditional information  Workload  50 h							
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) with related term paper (approx. 20 pages) or  b) written examination (approx. 45 minutes)  anguage of assessment: English  Assessment offered: once a year, winter semester  Allocation of 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 ot as they become available.  Additional information  Workload  50 h	Course	<b>es</b> (type	, number of weekly conta	ct hours, language –	if other than Germa	an)	
ster, information on whether module can be chosen to earn a bonus)  (a) presentation (approx. 30 minutes) with related term paper (approx. 20 pages) or (b) written examination (approx. 45 minutes) (c) written examination (approx. 45 minutes) (c) written examination (approx. 45 minutes) (c) written examination offered: ence a year, winter semester  (c) written examination of places (c) places (	S (2) Modul	e taugh	t in: English				
o) written examination (approx. 45 minutes) Language of assessment: English Assessment offered: once a year, winter semester  Allocation of places  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 ot as they become available.  Additional information  Workload  50 h						ation offered — if not every seme-	
Allocation of places To 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 ot as they become available.  Additional information  - Workload 50 h	b) writt	ten exa age of a	mination (approx. 45 min ssessment: English	utes)	er (approx. 20 pages	s) or	
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 ot as they become available.  Additional information  -  Workload  50 h							
Vorkload 50 h	Places of subj	20 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					
50 h	Additio	onal inf	ormation				
50 h							
	Workload						
	150 h						
	Teaching cycle						
-							
Referred to in LPO I (examination regulations for teaching-degree programmes)	Referre						



Module title Abbreviation						
luman-environmental interactions		04-Geo-GS-PG2-252-m01				
Module coordinator	Module offe	red by				
	Institute of	Geography and Geology				
CTS Method of grading	ly after succ. compl. of modul	e(s)				
numerical grade						
ouration Module level	her prerequisites					
semester						
ontents						
·						
ntended learning outcomes						
<b>courses</b> (type, number of weekly contac	ours, language — if other thar	ı German)				
5 (2) Module taught in: English						
<b>Method of assessment</b> (type, scope, larter, information on whether module ca		examination offered — if not every seme-				
) presentation (approx. 30 minutes) wi ) written examination (approx. 45 minu anguage of assessment: English assessment offered: once a year, winter	s)	pages) or				
llocation of places						
		among applicants with the same number e maintained and places re-allocated by				
Additional information						
Workload						
150 h						
Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes)						



Module	Module title Abbreviation					
Enviror	ımenta	l challenges I	04-Geo-GS-RV1-252-m01			
Module	Module coordinator					
	COOIG			Module offered by Institute of Geograp	phy and Geology	
ECTS	Meth	od of grading	Only after succ. com	<u> </u>	ony and deology	
5		rical grade		ipii oi modute(s)		
Duratio	n	Module level	Other prerequisites			
1 seme						
Conten	its					
Intend	ed lear	ning outcomes				
Course	<b>s</b> (type	, number of weekly conta	ct hours, language —	· if other than Germa	ın)	
V (2)		t in: English				
		sessment (type, scope, la ion on whether module ca			tion offered — if not every seme-	
		nation (approx. 45 minute ssessment: English	es)			
Allocat	ion of	olaces				
Additio	nal inf	ormation				
Worklo	ad					
150 h	150 h					
	Teaching cycle					
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)					



Module title					Abbreviation	
Digital Image Analysis and GIS					04-GEO-MB1-162-m01	
Module coordinator				Module offered by		
holder	of the	Professorship of Remote	e Sensing	Institute of Geography and Geology		
ECTS	Meth	od of grading	Only after succ. cor	npl. of module(s)		
5	nume	rical grade				
Durati	on	Module level	Other prerequisites			
1 semester graduate						
Contents						
	· .					

The module comprises the following practical topics: Managing and geoprocessing of raster and vector data including digitization and analysis/ visualization of geodata / preprocessing of optical remote sensing data (geometric and atmospheric corrections, dimension reduction) / different approaches, algorithms, sampling and validation strategies for validation / change detection, vegetation indices / basics in the derivation of geophysical and biophysical parameters (e.g. LAI, FAPAR, Chlorophyll content of leafs, Land Surface Temperature, Surface Albedo

#### **Intended learning outcomes**

The seminar aims at improving the methodological skills of the participants in digital image processing and the use of Geographical Information Systems.

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

Ü (2)

Module taught in: 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. 30 minutes) or
- b) preparing a poster (approx. 10 hours total) or
- c) term paper (approx. 15 pages)

Language of assessment: English or German (assessment will be held in English; in addition, the examiner may, where possible, decide to hold assessment in German)

creditable for bonus

#### Allocation of places

--

#### **Additional information**

\_\_

#### Workload

150 h

#### **Teaching cycle**

--

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



		186.19	5 (6 13 13 13 15 15 15 15 15 15 15 15 15 15 15 15 15	33 <b>%~19</b>	, ECIS credits
Module title Abbreviation					
Introdu	ıction t	o Spatial Data Analysis S	Software		04-GEO-MB1-242-m01
Module	e coord	inator		Module offered by	
holder	of the I	Professorship of Remote	Sensing	Institute of Geograp	ohy and Geology
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)	
5	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	graduate			
Conten	ts				
The module comprises the following practical topics: Managing and geoprocessing of raster and vector data including digitization and analysis/ visualization of geodata / preprocessing of optical remote sensing data (geometric and atmospheric corrections, dimension reduction) / different approaches, algorithms, sampling and validation strategies for validation / change detection, vegetation indices / basics in the derivation of geophysical and biophysical parameters (e.g. LAI, FAPAR, Chlorophyll content of leafs, Land Surface Temperature, Surface Albedo					
Intended learning outcomes					
The ser	minar a	ims at improving the met	thodological skills of	the participants in d	igital image processing and the

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

Ü (2)

Module taught in: 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. 30 minutes) or

use of Geographical Information Systems.

- b) preparing a poster (approx. 10 hours total) or
- c) term paper (approx. 15 pages)

Language of assessment: English or German (assessment will be held in English; in addition, the examiner may, where possible, decide to hold assessment in German)

creditable for bonus

#### **Allocation of places**

--

#### **Additional information**

--

#### Workload

150 h

#### **Teaching cycle**

--

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



Module title				Abbreviation	
Cloud Computing in Remote Sensing					04-GEO-MET5-212-m01
Module	coord	inator		Module offered by	
holder	of the I	Professorship of Remote	Sensing	Institute of Geograp	phy and Geology
ECTS	Metho	od of grading	Only after succ. compl. of module(s)		
5	nume	rical grade			
Duratio	n	Module level	Other prerequisites	i	
1 seme	ster	graduate			
Contents					
Google Earth Engine is a cloud-based geospatial processing platform allowing for planetary-scale analysis. Next to a large amount of raw processing power provided by Google's computational infrastructure, Earth Engine offers a rich data catalog which stores several petabytes of publically available and analysis ready geospatial data					

#### **Intended learning outcomes**

Students will be introduced to the platform and gain fundamental knowledge about the usage of Google Earth Engines processing power and data offer.

sets. Topics covered are vector and raster data manipulation, working with ImageCollections, time-series analy-

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

sis, classification, iteration, visualization and animation of spatial data.

 $S(1) + \ddot{U}(1)$ 

Module taught in: 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. 30 minutes) or
- b) preparing a poster (approx. 10 hours total) or
- c) term paper (approx. 15 pages)

Language of assessment: English or German (assessment will be held in English; in addition, the examiner may, where possible, decide to hold assessment in German)

Assessment offered: Once a year, summer semester

creditable for bonus

#### Allocation of places

--

#### **Additional information**

--

#### Workload

150 h

#### Teaching cycle

--

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



Module	title			Abbreviation	
Active Remote Sensing Systems					04-GEO-MET8-212-m01
Module	coord	inator		Module offered by	
holder	of the F	Professorship of Remote	Sensing	Institute of Geograp	ohy and Geology
ECTS	Metho	od of grading	Only after succ. compl. of module(s)		
5	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 seme	ster	graduate			
Conten	ts				
Methodological and technical basics of active remote sensing systems, e.g. LiDAR and SAR, are presented. The basics of data collection, processing and interpretation will be discussed and demonstrated on selected case studies. Using example datasets, the processing of active remote sensing data using appropriate software will be demonstrated and practiced.					

#### **Intended learning outcomes**

In this course, students learn about the functional principle, basics of data processing and possible applications of selected active remote sensing systems. The strengths and limitations of the respective methods will be explained and discussed.

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

 $S(1) + \ddot{U}(1)$ 

Module taught in: 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. 30 minutes) or
- b) preparing a poster (approx. 10 hours total) or
- c) term paper (approx. 15 pages)

Language of assessment: English or German (assessment will be held in English; in addition, the examiner may, where possible, decide to hold assessment in German)

Assessment offered: Once a year, summer semester

creditable for bonus

#### Allocation of places

--

#### **Additional information**

--

#### Workload

150 h

#### **Teaching cycle**

--

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



Module title Abbreviation						
Earth (	Observa	ation Cloud Computin	g		04-GEO-OMA11-242-m01	
Module coordinator				Module offered by		
				Institute of Geogra	nhy and Geology	
ECTS	Meth	od of grading	Only after succ. cor		priy and dedicajy	
5		rical grade		1		
Duratio	on	Module level	Other prerequisites	j		
1 seme	ester					
Conter	ıts					
Intend	ed lear	ning outcomes				
Course	es (type	, number of weekly co	ontact hours, language –	– if other than Germa	an)	
S (1) +	` '					
Modul	e taugh	t in: English				
			e, language — if other th lle can be chosen to earn		ation offered — if not every seme-	
b) prep c) term Langua where	paring a paper age of a	le, decide to hold ass	ours total) or or German (assessment v	vill be held in Englisl	h; in addition, the examiner may,	
Alloca	tion of	places				
Additio	onal inf	ormation				
Workload						
150 h						
Teaching cycle						
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)					



Module	Module title Abbreviation					
Introdu	uction t	to Active remote sensing	g systems	04-GEO-OMA2-242-m01		
Module coordinator				Module offered by		
				Institute of Geograp	hhy and Geology	
ECTS	Meth	od of grading	Only after succ. con		ony and decitory	
5		erical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ster					
Conter	its					
	-					
Intend	ed lear	ning outcomes				
Course	<b>s</b> (type	, number of weekly con	tact hours, language –	- if other than Germa	an)	
S (1) +	Ü (1)					
Modul	e taugh	nt in: English				
					ition offered — if not every seme-	
-		ion on whether module		a bonus)		
		on (approx. 30 minutes)				
		a poster (approx. 10 hou (15 pages)	is total) of			
			German (assessment v	vill be held in English	n; in addition, the examiner may,	
		le, decide to hold asses	sment in German)			
credita						
Allocat	ion of	places				
Additio	nal inf	formation				
Workload						
150 h						
Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes)						



Module title Abbreviation						
Innovative Earth Observation Methods					04-GEO-OMA24-242-m01	
Module coordinator				Module offered by		
Module	e coora	inator		<u> </u>	1 10 1	
	Madb		Only often avec som	Institute of Geograp	ony and Geology	
ECTS		od of grading rical grade	Only after succ. cor	npt. or modute(s)		
5 <b>Duratio</b>		Module level	Other prerequisites			
1 seme			Other prerequisites			
Conten		<u> </u>				
Conten						
Intend						
intende	ed lear	ning outcomes				
					`	
		, number of weekly o	contact hours, language –	- if other than Germa	an)	
S (1) +	` '	t in: English				
		_	a language if other th	an Carman, avamina	ation offered — if not every seme-	
			ule can be chosen to earn		ition offered — If flot every selfie-	
		n (approx. 30 minut		•		
		poster (approx. 10 h				
		(15 pages)				
			or German (assessment v sessment in German)	vill be held in English	n; in addition, the examiner may,	
credita			sessifient in German)			
Allocat						
Additio	nal inf	ormation				
Workload						
150 h						
_	Teaching cycle					
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)					
	<del></del>					



Module	Module title Abbreviation					
Introdu	uction t	to Spatial Python		-	04-GEO-OMA7-242-m01	
Module	Module coordinator			Module offered by		
				Institute of Geograp	hhy and Geology	
ECTS	Meth	od of grading	Only after succ. con		ony and deology	
5		rical grade		iipii oi iiiouuto(o)		
Duratio	on	Module level	Other prerequisites			
1 seme	ester					
Conten	nts					
Intend	ed lear	ning outcomes				
Course	es (type	, number of weekly cont	act hours, language –	- if other than Germa	an)	
S (1) +		·				
Module	e taugh	it in: English				
					ation offered $-$ if not every seme-	
·		ion on whether module		a bonus)		
		on (approx. 30 minutes)				
		a poster (approx. 10 hou (15 pages)	rs total) or			
			German (assessment v	vill be held in English	n; in addition, the examiner may,	
where	possib	le, decide to hold assess		<b>G</b>	,,	
credita	ble for	bonus				
Allocat	tion of	places				
Additio	nal inf	ormation				
Workload						
150 h						
Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes)						



Module	title				Abbreviation
Urban Remote Sensing					04-GEO-RE4-212-m01
Module	coord	inator		Module offered by	
holder of the Professorship of Geodynamics and Geomaterials Research			amics and Geomate-	Institute of Geography and Geology	
ECTS	Metho	od of grading	Only after succ. compl. of module(s)		
5	nume	rical grade			
Duratio	n	Module level	Other prerequisites	5	
1 seme	ster	graduate			
Conten	ts				
Urban space as human living space is discussed and urban spaces are characterized. The special surface properties in the settlement area as well as their representation in satellite image data are learned. The classification of settlement areas and their surrounding areas are practiced.					
Intended learning outcomes					

The students learn remote sensing methods that are particularly relevant for the characterization of urban spaces. You will be able to select and use suitable image data for processing urban issues in remote sensing.

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

S (2)

Module taught in: 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. 30 minutes) or
- b) preparing a poster (approx. 10 hours total) or
- c) written examination (approx. 45 minutes)

Language of assessment: English or German (assessment will be held in English; in addition, the examiner may, where possible, decide to hold assessment in German)

Assessment offered: Once a year, winter semester

#### Allocation of places

#### **Additional information**

#### Workload

150 h

#### **Teaching cycle**

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



Modul	le title				Abbreviation	
Risk a	nd Disa	ster Earth Observation			04-GEO-RE5-212-m01	
Modul	le coord	inator		Module offered by		
	r of the I esearch	Professorship of Geodyna	amics and Geomate-	Institute of Geogra	phy and Geology	
ECTS		od of grading	Only after succ. con	npl. of module(s)		
5	nume	rical grade				
Durati	on	Module level	Other prerequisites			
1 sem	ester	graduate				
Conte	nts					
The m	odule fo	ocuses the georisks and e	environmental disast	ers.		
Intend	led lear	ning outcomes				
The st disast		learn synthesis and integ	ration of their knowle	edge on georisks. Th	ey are able to consider risks and	
Course	<b>es</b> (type	, number of weekly conta	ıct hours, language –	- if other than Germa	an)	
S (2) Modul	le taugh	t in: English				
		sessment (type, scope, la ion on whether module c			ation offered — if not every seme-	
b) pre c) writ Langu where	a) presentation (approx. 30 minutes) or b) preparing a poster (approx. 10 hours total) or c) written examination (approx. 45 minutes) Language of assessment: English or German (assessment will be held in English; in addition, the examiner may, where possible, decide to hold assessment in German) Assessment offered: Once a year, winter semester					
Alloca	tion of <sub> </sub>	places				
Additional information						
Workload						
150 h	150 h					
Teaching cycle						

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



Module	Module title Abbreviation					
Science	e Comn	nunication			04-GEO-SOS12-242-m01	
Module	coord	inator		Module offered by		
Module	COOIG	mator		Institute of Geograp	phy and Goology	
ECTS	Metho	od of grading	Only after succ. con		ony and deology	
5		successfully completed		ipa or module(s)		
Duratio	n	Module level	Other prerequisites			
1 seme	ster					
Conten	ts					
			•			
Intende	ed lear	ning outcomes				
Course	<b>s</b> (type	, number of weekly conta	ct hours, language –	- if other than Germa	ın)	
S (2)						
Module	taugh	t in: English				
					tion offered — if not every seme-	
		on on whether module co		a bonus)		
		n (approx. 30 minutes) o poster (approx. 10 hours				
c) term	paper	(approx. 15 pages)				
				vill be held in English	n; in addition, the examiner may,	
<b>—</b>		e, decide to hold assess	ment in German)			
Allocat	ion of J	Diaces				
A 4 4 1: 4 ! -						
Additio	nat inf	ormation				
Workload						
150 h						
Teaching cycle						
	Referred to in LPO I (examination regulations for teaching-degree programmes)					
Referre	d to in	LPO I (examination regu	lations for teaching-o	degree programmes)		



Module	e title			Abbreviation	
Scienti	fic Wri	ting			04-GEO-SOS5-212-m01
Module	e coord	linator		Module offered by	
holder	of the	Professorship of Remo	te Sensing	Institute of Geogra	phy and Geology
ECTS	Meth	od of grading	Only after succ. o	ompl. of module(s)	
5	nume	rical grade			
Duratio	n	Module level	Other prerequisit	es	
1 seme	ster	graduate			
Conten	ts				
will be	discus		ovided. Individual tra		nd writing. Moreover the structure will be part of it as well. Relevan
Intend	ed lear	ning outcomes			
Articles	will b	e discussed with regar	d to its scientific con	ent and goal to ensur	e high quality articles.
Course	<b>s</b> (type	, number of weekly co	ntact hours, language	e — if other than Germ	an)
S (2) Module taught in: English					
<b>Method of assessment</b> (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) Language of assessment: English or German (assessment will be held in English; in addition, the examiner may,					

Allocation of places

where possible, decide to hold assessment in German) Assessment offered: Once a year, winter semester

.

#### **Additional information**

--

#### Workload

150 h

#### **Teaching cycle**

--

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



Module title					Abbreviation
Applications of Earth Observation					04-GEO-TB2-162-m01
Module coordinator				Module offered by	
holder	holder of the Professorship of Remote Sensing			Institute of Geography and Geology	
ECTS	Meth	od of grading	Only after succ. con	ompl. of module(s)	
5	nume	rical grade			
Duratio	n	Module level	Other prerequisites		
1 seme	1 semester graduate				
Contents					
The lecture addresses applications of remote sensing of the atmosphere, the oceans, and particularly the land					

The lecture addresses applications of remote sensing of the atmosphere, the oceans, and particularly the land surface. The presented materials include among others applications in geography, environmental planning, ecology, biology, oceanology, soil science, geology, atmospheric science, but also e.g. pollution control (monitoring) and natural resource management. Which research questions can be answered by the means of Earth Observation and geoanalysis? The lecture comprises commonly used methodological approaches for the derivation of the different parameters. The covers the issue of implementation of the remote sensing technology into practice, e.g. the implementation of information systems. It outlines at selected examples, how remote sensing based results can be transferred to the workplace of professionals also beyond science.

#### **Intended learning outcomes**

The lecture gives a broad overview about the applications of remote sensing. The participants will learn how the different disciplines of environmental sciences and studies utilize the potentials of active and passive sensors for quantification and assessment.

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

V (2)

Module taught in: 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: English or German (assessment will be held in English; in addition, the examiner may, where possible, decide to hold assessment in German)

#### Allocation of places

--

#### **Additional information**

\_\_

#### Workload

150 h

#### **Teaching cycle**

--

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



Modul	Module title Abbreviation					
Scienti	fic Pub	lishing and Writing in Ea	rth Observation		04-GEO-TB3-242-m01	
Modul	e coord	inator		Module offered by	<u> </u>	
				Institute of Geograp	ohy and Geology	
ECTS	Meth	od of grading	Only after succ. con	npl. of module(s)		
5	(not)	successfully completed				
Duratio	on	Module level	Other prerequisites			
1 seme	ster					
Conten	its					
Intend	ed lear	ning outcomes				
Course	<b>s</b> (type	, number of weekly conta	act hours, language –	- if other than Germa	ın)	
V (2) Module	- taugh	t in: English				
Metho	d of ass	_			tion offered — if not every seme-	
Langua	ige of a	pprox. 15 pages) ssessment: English or Go le, decide to hold assess		vill be held in English	n; in addition, the examiner may,	
Allocat	ion of	olaces				
Additio	nal inf	ormation	-			
Workload						
150 h						
Teaching cycle						
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)					



title		Abbreviation			
Remote Sensing of Urban Areas				04-GEO-URB12-242-m01	
Module coordinator			Module offered by		
				ohy and Geology	
Metho	od of grading	Only after succ. com		and conegy	
		]			
n	Module level	Other prerequisites			
ster					
ts					
ed learı	ning outcomes				
<b>s</b> (type	, number of weekly conta	act hours, language –	- if other than Germa	ın)	
Ü (1) e taugh	t in: English			1	
				tion offered — if not every seme-	
aring a en exar ige of a	poster (approx. 10 hour mination (approx. 45 mir ssessment: English or G	s total) or nutes) erman (assessment w	vill be held in English	n; in addition, the examiner may,	
ion of p	olaces				
nal inf	ormation				
Workload					
150 h					
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					
	Methon nume on ster  s (type Ü (1) e taugh d of ass formatio aring a en exar age of a possible ion of ponal information and me cycle	Method of grading numerical grade  Module level ster  ts  delearning outcomes  s (type, number of weekly contained and the ster of the	Method of grading	Method of grading numerical grade numerical gr	



Module title					Abbreviation	
Global	to loca	al Earth Observation of Ui	banization	04-GEO-URB1-242-m01		
Modul	e coord	linator		Module offered by		
				Institute of Geograp	ohy and Geology	
ECTS		od of grading	Only after succ. con	npl. of module(s)		
5	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ester					
Conter	ıts					
			-			
Intend	ed lear	ning outcomes				
Course	es (type	, number of weekly conta	ct hours, language –	- if other than Germa	n)	
V (2) Modul	e taugh	nt in: English				
		sessment (type, scope, la	-		tion offered — if not every seme-	
b) prep c) writt Langua	oaring a ten exa age of a	on (approx. 30 minutes) on a poster (approx. 10 hours mination (approx. 45 min assessment: English or Galle, decide to hold assess	s total) or utes) erman (assessment v	vill be held in English	n; in addition, the examiner may,	
Allocat	tion of	places				
Additio	onal inf	formation				
Workload						
150 h						
Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes)						
	_			3 1 1 3 2 2 200		



Module title Abbreviation					Abbreviation	
Risk and Disaster Earth Observation					04-GEO-URB13-242-m01	
Module coordinator				Module offered by		
				Institute of Geograp	ohy and Geology	
ECTS	Metho	od of grading	Only after succ. con		,	
5	nume	rical grade				
Duratio	on	Module level	Other prerequisites			
1 seme	ster					
Conten	its					
	-					
Intend	ed lear	ning outcomes				
Course	<b>s</b> (type	, number of weekly conta	act hours, language –	- if other than Germa	ın)	
S (1) + Module		t in: English				
		sessment (type, scope, la ion on whether module c			ition offered — if not every seme-	
b) prep c) writt Langua	oaring a en exar age of a	on (approx. 30 minutes) on poster (approx. 10 hour mination (approx. 45 minussessment: English or Gole, decide to hold assess	s total) or nutes) erman (assessment w	vill be held in English	n; in addition, the examiner may,	
Allocat	ion of p	places				
Additio	nal inf	ormation				
Workload						
150 h						
Teaching cycle						
Referred to in LPO I (examination regulations for teaching-degree programmes)						



Module title					Abbreviation	
Urban Remote Sensing				•	04-GEO-URB2-242-m01	
Module	Module coordinator			Module offered by		
				Institute of Geograp	phy and Geology	
ECTS	Metho	od of grading	Only after succ. con		ony and occopy	
5		rical grade		, , ,		
Duratio	n	Module level	Other prerequisites			
1 seme	ster					
Conten	ts					
Intende	ed learn	ning outcomes				
Course	<b>s</b> (type,	number of weekly conta	act hours, language –	- if other than Germa	n)	
S (1) + i	` '	t in: English			4	
		essment (type, scope, la on on whether module c			tion offered — if not every seme-	
b) prep c) writte Langua	aring a en exan ge of a	n (approx. 30 minutes) o poster (approx. 10 hours nination (approx. 45 min ssessment: English or Go e, decide to hold assess	s total) or utes) erman (assessment w	vill be held in English	n; in addition, the examiner may,	
Allocat	ion of p	laces				
Additio	nal info	ormation				
Workload						
150 h						
Teaching cycle						
Referre	Referred to in LPO I (examination regulations for teaching-degree programmes)					