

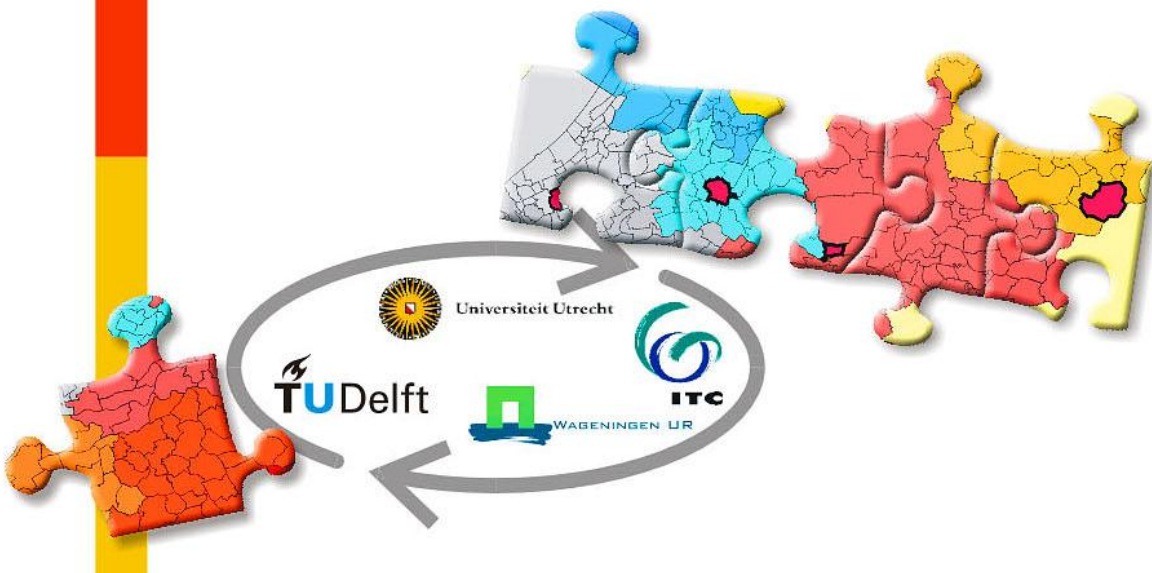
# GIMA

Geographical Information Management and Applications



## Course Catalogue

2011-2012





# Course Catalogue

Master of Science  
Geographical Sciences

Geographical Information Management and Applications\*

Delft University of Technology (TUD)  
University of Twente (UT) - ITC  
Utrecht University (UU)  
Wageningen University (WU)

**Year 2011-2012**

August 2011

\*This MSc programme is officially registered by the Utrecht University under the name Geographical Sciences (crohocode 60732).

## Preface

This course catalogue describes the programme in Geographical Information Management and Applications (GIMA) of the Master of Science Geographical Sciences as applied in the academic year 2011-2012.

The catalogue opens with an insight of the GIMA organisation. With respect to the flavour of the programme I suggest that you have a special eye on the blended learning concept and the required periods of attendance!

The first section of the catalogue (Part I: GIMA Course Guide) gives an overview of the course programme. It includes the details of all course modules like name, code, time-slot, credits, coordinator and involved lecturers, learning objectives and content, type of education, assessment procedure, entry requirements and literature. Take care that the module information may be subjected to change. Therefore, during the programme, each module coordinator will provide you with a course guide to update the module information. Changes of the module described in the course guide overrule the course catalogue information. Additionally, this section presents the GIMA staff, the venues - including route descriptions- and some frequently asked questions and answers.

The formal rights and obligations related to the programme follow next (Part II: GIMA Regulations). Three sections successively present the GIMA general regulations, GIMA additional regulations and the Internship regulations. The Master Thesis regulations has been moved to its respective course description as they provide general guidelines and procedures in contrast to previous years.

Please note that some practical and module information may adapt during the academic year. The GIMA blackboard site ([bb.itc.nl](http://bb.itc.nl)) offers always the most up-to-date information.

Hopefully this GIMA catalogue provides you with answers to the most important questions you have as a student with respect to your GIMA studies. For additional questions and remarks, please don't hesitate to contact me or the GIMA secretary ( [gima@geo.uu.nl](mailto:gima@geo.uu.nl) ) directly.

Good luck and enjoy the GIMA studies!

Connie Blok

Twente University

# Table of Contents

<b>Table of Contents .....</b>	<b>5</b>
<b>Part I: GIMA Course Guide.....</b>	<b>7</b>
<b>General information.....</b>	<b>8</b>
GIMA Management .....	8
Student facilities .....	9
Housing .....	9
Computer facilities.....	9
Other practical information .....	11
Required periods of attendance: academic year 2011-2012 .....	13
<b>The Programme.....</b>	<b>14</b>
Content .....	14
Labour market perspectives .....	14
Programme Structure .....	15
Module 0: Introduction.....	16
Module 1: Basic Methods and Techniques .....	17
Module 2: Basic Applications.....	19
Module 3: Management in Organisations .....	21
Module 4: Project Management.....	24
Module 5: Advanced Methods and Techniques .....	26
Module 6: Advanced Applications .....	28
Module 7: Internship .....	30
Module 8: Thesis.....	32
<b>Staff Information.....</b>	<b>38</b>
<b>Course Venues.....</b>	<b>42</b>
Delft University of Technology.....	42
University of Twente - ITC.....	43
Utrecht University.....	44
Wageningen University and Research .....	45
<b>FAQ.....</b>	<b>46</b>
<b>Part II: GIMA regulations.....</b>	<b>47</b>
<b>GIMA Teaching and Examination Regulations (TER) 2011/2012 .....</b>	<b>48</b>
<b>GIMA Additional TER.....</b>	<b>66</b>
<b>GIMA Internship Regulations.....</b>	<b>71</b>

A full, detailed table of contents for all regulations can be found at page 49.



# **Part I: GIMA Course Guide**

## General information

This chapter gives an overview of the organization and administrative structure of the GIMA studies and student facilities.

### **GIMA Management**

The management of GIMA consists of a programme board, a programme director, an examining committee and a programme committee (see Figure 1). The contact details for the hereafter mentioned members can be found in the staff information section.

#### **Programme Board**

Prof. Dr. Menno-Jan Kraak (UT-ITC)  
 Prof. Dr. Ir. Arnold Bregt (WU)  
 Prof. Dr. Ir. Peter van Oosterom (TUD)  
 Dr. Stan Geertman (UU)

#### **Programme Director**

Dr. Connie Blok (UT-ITC)

#### **Examining Committee**

The examining committee is responsible for the assessment and determination of the results of exams, upholding the module rules and handing out the MSc degree in a public meeting. The examining committee is also responsible for giving exemptions to modules or regulations. Letters and requests to the examining committee can be sent via the chairman.

Members:

Prof. Dr. Ir. Arnold Bregt (WU, chairman)  
 Dr. Stan Geertman (UU)  
 Prof. Dr. Menno-Jan Kraak (UT-ITC)  
 Prof. Dr. Ir. Peter van Oosterom (TUD)

#### **Admission Committee**

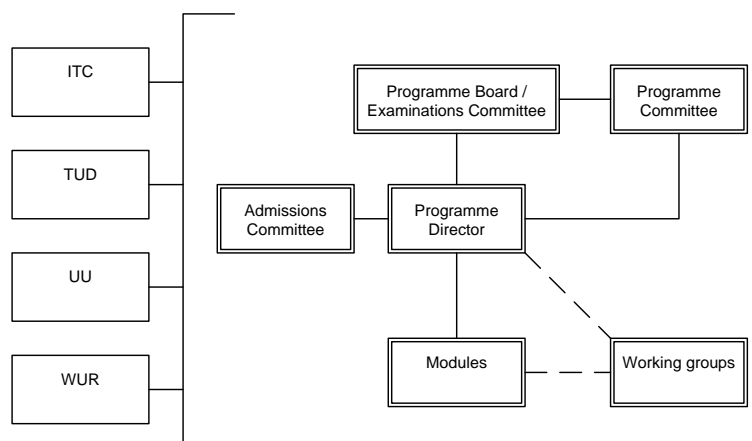
Dr. Connie Blok (UT-ITC, chair)  
 Prof. Dr. Menno-Jan Kraak (UT-ITC)

#### **Programme Committee**

The Programme Committee consists minimally of four staff members and four student members.

Members:

Dr. Jan Jaap Harts (staff member UU) - chairman  
 Ir. Ellen-Wien Augustijn (staff member UT-ITC)  
 Dr. Ir. Arend Ligtenberg (staff member WU)  
 Dr. Bastiaan van Loenen (staff member TUD)  
 Cor de Jong (student member, 2008)  
 Marten Middeldorp (student member, 2009)  
 Lars de Vries (student member, 2009)  
 Huibert-Jan Lekkerkerk (student member, 2009)  
 Cecilia Herrera (student member, 2010)  
 Martijn Snelder (student member, 2010)  
 Jasper Hogerwerf (student member, 2010)



**Figure 1 – GIMA organisation chart, student's perspective**

### **Student facilities**

As a GIMA student you are registered at Utrecht University (UU), this means that the facilities of the faculty of geosciences of UU are accessible for GIMA students. Most questions regarding UU facilities can be found on [qdesk.uu.nl](http://qdesk.uu.nl) (both English and Dutch). For access to facilities at other universities application forms are available at that specific institute.

#### **Library**

As a GIMA student you are entitled to the use of the UU library. On the Internet (<http://www.library.uu.nl>) more information can be found about the locations of the libraries. Scientific articles are accessible via myuu.nl (use your UU student number and password). Furthermore, you can lend literature at the libraries of the participating universities. If this is desired, please contact the GIMA secretary ([gima@geo.uu.nl](mailto:gima@geo.uu.nl)).

#### **VPN**

Access to libraries or datasets can be enhanced when you have a VPN connection. Maarten Zeylmans organizes once a year on how to connect with your own laptop and how to access data.

### **Housing**

Students staying the entire programme in the Netherlands can request to arrange housing via the international office of UU ([international@geo.uu.nl](mailto:international@geo.uu.nl)). For housing during the contact days students will be advised by the GIMA secretariat about the cheapest locations in the neighbourhood of the participating institutions.

#### **Social life**

Foreign students staying in the Netherlands during the entire programme, receive information about the Erasmus Student Network (ESN) together with their acceptance letter. This will help students to overcome any cultural differences and to establish a social network in the Netherlands. Also Utrecht has a very active entity of the European Geography Association for students and young geographers (EGEA), who organise a lot of extra-curricular activities.

### **Computer facilities**

#### **Computers available at the Universities**

It is possible to get access to computers at the different universities. At the universities of Utrecht and Wageningen, computers with GIS software can be accessed. To receive a login for Wageningen, you must enrol as a minor student at Wageningen University. You can do so by requesting a "bijvakkersformulier" at the secretary. Login for the GIS-lab (Willem van Unnik, 422) in Utrecht, can be obtained via Dr Tom de Jong. The computers in the GIS-lab contain:

- ESRI GIS software
- ArcGIS 10 (arc info desktop and workstation campus license)
- Arcview 3.3
- Flowmap 7.3 (freeware)
- PC Raster (freeware)
- Google Earth (freeware)



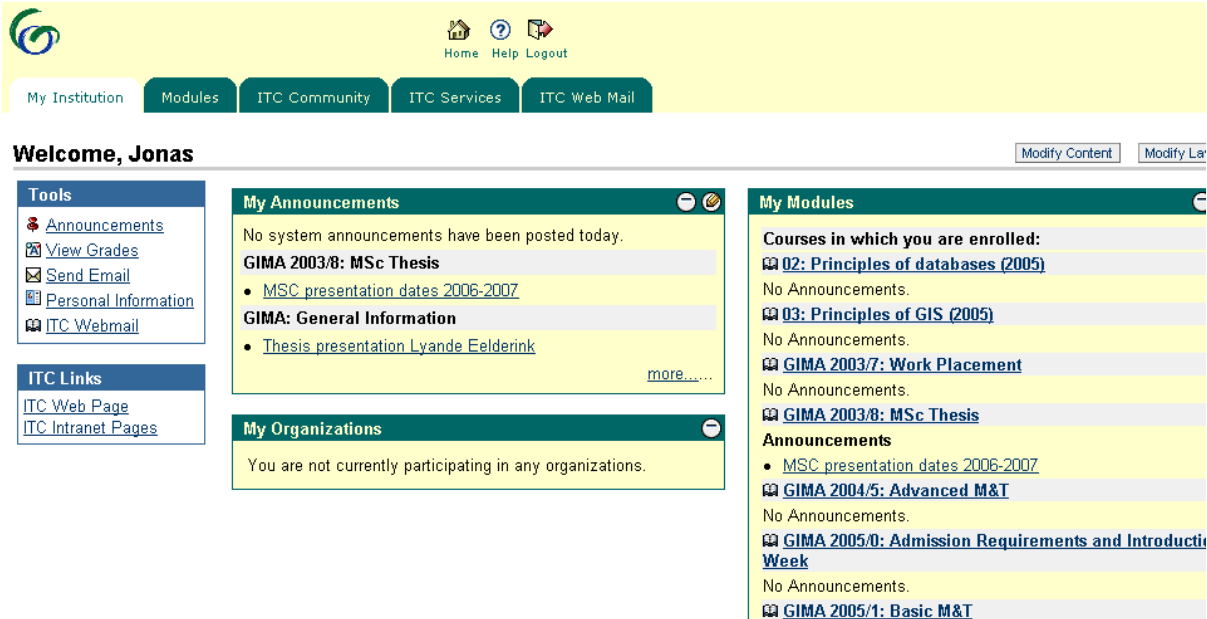
Most students from GIMA work from home. If you plan to buy a new computer please have a look at the ESRI site for the system requirements of ArcGIS, as ArcGIS is one of the core software you will make use during the programme.

#### **Osiris (accessible via [https://www.osiris.universiteitutrecht.nl/osistu\\_ospr/Personalia.do](https://www.osiris.universiteitutrecht.nl/osistu_ospr/Personalia.do))**

Osiris is the education registration system of Utrecht University. Via the Internet you can log in and see your **official marks**. For login you have to use your UU student number and password.

#### **Blackboard (bb.itc.nl)**

Blackboard is the education system of the ITC, which will be used intensively in GIMA. Via the Internet you can log in with the username and password as you have received from the ITC. This system will be used for all GIMA modules; here you can find information on the modules, lectures, a discussion board, the newest regulations, etc. Also it is used for communication between staff and students, either via email or announcements in the general blackboard module. All information mentioned in this course catalogue is accessible via the GIMA General Information module.



**Figure 2 – Screenshot Blackboard**

Each module of GIMA has its own blackboard space. The naming convention is as follows: GIMA / [Course year] / [module number] / [module name]. This means that each year a new module will be created for every module. If you are entering the phase where you are looking for an internship, apply for the internship module to get access to the internships GIMA has to offer. The same goes for the thesis phase. If you don't have access to a certain module you need, email: [gima@geo.uu.nl](mailto:gima@geo.uu.nl)

#### Student mail

As a GIMA student you receive two email accounts, both from the UU and ITC. As the ITC account is linked to blackboard, this account will mostly be used for communication between students and GIMA staff. It is possible to change the link in blackboard to your own personal account; this can be done via blackboard. Check your UU mail often for general notification regarding your official registration.

#### Student Service Centre

GIMA students can turn to the Student Service Centre of Utrecht University for information, advice and services on studying. The centre is located in *het Bestuursgebouw* at Heidelberglaan 8, Utrecht. Also you can submit questions regarding admission requirements and registration via the Internet on <http://qdesk.uu.nl>

#### Surfspot

You are entitled to buy software at a discount at surf spot (<http://www.surfspot.nl/>) or directly at the Faculty of Geosciences (<http://geo-ict.geo.uu.nl/software/surfspot.htm>) (the last one has not all software available). For login use your UU student account.

#### Educational Software

As a GIMA student you will acquire a student license of ArcGIS (ESRI). This license includes the extensions Spatial Analyst, Geostatistical Analyst and 3d Analyst. Furthermore, during some modules additional software packages will be provided depending on the chosen subject.

MGE of Intergraph is also available for GIMA students.

### **Other practical information**

More comprehensive information is to be found in the manual on administrative procedures (also called the manual for registration and access to the services on the various institutes) at blackboard, or at our website <http://www.msc-gima.nl> under Application information/application overview.

#### **Registration**

Since four universities are involved in the GIMA programme, the registration procedure might be confusing for prospective students. The following needs to be done:

A student will first apply for the MSc GIMA via Studielink ( [www.studielink.nl](http://www.studielink.nl); see for details the GIMA manual for all service and registrations on [www.msc-gima.nl](http://www.msc-gima.nl)).

The student will receive (if accepted) a letter of acceptance. With this letter of acceptance, a confirmation letter is attached as well. Please send this confirmation letter back as soon as possible to confirm that you are going to attend.

With the letter of acceptance, the student can register him/her-self at Utrecht University. Payment of the tuition fees is part of the registration.

#### **IMPORTANT**

Re-registration by Studielink at the university has to be done **every year**, before August 1<sup>st</sup>. Failing to do so can have serious consequences for your participation in the programme (e.g. module results will not be filed because they become invalid, educational support and course facilities will not be available). Questions regarding re-registration can be asked via [qdesk.uu.nl](mailto:qdesk.uu.nl).

**!!! Please note that registration at the university is different from registration for a module via blackboard !!!**

#### **Completion of MSc GIMA programme**

As of September 1<sup>st</sup>, 2012, all master students are no longer required to apply for their graduation. However, they still need to state on which date they would like to receive their diploma, in case they do not desire to receive it by mail carrier.

#### **Termination of the MSc GIMA Programme**

If, for some reason, you choose to stop with GIMA while you haven't finished the entire programme, it is possible to request for a proof of the completed modules. Request this at the Utrecht University student administration.

#### **Tuition fee refund**

It is possible to get a refund if you finish the MSc programme during the academic year. You are advised to have a look at the [qdesk.uu.nl](http://qdesk.uu.nl) website, as the steps required to stop with GIMA and possibly have a refund of tuition fees are all described there.



**Required periods of attendance: academic year 2011-2012**

Week	Day	Date	Subject	Location
35	Tu	30 AUG 2011	Introduction	ITC Enschede
	Wed	31 AUG 2011	Introduction	
	Th	01 SEP 2011	Introduction	
	Fri	02 SEP 2011	Module 1: start	
36	Mon	05 SEP 2011	Module 1: start	
	Tu	06 SEP 2011	Module 1: start	
	Wed	07 SEP 2011	Module 4: start	
	Th	08 SEP 2011	Module 4: start	
	Fri	09 SEP 2011	Module 4: start	
37-41	Distance learning period			
42	No teaching			
43-48	Distance learning period			
49	Mon	05 DEC 2011	Module 1: end	UU Utrecht
	Tu	06 DEC 2011	Module 1: end	
	Wed	07 DEC 2011	Module 2: start	
	Th	08 DEC 2011	Module 2: start	
	Fri	09 DEC 2011	Module 2: start	
50	Mon	12 DEC 2011	Module 4: end	
	Tu	13 DEC 2011	Module 4: end	
	Wed	14 DEC 2011	Module 5: start	
	Th	15 DEC 2011	Module 5: start	
	Fri	16 DEC 2011	Module 5: start	
51-52	No teaching			
1-11	Distance learning period			
12	Mon	19 MAR 2012	Module 2: end	WU Wageningen
	Tu	20 MAR 2012	Module 2: end	
	Wed	21 MAR 2012	Module 3: start	
	Th	22 MAR 2012	Module 3: start	
	Fri	23 MAR 2012	Module 3: start	
13	Mon	26 MAR 2012	Module 5: end	
	Tu	27 MAR 2012	Module 5: end	
	Wed	28 MAR 2012	Module 6: start	
	Th	29 MAR 2012	Module 6: start	
	Fri	30 MAR 2012	Module 6: start	
14-17	Distance learning period			
18	No teaching			
19-25	Distance learning period			
26	Ma	25 JUN 2011	Module 3: end	TU Delft
	Tu	26 JUN 2011	Module 3: end	
	Wed	27 JUN 2011	Module 6: end	
	Th	28 JUN 2011	Module 6: end	
	Fri	29 JUN 2011	Module 8: introduction	

# The Programme

Geographical Information Management and Applications  
(See also: [www.msc-gima.nl](http://www.msc-gima.nl))

## **Content**

The aim of this interuniversity MSc-GIMA programme (UT-ITC; TUD; UU; WU) is to educate suitable candidates to become high skilled and all-round geo-information manager and/or application specialist. Therefore, the candidates will be introduced into the theoretical, methodological, technological, and organizational principles of working with geographical information (GI), together with the use of GI-technology in spatial applications.

There are a number of special features that gives the GIMA programme a unique character:

A large part of the programme is offered as distance learning. Only the first and the last week of each module will be classroom learning. The remaining time you will work from your home or office. The interactivity will be guaranteed by the use of electronic communication (e-learning environment) by which you regularly interact with your teachers and fellow students. Various ICT means and didactic tools add to the attractiveness of the programme.

You can choose between a half-time programme of four years and a full-time programme of two years.

The programme has a high degree of flexibility and “knowledge on demand”. The programme is developed by the co-operation of four renowned universities, each with its own tradition:

- Utrecht University (UU), with a focus on geography and planning
- Delft University of Technology (TUD), with a focus on the legal, organizational and technical aspects of geo-information handling with an emphasis on large scale applications
- The Faculty of Geo-Information Science and Earth Observation from the University of Twente (UT-ITC), with a focus on technical and application oriented courses for developing countries
- Wageningen University (WUR), with a focus on geo-information items related to land use, agricultural and rural applications. The different approaches of the four universities will provide you with an optimal mix of GIS knowledge and skills.

If you want to join the GIMA programme you have to meet these requirements:

- Bachelor degree in relevant field of science;
- Basic knowledge of and practical experience in geo-information; and
- English language proficiency (The MSc programme is an international programme; therefore, education will be offered in English).

## **Labour market perspectives**

The MSc-GIMA programme aims at educating students to become all-round managers of geo-information or all-round geo-information application specialists. They will work in the private sector (utilities, oil companies, geo-marketing, consulting), the public sector (research institutes, municipalities, central and regional government services) and all combinations of these two. In recent years the demand for managers and application specialists in geo-information on the professional GIS market increased enormously.

With the MSc programme Geographical Information Management and Applications (GIMA) you can qualify for these professions, as you will acquire:

- Knowledge and skills of management; ‘how to manage geo-information (projects/organizations)’,
- Knowledge of geo-information application fields; ‘where to apply geo-information’,
- Technological and methodological geo-information skills; ‘how to use geo-information technology’

### Programme Structure

The programme can be followed full time or halftime

The programme consists of six modules: 1) basic GI-methods and tools; 2) basic GI-applications; 3) management in organisations; 4) management of GI-projects; 5) advanced GI-methods and tools; 6) advanced GI-applications. Thereafter the MSc-GIMA programme consists of an internship and of a MSc-thesis.

Half time	Week 35	Week 36-49	Week 50-12	Week 13-26	Full time
Year 1	<i>Introduction</i>	<i>Module 1</i> Methods and techniques	<i>Module 2</i> Basic applications	<i>Module 3</i> Management in organisations	Year 1
Year 2		<i>Module 4</i> Project management	<i>Module 5</i> Advanced methods and techniques	<i>Module 6</i> Advanced applications	
Year 3	<i>Internship / MSc thesis</i>				Year 2
Year 4	<i>MSc thesis / Internship</i>				

In the Osiris course list (Utrecht University course system) you will find the following codes and names:

Course code	Title	ECTS-credits
GEO4-GIMA1	Basic methods and techniques	10.0
GEO4-GIMA2	Basic applications	10.0
GEO4-GIMA3	Management in organisations	10.0
GEO4-GIMA4	Project management	10.0
GEO4-GIMA5	Advanced methods and techniques	10.0
GEO4-GIMA6	Advanced applications	10.0
GEO4-GIMA7	Internship GIMA	30.0
GEO4-GIMA8	Master thesis GIMA	30.0

*Additional information on the courses is available on the web ([www.msc-gima.nl](http://www.msc-gima.nl)) and on blackboard ([bb.itc.nl](http://bb.itc.nl)) (At the start of the course in Enschede you will receive a login for blackboard).*

**Module 0: Introduction**

<b>Course name</b>	<b>Introduction</b>	
<b>Course code</b>	<b>GEO4-GIMA0</b>	
<b>ECTS credits</b>	0.0	
<b>Level</b>	Master	
<b>Course language</b>	English	
<b>Period / time-slot</b>	Week 35	
<b>Coordinators</b>	Main: Menno-Jan Kraak (UT-ITC)	[t] +31 (0) 53 487 4463 [e] <a href="mailto:kraak@itc.nl">kraak@itc.nl</a>
	Assistant: Stan Geertman (UU)	[t] +31 (0) 30 253 4527 [e] <a href="mailto:s.geertman@geo.uu.nl">s.geertman@geo.uu.nl</a>
<b>Lecturers</b>	Menno-Jan Kraak (UT-ITC) Connie Blok (UT-ITC) Connie Blok	[e] <a href="mailto:kraak@itc.nl">kraak@itc.nl</a> [e] <a href="mailto:blok@itc.nl">blok@itc.nl</a> [e] <a href="mailto:blok@itc.nl">blok@itc.nl</a>
<b>Entry requirements</b>	Letter of acceptance of the master programme Geographical Information Management and Applications	
<b>Activities / Education</b>	- Lectures - Exercises	
<b>Themes</b>	- Geo-information perspectives - Needs of geo-information - Study program facilities	
<b>Profile</b>	The course is meant as introduction to the six content modules.	
<b>Contents</b>	- During several lectures the basics of geo-informatics as seen from the perspective of the four participating universities are conveyed. - Exercise on needs assessment of geo-information: case study Enschede Fireworks Disaster - Hands-on experience with Blackboards environment and Adobe Connect.	
<b>Course objectives</b>	<i>The student will be able to:</i> - Have an impression of the nature of the GIMA course - Understand the different possible approaches toward geo-informatics - Understand why geo-information is needed to solve problems - Have practical knowledge on how to use the Blackboard distance-learning environment	
<b>Learning materials</b>	* Manuals and guides * Blackboard * Adobe Connect * Powerpoint	
<b>Examination</b>	Presentation of exercise results (0%)	
<b>Schedule</b>	Tuesday (week 35): Wednesday (week 35): Thursday:	Lectures, exercises Lectures, exercises Lectures, presentations

**Module 1: Basic Methods and Techniques**

<b>Course name</b>	<b>Basic methods and techniques</b>
<b>Course code</b>	<b>GEO4-GIMA1</b>
<b>ECTS credits</b>	10.0
<b>Level</b>	Master
<b>Course language</b>	English
<b>Period / time-slot</b>	Week 35-49
<b>Coordinators</b>	Main: [t] +31 (0) 53 487 4414 Ellen-Wien Augustijn (UT-ITC) [e] <a href="mailto:augustijn@itc.nl">augustijn@itc.nl</a>  Assistant: [t] +31 (0) 30 253 1367 Jan Jaap Harts (UU) [e] <a href="mailto:j.harts@geo.uu.nl">j.harts@geo.uu.nl</a>
<b>Lecturers</b>	Ellen-Wien Augustijn (UT-ITC) [e] <a href="mailto:augustijn@itc.nl">augustijn@itc.nl</a> Corné van Elzaker (UT-ITC) [e] <a href="mailto:elzaker@itc.nl">elzaker@itc.nl</a> Jan Clevers (WUR) [e] <a href="mailto:jan.clevers@wur.nl">jan.clevers@wur.nl</a> Jan Jaap Harts (UU) [e] <a href="mailto:j.harts@geo.uu.nl">j.harts@geo.uu.nl</a> Richard Knippers (UT-ITC) [e] <a href="mailto:knippers@itc.nl">knippers@itc.nl</a>
<b>Entry requirements</b>	Letter of acceptance of the MSc Geographical Science programme Geographical Information Management and Applications <ul style="list-style-type: none"> <li>- Understanding of Geo-Information Science terminology as presented for example in Principles of Geographic Information Systems (ITC).</li> </ul>
<b>Activities / Education</b>	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Practical exercises</li> <li>• Hands-on introductory exercises (optional)</li> <li>• Distance learning</li> <li>• Literature study</li> <li>• Individual assignments</li> </ul>
<b>Themes</b>	<ul style="list-style-type: none"> <li>• Academic research &amp; writing</li> <li>• Introduction to remote sensing</li> <li>• Introduction to data analysis</li> <li>• Introduction to analytical modelling &amp; spatial analysis</li> <li>• Introduction to spatial referencing &amp; positioning</li> <li>• Introduction to cartography &amp; visualization</li> </ul>
<b>Profile</b>	<ul style="list-style-type: none"> <li>• The course is meant as introduction of in-depth contents of geo-information and serves as the basic methods and techniques for all other modules.</li> <li>• Module 5 will enhance the knowledge with respect to database technology and data analysis.</li> </ul>
<b>Contents</b>	This module focuses on the technological aspects of geo-information management. The geo-information process can be split up in four main aspects: <ol style="list-style-type: none"> <li>(1) data acquisition including Remote Sensing,</li> <li>(2) data storage,</li> <li>(3) data manipulation and analysis, and</li> <li>(4) visualisation.</li> </ol> The aim of the module is to provide a major introduction to these aspects. After completion of this module, students have basic knowledge about data acquisition methods and tools. Besides

	the technological content, time is allocated to build scientific research skills. Main focus during this module is on translation of a problem definition into a research proposal.												
<b>Course objectives</b>	<p><i>The student will have:</i></p> <ul style="list-style-type: none"> <li>• A basic understanding of the geo-information process, including the role of data modelling</li> <li>• Knowledge about the principles of data acquisition (including an introduction in Remote Sensing), data storage, data analysis, and visualization technologies</li> <li>• A basic understanding of quality issues of geo-information</li> <li>• Basic practical skills in handling geo-information in the ArcGIS software</li> <li>• Basic skills in writing a research proposal</li> <li>• Basic skills in searching and validating scientific literature</li> </ul>												
<b>Learning materials</b>	<ul style="list-style-type: none"> <li>• Parts of the textbooks, announced in the description of this course module:           <ul style="list-style-type: none"> <li>- Menno-Jan Kraak &amp; Ferjan Ormeling, 2009, Cartography, Visualization of Spatial Data, 3<sup>rd</sup> Edition. Harlow: Pearson</li> <li>- Heywood, Cornelius and Carver (2006), An Introduction to Geographical Information Systems, third edition.</li> <li>- De Smith, Goodchild and Longley, 2009, Geospatial Analysis, A comprehensive Guide to Principles, Techniques and Software Tools, third edition. There is a web version of this book that is available free of charge: <a href="http://www.spatialanalysisonline.com">www.spatialanalysisonline.com</a></li> </ul> </li> <li>• ArcGIS</li> <li>• Blackboard</li> <li>• Specialized websites</li> </ul>												
<b>Examination</b>	Active participation Individual assignments (50%) Literature examination (50%)												
<b>Exemption</b>	Not possible												
<b>Schedule</b>	<table> <tr> <td>Friday (week 35):</td> <td>Lectures, exercises</td> </tr> <tr> <td>Monday (week 36):</td> <td>Lectures, exercises</td> </tr> <tr> <td>Thursday (week 36):</td> <td>Lectures, exercises, field work</td> </tr> <tr> <td><i>Distant learning:</i></td> <td><i>Ongoing feedback and monitoring</i></td> </tr> <tr> <td>Monday (week 49):</td> <td>Feedback lectures</td> </tr> <tr> <td>Tuesday (week 49):</td> <td>Computer examination, evaluation</td> </tr> </table>	Friday (week 35):	Lectures, exercises	Monday (week 36):	Lectures, exercises	Thursday (week 36):	Lectures, exercises, field work	<i>Distant learning:</i>	<i>Ongoing feedback and monitoring</i>	Monday (week 49):	Feedback lectures	Tuesday (week 49):	Computer examination, evaluation
Friday (week 35):	Lectures, exercises												
Monday (week 36):	Lectures, exercises												
Thursday (week 36):	Lectures, exercises, field work												
<i>Distant learning:</i>	<i>Ongoing feedback and monitoring</i>												
Monday (week 49):	Feedback lectures												
Tuesday (week 49):	Computer examination, evaluation												
<b>Degree of freedom</b>	<i>No free choice of contents within this module</i>												

**Module 2: Basic Applications**

<b>Course name</b>	<b>Basic applications</b>
<b>Course code</b>	<b>GEO4-GIMA2</b>
<b>ECTS credits</b>	10.0
<b>Level</b>	Master
<b>Course language</b>	English
<b>Period / time-slot</b>	Week 49-12
<b>Coordinators</b>	Main: [t] +31 (0) 30 253 4527 Stan Geertman (UU) [e] <a href="mailto:s.geertman@geo.uu.nl">s.geertman@geo.uu.nl</a>  Assistant: [t] +31 (0) 317 48 1865 Willy ten Haaf (WUR) [e] <a href="mailto:willy.tenhaaf@wur.nl">willy.tenhaaf@wur.nl</a>
<b>Lecturers</b>	Stan Geertman (UU) [e] <a href="mailto:s.geertman@geo.uu.nl">s.geertman@geo.uu.nl</a> Willy ten Haaf (WUR) [e] <a href="mailto:willy.tenhaaf@wur.nl">willy.tenhaaf@wur.nl</a> Raul Zurita-Milla (UT) [e] <a href="mailto:zurita-milla@itc.nl">zurita-milla@itc.nl</a>
<b>Entry requirements</b>	<ul style="list-style-type: none"> <li>• Letter of acceptance of the master programme Geographical Information Management and Applications</li> <li>• Passed Module 1 (GEO4-GIMA1)</li> </ul>
<b>Activities / Education</b>	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Excursion</li> <li>• Supervisors discussions</li> <li>• Distance learning</li> <li>• Writing project plan</li> <li>• Literature research</li> <li>• Preparing &amp; analysing data</li> <li>• Visualisation of results</li> <li>• Writing group report</li> <li>• Presentation</li> <li>• Evaluation</li> </ul>
<b>Themes</b>	<ul style="list-style-type: none"> <li>• Basic GI analysis in the form of a project</li> <li>• Peer review processing</li> <li>• Introduction to spatial data quality issues</li> <li>• Introduction to geo-data handling issues</li> <li>• Introduction to searching for and dealing with scientific literature</li> <li>• Application of analytical modelling &amp; spatial analysis</li> <li>• Application of cartography &amp; visualization of project results</li> </ul>
<b>Profile</b>	<p>- The course is meant to use the acquired knowledge of module 1 (GEO4-GIMA1), by carrying out a project in an academic fashion.</p> <p>- The course serves as an introduction to the later Module 6, where similar up-scale and enhanced projects have to be performed.</p>
<b>Contents</b>	<p>During the first days the participants will be introduced to different types of projects and the data sets needed in them. Issues like data quality, project planning and data handling will be dealt with, as well as methodological reflexion. Thereafter the students will work group wise on a project. Therein the participants are not only asked to work on their own project but they will also be involved in monitoring and evaluating the progress and results of a counter group.</p>

	<p><b>Students can select one from four cases (preliminary list):</b></p> <ul style="list-style-type: none"> <li>- Case 1 (green) Vineyards in Wageningen</li> <li>- Case 2 (red) Sustainable Urbanisation</li> <li>- Case 3 (grey) Enschede school planning</li> </ul>												
<b>Course objectives</b>	<p><i>The student will be able to:</i></p> <ul style="list-style-type: none"> <li>• Provide practical experience in basic methods and techniques for geo-data handling</li> <li>• Provide awareness of the influence of data quality aspects</li> <li>• Acquire practical experience with integrated software handling</li> <li>• Practically integrate and apply knowledge of module 1</li> <li>• Integrate existing scientific knowledge into a case-study oriented GIS-project</li> <li>• Acquire a critical methodological attitude concerning geo-data handling in practical situations</li> </ul> <p><i>Final attainment level:</i>          At the end of module 2 participants are able to prepare, plan and execute basic GIS application projects in a scientific manner and demonstrate the results of their projects with a critical awareness of relevant data quality aspects.</p>												
<b>Learning materials</b>	<ul style="list-style-type: none"> <li>• <i>Literature is dependent on the selected case to serve as academic theory</i></li> <li>• ArcGIS or any other GI-software</li> <li>• Blackboard</li> <li>• Powerpoint or any other presentation software</li> </ul>												
<b>Examination</b>	<ul style="list-style-type: none"> <li>• Final project proposal (10%)</li> <li>• Peer reviews by counter group (15%)</li> <li>• Final project report (60%)</li> <li>• Final project presentation (15%)</li> </ul> <p><i>Percentages subject to amendments.</i></p>												
<b>Exemption</b>	Possible in exceptional cases, if proof exists he/she did similar, scientific-oriented GI-application courses with the same ECTS value before at the same level.												
<b>Schedule</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Wednesday (week 49):</td> <td>Lectures, exercises</td> </tr> <tr> <td>Thursday (week 49):</td> <td>Lectures, exercises</td> </tr> <tr> <td>Friday (week 49):</td> <td>Lectures, exercises, excursion</td> </tr> <tr> <td><i>Distant learning:</i></td> <td><i>Ongoing supervision</i></td> </tr> <tr> <td>Monday (week 12):</td> <td>Presentations</td> </tr> <tr> <td>Tuesday (week 12):</td> <td>Presentations, evaluation</td> </tr> </table>	Wednesday (week 49):	Lectures, exercises	Thursday (week 49):	Lectures, exercises	Friday (week 49):	Lectures, exercises, excursion	<i>Distant learning:</i>	<i>Ongoing supervision</i>	Monday (week 12):	Presentations	Tuesday (week 12):	Presentations, evaluation
Wednesday (week 49):	Lectures, exercises												
Thursday (week 49):	Lectures, exercises												
Friday (week 49):	Lectures, exercises, excursion												
<i>Distant learning:</i>	<i>Ongoing supervision</i>												
Monday (week 12):	Presentations												
Tuesday (week 12):	Presentations, evaluation												
<b>Degree of freedom</b>	<i>Free choice of project type (value of approx. 9.5 ECTS)</i>												

**Module 3: Management in Organisations**

<b>Course name</b>	<b>Management in Organisations</b>
<b>Course code</b>	<b>GEO4-GIMA3</b>
<b>ECTS credits</b>	10.0
<b>Level</b>	Master
<b>Course language</b>	English
<b>Period/time-slot</b>	Week 12-26
<b>Coordinators</b>	Main: [t] +31 (0) 15 278 2554 Bastiaan van Loenen (TUD) [e] <a href="mailto:b.vanloenen@tudelft.nl">b.vanloenen@tudelft.nl</a>  Assistant: [t] +31 (0) 317 48 1697 Łukasz Grus [e] <a href="mailto:lucas.grus@wur.nl">lucas.grus@wur.nl</a>
<b>Lecturers</b>	Bastiaan van Loenen (TUD) [e] <a href="mailto:b.vanloenen@tudelft.nl">b.vanloenen@tudelft.nl</a> Łukasz Grus (WUR) [e] <a href="mailto:lucas.grus@wur.nl">lucas.grus@wur.nl</a> Frederika Welle Donker (TUD) [e] <a href="mailto:f.m.welledonker@tudelft.nl">f.m.welledonker@tudelft.nl</a> Jaap Zevenbergen (UT-ITC) [e] <a href="mailto:zevenbergen@itc.nl">zevenbergen@itc.nl</a>
<b>Entry requirements</b>	Letter of acceptance of the master programme Geographical Information Management and Applications
<b>Activities / Education</b>	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Distance learning</li> <li>• Writing of business plan</li> <li>• Academic reviewing</li> <li>• Literature research</li> <li>• Supervisor discussions</li> <li>• Distance presentations (AdobeConnect)</li> <li>• Presentation</li> <li>• Evaluation</li> </ul>
<b>Themes</b>	<ul style="list-style-type: none"> <li>• GI as department in organisations</li> <li>• Managerial aspects of GI</li> <li>• Spatial Data Infrastructures (SDI)</li> <li>• Policies, legal and jurisdictional issues</li> </ul>
<b>Profile</b>	<ul style="list-style-type: none"> <li>• The course tries to raise the awareness of how geo-information should be organised and promoted in the real world. It emphasizes on <i>why</i> geo-information should be used and <i>how</i> that is possible.</li> <li>• The course relates to Module 4 (GEO4-GIMA4), although in this case geo-information is embedded in an organization; it is business driven rather than project driven.</li> <li>• The course comes with many deadlines and thus simulates real world business.</li> </ul>
<b>Contents</b>	<p>The main objective is to be able to write for specific GI-organisation a management strategy (business) plan that focuses mainly on the incorporation of SDI-facilities to improve the data sharing between organisations, based on internal resources and external conditions using business methods and tools for organisation (infrastructure) planning, development and management.</p> <p>The module deals with several types of GI-organisations, which differ in role (governmental vs. industrial; GI-Producer vs. GI-User oriented) and scale (Global, Regional, National, State, Local</p>

	<p>and Corporate). When planning, developing and managing a suitable environment for a specific GI-organisation, GI-managers should focus on several organisation-internal resources (hardware, software, humanware, dataware and orgware) and on several external conditions like legal, cultural, technological, economic and institutional aspects. Special emphasis is made on spatial data infrastructures, which intention is to improve and to support the management of dataware. To support the decisions made, several business methods and tools exist for organisation planning, development and management. Application of these knowledge and methods/tools in a management strategy (business) plan is core business of this module, so that GI-managers are able to make efficient use of available (desired) resources.</p> <p>The course is split in five parts:</p> <ol style="list-style-type: none"> <li>1. Concepts of GI-organisations (week 12 - 15)</li> <li>2. GI-Organisation development and management aspects (week 16 – 17)</li> <li>3. SDI-concepts/Nature and hierarchy (week 18 – 19)</li> <li>4. SDI-COMPONENTS (technical components) (week 20 – 21)</li> <li>5. Application (Creation) of SDI-GI-Organisation integration (week 22 – 24)</li> </ol>
<b>Course objectives</b>	<p>The student will be able to:</p> <ul style="list-style-type: none"> <li>• Be acquainted with several GI-organisations (governmental vs. industrial; GI-Producer vs. GI-User oriented), their roles and their scale level of application.</li> <li>• Be acquainted with the principles of management science and management information sciences (modelling of business processes, quality assessments of these business processes, 'best' allocation of available resources, simulation of alternative processes)</li> <li>• Be acquainted with several (concrete) experiences related to GI-Management in organisations</li> <li>• Be acquainted with potential users and their requirements within GI-organisations</li> <li>• Be acquainted with the role of main organisational resources (Software, Hardware, 'Humanware', 'Dataware' and 'Orgware') for GI-Management</li> <li>• Be acquainted with the concepts, processes and main components of spatial data infrastructures (Data, People (human resources), Policies, Access networks and standards) to support data sharing between GI-organisations</li> <li>• Be acquainted with the legal (especially Privacy, Intellectual Property, Access Policy issues), institutional, technological, economic and cultural (SDI-)issues of the environment</li> <li>• Be acquainted with benefits and limitations of Outsourcing</li> <li>• Be acquainted with the main methods and tools for organisation (infrastructure) planning, development and management (e.g. application of SWOT (Strengths, Weaknesses, Opportunities and Threats), simple cost-benefit or cost recovery analyses)</li> <li>• Be able to apply principles of management (information) sciences to GI-organisations</li> <li>• Apply (business) and/or create (new) methods and tools for organisation (infrastructure) planning, development and management</li> <li>• Present a business plan (oral and written) for the management of a GI-organisation</li> <li>• Develop a critical attitude towards GI-management strategies for GI-organisations</li> </ul>
<b>Learning materials</b>	<ul style="list-style-type: none"> <li>• Parts of the textbooks, announced in the description of this course module, which includes:       <ul style="list-style-type: none"> <li>- Reeve, D. &amp; J. Petch (1999), GIS Organisations and People, A socio-technical Approach. GIS for beginners. London: Taylor &amp; Francis.</li> <li>- Further to be announced in the description of this course module: book might change.</li> </ul> </li> <li>• Lecture notes</li> <li>• Blackboard</li> <li>• AdobeConnect</li> <li>• Powerpoint or any other presentation software</li> </ul>
<b>Examination</b>	<ul style="list-style-type: none"> <li>• Individual (sub) case presentations (10%),</li> <li>• Individual exercises (15%),</li> <li>• Group's management strategy (business) plan (40%),</li> <li>• Individual exam (35%)</li> </ul> <p><i>Percentages subject to amendments.</i></p>

<b>Exemption</b>	Not possible
<b>Schedule</b>	<p>Wednesday (week 12): Lectures, exercises          Thursday (week 12): Lectures, exercises          Friday (week 12): Lectures, presentations</p> <p><i>Distant learning: Ongoing supervision</i></p> <p>Monday (week 26): Presentations          Tuesday (week 26): Examination, presentations, evaluations</p>
<b>Degree of freedom</b>	<i>Free choice of company set-up (approx. 3.0 ECTS)</i>

**Module 4: Project Management**

<b>Course name</b>	<b>Project Management</b>
<b>Course code</b>	<b>GEO4-GIMA4</b>
<b>ECTS credits</b>	10.0
<b>Level</b>	Master
<b>Course language</b>	English
<b>Period/time-slot</b>	Week 36-50
<b>Coordinators</b>	Main: [t] +31 (0) 30 253 3877 Fred Toppen (UU) [e] <a href="mailto:f.toppen@geo.uu.nl">f.toppen@geo.uu.nl</a>  Assistant: [t] +31 (0) 53 487 4377 Sjef van der Steen (UT-ITC) [e] <a href="mailto:steen@itc.nl">steen@itc.nl</a>
<b>Lecturers</b>	Fred Toppen (UU) [e] <a href="mailto:f.toppen@geo.uu.nl">f.toppen@geo.uu.nl</a> Sjef van der Steen (UT-ITC) [e] <a href="mailto:steen@itc.nl">steen@itc.nl</a> Stan Geertman (UU) [e] <a href="mailto:s.geertman@geo.uu.nl">s.geertman@geo.uu.nl</a> Marien de Bakker (RUG) [e] <a href="mailto:m.de.bakker@rug.nl">m.de.bakker@rug.nl</a>
<b>Entry requirements</b>	Letter of acceptance of the master programme Geographical Information Management and Applications
<b>Activities / Education</b>	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Distance learning</li> <li>• Writing of project plan</li> <li>• Academic reviewing</li> <li>• Literature research</li> <li>• Individual assignments</li> <li>• Case study</li> <li>• Supervisor discussions</li> <li>• Presentation</li> <li>• Evaluation</li> </ul>
<b>Themes</b>	<ul style="list-style-type: none"> <li>• GI being used in projects</li> <li>• General project management</li> <li>• Time management</li> <li>• Risk management</li> <li>• Human management</li> <li>• Evaluation</li> <li>• Academic skills and writing</li> </ul>
<b>Profile</b>	<ul style="list-style-type: none"> <li>• The course emphasizes on how geo-information can be used in projects. However, not the geo-information itself is being assessed, but rather the organisational set-up in project-like environments.</li> <li>• The course relates to Module 3 (GEO4-GIMA3), although in this case geo-information is project based, and not embedded in an organization.</li> <li>• The course assesses the academic approach of project management.</li> </ul>
<b>Contents</b>	The course is split in the following parts. <ul style="list-style-type: none"> <li>• Introduction to organisations, project management approaches, project management life cycle</li> <li>• Getting acquainted to project management related tools and issues in the project set up</li> </ul>

	<p>phase: definition of scope / objectives / resources / deliverables / activities / tasks</p> <ul style="list-style-type: none"> <li>• Getting acquainted to project management related methods &amp; techniques (e.g. Gant, PERT)</li> <li>• Applying knowledge and skills on project management for purpose of the operational phase: human resource issues, workflow management issues, risk management</li> <li>• Evaluating GI projects: project performance issues, reviewing project proposals, project presentation issues</li> </ul>												
<b>Course objectives</b>	<p>The student will be able to:</p> <ul style="list-style-type: none"> <li>• Describe and understand the structure of organisations</li> <li>• Acquire knowledge on methods &amp; techniques of project management, in order to be able both to prepare and read a project proposal</li> <li>• Identify and formulate objectives, tasks, resources, deliverables of a project</li> <li>• Identify and specify the phases in a project, as well as to break down the project in activities and sub-activities</li> <li>• Identify the need for human resources and allocate human resources within a GI project at an operational level (workflow management)</li> <li>• Use appropriate tools to evaluate GI project proposals and results</li> <li>• Use indicators to measure project performance</li> </ul>												
<b>Learning materials</b>	<ul style="list-style-type: none"> <li>• Parts of the textbooks, announced in the description of this course module, which includes: <ul style="list-style-type: none"> <li>- Meredith, J.R., S.J. Manuel (2010) Project management, a managerial approach. ISBN 978-0-470-40026-5 paperback (student edition) 7th edition.</li> <li>- Further to be announced in the description of this course module.</li> </ul> </li> <li>• Lecture notes</li> <li>• MS Office Project</li> <li>• Blackboard</li> <li>• Powerpoint or any other presentation software</li> </ul>												
<b>Examination</b>	<ul style="list-style-type: none"> <li>• Examination (25 %)</li> <li>• Individual assignment literature task (paper) (25 %)</li> <li>• Project proposal (50 %)</li> </ul> <p><i>Percentages subject to amendments.</i></p>												
<b>Exemption</b>	Only possible for the project contents, if one can prove his/her experience.												
<b>Schedule</b>	<table> <tr> <td>Wednesday (week 36):</td> <td>Lectures, exercises</td> </tr> <tr> <td>Thursday (week 36):</td> <td>Lectures, exercises</td> </tr> <tr> <td>Friday (week 36):</td> <td>Lectures</td> </tr> <tr> <td><i>Distant learning:</i></td> <td><i>Ongoing supervision</i></td> </tr> <tr> <td>Monday (week 50):</td> <td>Examination, preparations, discussions, presentations</td> </tr> <tr> <td>Tuesday (week 50):</td> <td>Presentations, evaluation</td> </tr> </table>	Wednesday (week 36):	Lectures, exercises	Thursday (week 36):	Lectures, exercises	Friday (week 36):	Lectures	<i>Distant learning:</i>	<i>Ongoing supervision</i>	Monday (week 50):	Examination, preparations, discussions, presentations	Tuesday (week 50):	Presentations, evaluation
Wednesday (week 36):	Lectures, exercises												
Thursday (week 36):	Lectures, exercises												
Friday (week 36):	Lectures												
<i>Distant learning:</i>	<i>Ongoing supervision</i>												
Monday (week 50):	Examination, preparations, discussions, presentations												
Tuesday (week 50):	Presentations, evaluation												
<b>Degree of freedom</b>	<i>Free choice of project company set-up (approx. 3.5 ECTS)</i>												

**Module 5: Advanced Methods and Techniques**

<b>Course name</b>	<b>Advanced methods and techniques</b>
<b>Course code</b>	<b>GEO4-GIMA5</b>
<b>ECTS credits</b>	10.0
<b>Level</b>	Master
<b>Course language</b>	English
<b>Period/time-slot</b>	Week 50-13
<b>Coordinators</b>	<p>Main: [t] +31 (0) 53 487 4299          Javier Morales (UT-ITC) [e] <a href="mailto:jmorales@itc.nl">jmorales@itc.nl</a></p> <p>Assistant: [t] +31 (0) 30 253 2768          Derek Karssenbergh (UU) [e] <a href="mailto:d.karssenbergh@geo.uu.nl">d.karssenbergh@geo.uu.nl</a></p>
<b>Lecturers</b>	<p>Javier Morales (UT-ITC) [e] <a href="mailto:jmorales@itc.nl">jmorales@itc.nl</a>          Derek Karssenbergh (UU) [e] <a href="mailto:d.karssenbergh@geo.uu.nl">d.karssenbergh@geo.uu.nl</a>          Rob Lemmens (UT-ITC) [e] <a href="mailto:lemmens@itc.nl">lemmens@itc.nl</a>          Barend Köbben (UT-ITC) [e] <a href="mailto:kobben@itc.nl">kobben@itc.nl</a>          Peter van Oosterom (TUD) [e] <a href="mailto:p.i.m.vanoosterom@tudelft.nl">p.i.m.vanoosterom@tudelft.nl</a>          Sisi Zlatanova (TUD) [e] <a href="mailto:s.zlatanova@tudelft.nl">s.zlatanova@tudelft.nl</a>          Tom de Jong (UU) [e] <a href="mailto:t.dejong@geo.uu.nl">t.dejong@geo.uu.nl</a></p>
<b>Entry requirements</b>	<ul style="list-style-type: none"> <li>• Letter of acceptance of the master programme Geographical Information Management and Applications</li> <li>• Passed Module 1 (GEO4-GIMA1)</li> <li>• Passed Module 2 (GEO4-GIMA2)</li> </ul>
<b>Activities / Education</b>	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Distance learning</li> <li>• Academic reviewing</li> <li>• Literature study</li> <li>• Individual assignments</li> <li>• Case study (in-depth analysis)</li> <li>• Reporting</li> <li>• Presentation</li> <li>• Evaluation</li> </ul>
<b>Themes</b>	<ul style="list-style-type: none"> <li>• Geodatabases and SQL</li> <li>• UML</li> <li>• 3D</li> <li>• Spatiotemporal modelling (interpolation)</li> <li>• Spatial network analysis</li> <li>• Web based dissemination</li> </ul>
<b>Profile</b>	<ul style="list-style-type: none"> <li>• The course continues on where Module 1 (GEO4-GIMA1) left off.</li> <li>• The course addresses more on the processes behind GI.</li> <li>• The course will be followed by the application of the contents in Module 6 (GEO4-GIMA6).</li> </ul>
<b>Contents</b>	<p>Two phases: a breadth-first phase, and an in-depth phase.          The breadth-first phase covers in principle five components:</p> <ul style="list-style-type: none"> <li>• Simple and advanced geodata models</li> <li>• Geodatabases and their design and use</li> </ul>

	<ul style="list-style-type: none"> <li>• Geostatistical models for inter- &amp; extrapolation, feature extraction, uncertainty and error propagation</li> <li>• Spatial Network Analysis</li> <li>• Dissemination and visualization tools of geodata</li> </ul> <p>The in-depth phase will build on one of the breadth-first topics.</p>												
<b>Course objectives</b>	<p><i>The student will be able to:</i></p> <ul style="list-style-type: none"> <li>• Have an overview of simple and advanced spatial data models and understand which model serves which purpose</li> <li>• Be proficient in elementary (query) spatial data operators, in both raster and vector domain</li> <li>• Understand and be able to set up and carry out spatial computations</li> <li>• Understand the principles of spatiotemporal modelling in GIS</li> <li>• Understand, and to some extent apply, the principles of spatial planning support</li> <li>• Understand how geodata can be made public using visualization technology developed for the internet</li> <li>• Have specialized themselves in one of the offered in-depth study topics</li> </ul>												
<b>Learning materials</b>	<ul style="list-style-type: none"> <li>• Parts of the textbooks, announced in the description of this course module: <ul style="list-style-type: none"> <li>◦ Burrough and McDonnell, Principles of Geographic Information Systems, Oxford University Press, 1998</li> <li>◦ More literature to be defined in a reader</li> </ul> </li> <li>• ArcGIS</li> <li>• UML</li> <li>• PostGIS</li> <li>• PCRaster</li> <li>• MapServer</li> <li>• Flowmap</li> <li>• Blackboard</li> <li>• Powerpoint or any other presentation software</li> </ul>												
<b>Examination</b>	<ul style="list-style-type: none"> <li>• Literature Examination (50 %)</li> <li>• Final project (in-depth) assignment (50%)</li> </ul> <p><i>Percentages subject to amendments.</i></p>												
<b>Exemption</b>	Not possible												
<b>Schedule</b>	<table> <tr> <td>Wednesday (week 36):</td> <td>Lectures, exercises</td> </tr> <tr> <td>Thursday (week 36):</td> <td>Lectures, exercises</td> </tr> <tr> <td>Friday (week 36):</td> <td>Lectures</td> </tr> <tr> <td><i>Distant learning:</i></td> <td><i>Ongoing supervision</i></td> </tr> <tr> <td>Monday (week 50):</td> <td>Examination, preparations, discussions, presentations</td> </tr> <tr> <td>Tuesday (week 50):</td> <td>Presentations, evaluation</td> </tr> </table>	Wednesday (week 36):	Lectures, exercises	Thursday (week 36):	Lectures, exercises	Friday (week 36):	Lectures	<i>Distant learning:</i>	<i>Ongoing supervision</i>	Monday (week 50):	Examination, preparations, discussions, presentations	Tuesday (week 50):	Presentations, evaluation
Wednesday (week 36):	Lectures, exercises												
Thursday (week 36):	Lectures, exercises												
Friday (week 36):	Lectures												
<i>Distant learning:</i>	<i>Ongoing supervision</i>												
Monday (week 50):	Examination, preparations, discussions, presentations												
Tuesday (week 50):	Presentations, evaluation												
<b>Degree of freedom</b>	<i>Free choice of in-depth topic (approx. 3.0 ECTS)</i>												

**Module 6: Advanced Applications**

<b>Course name</b>	<b>Advanced Applications</b>
<b>Course code</b>	<b>GEO4-GIMA6</b>
<b>ECTS credits</b>	10.0
<b>Level</b>	Master
<b>Course language</b>	English
<b>Period/time-slot</b>	Week 13-26
<b>Coordinators</b>	Main: [t] +31 (0) 317 481845 Arend Ligtenberg (WUR) [e] <a href="mailto:arend.ligtenberg@wur.nl">arend.ligtenberg@wur.nl</a>  Assistant: [t] +31 (0) 15 2784268 Marian de Vries [e] <a href="mailto:m.devries@tudelft.nl">m.devries@tudelft.nl</a>
<b>Lecturers</b>	Arend Ligtenberg (WUR) [e] <a href="mailto:arend.ligtenberg@wur.nl">arend.ligtenberg@wur.nl</a> Marian de Vries (TUD) [e] <a href="mailto:m.devries@tudelft.nl">m.devries@tudelft.nl</a> Rob Lemmens (UT-ITC) [e] <a href="mailto:lemmens@itc.nl">lemmens@itc.nl</a> Derek Karssenber (UU) [e] <a href="mailto:d.karssenber@geo.uu.nl">d.karssenber@geo.uu.nl</a> Maarten Zeylmans van Emmichoven (UU) [e] <a href="mailto:m.zeylmans@geo.uu.nl">m.zeylmans@geo.uu.nl</a> John Stuver (WUR) [e] <a href="mailto:john.stuiver@wur.nl">john.stuiver@wur.nl</a> Arnold Bregt (WUR) [e] <a href="mailto:arnold.bregt@wur.nl">arnold.bregt@wur.nl</a>
<b>Entry requirements</b>	<ul style="list-style-type: none"> <li>• Letter of acceptance of the master programme Geographical Information Management and Applications</li> <li>• Passed Module 1 (GEO4-GIMA1)</li> <li>• Passed Module 2 (GEO4-GIMA2)</li> <li>• Passed Module 5 (GEO4-GIMA5)</li> </ul>
<b>Activities / Education</b>	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Supervisor discussions</li> <li>• Distance learning</li> <li>• Reviewing</li> <li>• Literature research</li> <li>• Project Plan</li> <li>• Reporting</li> <li>• Presentation</li> <li>• Evaluation</li> </ul>
<b>Themes</b>	<ul style="list-style-type: none"> <li>• Dissemination</li> <li>• Data alignment</li> <li>• Modelling</li> <li>• Data analysis</li> <li>• Visualization</li> </ul>
<b>Profile</b>	<ul style="list-style-type: none"> <li>• The module synthesises all other content modules 1-5.</li> <li>• The module is a follow up of Module 2 (GEO4-GIMA2) regarding the applications.</li> <li>• The module is a follow up of Module 5 (GEO4-GIMA5) regarding the contents.</li> <li>• The module provides an impression of the remaining</li> </ul>
<b>Contents</b>	During the first two days the participants have lectures about the course set-up, project and organizational management, research methods and case specific information. Examples of projects are given and discussed and a start is made with setting up the project.

	<p>Depending on the topic chosen in module 5, students choose from different cases, which include:</p> <ul style="list-style-type: none"> <li>• Dissemination of 3D geo-information via the Internet (TUD)</li> <li>• Electronic web atlas production (UU)</li> <li>• Spatial data infrastructure (ITC)</li> <li>• Dynamic land use modelling (WU)</li> <li>• Optimal allocation (UU)</li> </ul> <p>Together with one or two other students the student works on the case he/she picked. The group work includes: writing a project plan, preparing data, data analysis, visualising results and writing a scientific report and an executive summary. In the last week of the module the students will present their case. The participants are not only asked to work on their own project, but they are also involved in monitoring and evaluating the progress and results of a counter group.</p>												
<b>Course objectives</b>	<p><i>At the end of module 6 the student will be able to:</i></p> <ul style="list-style-type: none"> <li>• Integrate knowledge and skills of the previous modules (1,2,4,5);</li> <li>• Apply project management and progress monitoring skills to prepare, plan, execute, manage and monitor a GIS project;</li> <li>• Independently use appropriate GI techniques and methods in the context of specific applications;</li> <li>• Present the methodology and results in an appropriate manner for a specific context;</li> <li>• Develop a critical attitude towards data and data processing methods;</li> <li>• Evaluate organisational restraints and consequences.</li> </ul>												
<b>Learning materials</b>	<ul style="list-style-type: none"> <li>• <i>Literature is dependent on the selected case to serve as academic theory</i></li> <li>• ArcGIS or any other GI-software</li> <li>• Blackboard</li> <li>• Powerpoint or any other presentation software</li> </ul>												
<b>Examination</b>	<ul style="list-style-type: none"> <li>• Mid-term report (20%)</li> <li>• Final project results (presentation, report, poster) (65%)</li> <li>• Counter group evaluations (15%)</li> </ul> <p><i>Percentages subject to amendments.</i></p>												
<b>Exemption</b>	Not possible												
<b>Schedule</b>	<table> <tr> <td>Wednesday (week 13):</td> <td>Lectures</td> </tr> <tr> <td>Thursday (week 13):</td> <td>Lectures</td> </tr> <tr> <td>Friday (week 13):</td> <td>Discussion with supervisor</td> </tr> <tr> <td><i>Distant learning:</i></td> <td><i>Ongoing supervision</i></td> </tr> <tr> <td>Wednesday (week 26):</td> <td>Presentations, visit to mid-terms and defences, Poster sessions</td> </tr> <tr> <td>Thursday (week 26):</td> <td>Presentations, poster sessions, evaluation</td> </tr> </table>	Wednesday (week 13):	Lectures	Thursday (week 13):	Lectures	Friday (week 13):	Discussion with supervisor	<i>Distant learning:</i>	<i>Ongoing supervision</i>	Wednesday (week 26):	Presentations, visit to mid-terms and defences, Poster sessions	Thursday (week 26):	Presentations, poster sessions, evaluation
Wednesday (week 13):	Lectures												
Thursday (week 13):	Lectures												
Friday (week 13):	Discussion with supervisor												
<i>Distant learning:</i>	<i>Ongoing supervision</i>												
Wednesday (week 26):	Presentations, visit to mid-terms and defences, Poster sessions												
Thursday (week 26):	Presentations, poster sessions, evaluation												
<b>Degree of freedom</b>	<i>Free choice of project and contents of project (approx. 7.0 ECTS)</i>												

**Module 7: Internship**

<b>Course name</b>	<b>Internship</b>
<b>Course code</b>	<b>GEO4-GIMA7</b>
<b>ECTS credits</b>	30.0
<b>Level</b>	Master
<b>Course language</b>	English
<b>Period/time-slot</b>	All time (six months fulltime or twelve months parttime)
<b>Coordinators</b>	Main: [t] +31 (0) 317 48 1628 John Stuiver (WUR) [e] <a href="mailto:john.stuiver@wur.nl">john.stuiver@wur.nl</a>  Assistant: [t] <vacant> [e]
<b>Lecturers</b>	All GIMA staff
<b>Entry requirements</b>	<ul style="list-style-type: none"> <li>Letter of acceptance of the master programme Geographical Information Management and Applications</li> <li>Passed at least five out of six content modules (GEO4-GIMA1 – GEO4-GIMA6)</li> </ul>
<b>Activities / Education</b>	<ul style="list-style-type: none"> <li>Internship</li> <li>Internship report</li> </ul>
<b>Themes</b>	<ul style="list-style-type: none"> <li>Gaining work experience</li> </ul>
<b>Profile</b>	<ul style="list-style-type: none"> <li>This module serves as a module where the student has to gain work experience and apply all the knowledge obtained in the real world.</li> </ul>
<b>Contents</b>	The internship allows the student to gain practical experience in a (geo-information) working environment. The internship contributes to the successful fulfilment of the needed knowledge and experience of an academic and professional GIMA graduate. It allows the student to expand his/her professional experience and creates a sound basis for graduation. The internship is carried out within geo-information companies, agencies and research institutes in the Netherlands or abroad. Following the completion of the internship the student will submit a report.
<b>Course objectives</b>	<i>The student will be able to:</i> <ul style="list-style-type: none"> <li>Apply methods, techniques and applications from the first 6 modules in practice and test the theoretical and practical knowledge the student has accumulated in the first six modules, thereby contributing to the student's internalisation of the syllabus and improving the student's basis for graduation.</li> <li>Enable the student to acquire or increase technical experience, insight into business and social, among other skills.</li> <li>Give the student the opportunity to become familiar with a geo-information workplace.</li> </ul>
<b>Learning materials</b>	<ul style="list-style-type: none"> <li>GIMA Master Internship Regulations (Article 7).</li> </ul>
<b>Examination</b>	<ul style="list-style-type: none"> <li>Report (90%)</li> <li>Presentation (10%)</li> </ul> <p><i>Percentages subject to amendments.</i></p>

<b>Exemption</b>	Possible; An internship exemption is possible when specific conditions are fulfilled as described in the module regulations (article 7).
<b>Schedule</b>	Not applicable
<b>Degree of freedom</b>	<i>Not applicable</i>
<b>Regulations</b>	This course module is subject to special regulations regarding the programme. <i>See GIMA Internship Regulations as separate Teaching and Examination Regulation.</i>
<b>Remarks</b>	<p><b>Graduation ceremony and deregistration</b></p> <p>Upon successfully completing the thesis OR the internship as the last course module, the student can choose to obtain the diploma during a graduation ceremony (which is earliest the next examination date after the last assessment results have been submitted), or to receive the diploma by mail carrier.</p> <p>It is highly advisable to check OSIRIS whether all the marks are correct and complete. Then, deregistration can be done via Studielink. All students will be deregistered at August 31<sup>st</sup>, if no action has been taken by August 1<sup>st</sup>.</p>

**Module 8: Thesis**

<b>Course name</b>	<b>Thesis</b>
<b>Course code</b>	<b>GEO4-GIMA8</b>
<b>ECTS credits</b>	30.0
<b>Level</b>	Master
<b>Course language</b>	English
<b>Period/time-slot</b>	All time (six months fulltime or twelve months parttime)
<b>Coordinators</b>	Main: [t] +31 (0) 15 278 2714 Sisi Zlatanova (TUD) [e] <a href="mailto:s.zlatanova@tudelft.nl">s.zlatanova@tudelft.nl</a>  Assistant: [t] +31 (0) 53 4874478 Corné van Elzakker (TUD) [e] <a href="mailto:elzakker@itc.nl">elzakker@itc.nl</a>
<b>Lecturers</b>	All GIMA staff
<b>Entry requirements</b>	<ul style="list-style-type: none"> <li>Letter of acceptance of the master programme Geographical Information Management and Applications</li> <li>Passed at least five out of six content modules (GEO4-GIMA1 – GEO4-GIMA6)</li> </ul>
<b>Activities / Education</b>	<ul style="list-style-type: none"> <li>Independent thesis research</li> </ul>
<b>Themes</b>	<ul style="list-style-type: none"> <li>Thesis</li> </ul>
<b>Profile</b>	<ul style="list-style-type: none"> <li>This is the last module, where the student needs to prove he/she can master all knowledge and skills in the form of a thesis.</li> </ul>
<b>Contents</b>	The (individual) research that results in a master's thesis deals with a specific need or issue that is relevant to the present-day practice of geo-information management and application. In some cases the subject of the thesis will originate from a student project carried out in module 6 or the internship; in other instances the subject of the thesis will be brought in front by the candidate or GIMA lectures. In all cases the subject of study should reflect the main objectives of the GIMA programme.
<b>Course objectives</b>	<i>The student will be able to:</i> <ul style="list-style-type: none"> <li>Demonstrate her/his ability to use and integrate knowledge and competences acquired in the six modules and the internship for an advanced, master level research, development and/or design project that adheres to international scientific standards and shows originality and scholarship.</li> <li>Demonstrate her/his ability to present the process and the results of the project in both written and oral format and to defend and discuss ones work in conformity with international scientific conventions.</li> </ul>
<b>Learning materials</b>	<ul style="list-style-type: none"> <li>GIMA Master Thesis Regulations</li> </ul>
<b>Examination</b>	<ul style="list-style-type: none"> <li>Written thesis (50%)</li> <li>Research/design process (30%)</li> <li>Presentation (10%)</li> <li>Discussions (10%)</li> </ul> <p><i>Percentages subject to amendments.</i></p>

<b>Examination dates 2011-2012</b>	<p>At the following dates, the final defences will be assessed:</p> <ul style="list-style-type: none"> <li>• Friday September 2nd 2011, TU-ITC, Enschede</li> <li>• Friday December 9<sup>th</sup> 2011, UU, Utrecht</li> <li>• Friday March 23<sup>rd</sup> 2012, WUR, Wageningen</li> <li>• Wednesday June 27<sup>th</sup> 2012, TUD, Delft</li> <li>• Friday September 1<sup>st</sup> , 2012, TU-ITC, Enschede</li> </ul> <p>In general rule, the defences will be presented in the afternoon of the designated date. The mid-term presentations will take place at the same date in the morning.</p> <p><b>In the event there is a large amount of candidates, the dates for the mid-term presentations might alter with one or two days. Due to the go/no-go decisions (see procedures), this might occur within four weeks before the deadline. Communication will be done via e-mail to the involved persons, and will also be communicated via BlackBoard.</b></p>								
<b>Exemption</b>	Not possible								
<b>Schedule</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Friday (week 26):</td> <td>Lectures, Scientific writing course</td> </tr> <tr> <td><i>Given moment 1:</i></td> <td>Mid-term attendance</td> </tr> <tr> <td><i>Given moment 2:</i></td> <td>Mid-term presentation</td> </tr> <tr> <td><i>Given moment 3:</i></td> <td>Thesis Defense presentation</td> </tr> </table>	Friday (week 26):	Lectures, Scientific writing course	<i>Given moment 1:</i>	Mid-term attendance	<i>Given moment 2:</i>	Mid-term presentation	<i>Given moment 3:</i>	Thesis Defense presentation
Friday (week 26):	Lectures, Scientific writing course								
<i>Given moment 1:</i>	Mid-term attendance								
<i>Given moment 2:</i>	Mid-term presentation								
<i>Given moment 3:</i>	Thesis Defense presentation								
<b>Degree of freedom</b>	<i>Not applicable</i>								
<b>Regulations</b>	<p><b>Article 1 – General</b></p> <ol style="list-style-type: none"> <li>1. These regulations apply to all students enrolled in the GIMA MSc programme, whether full-time or part time.</li> <li>2. The last part of the programme consists of carrying out a scientific research, development and/or design project resulting in a written thesis and two presentations.</li> <li>3. In line with the objectives of the GIMA programme, the master thesis should have a substantial empirical and/or design content.</li> <li>4. Students are expected to work on their thesis for a time period equivalent to 30 EC.</li> <li>5. The thesis should be based on individual, independent and original research, development and/or design work.</li> <li>6. The thesis project may deal with an issue of interest to the student’s employer under strict conditions relating to the scientific level and independence of the thesis project, as well as clarity on the final say by supervisor and professor.</li> <li>7. Part of the thesis work may be conducted outside the Netherlands with ‘distance supervision’. A special arrangement should be drafted and approved by the student, the supervisor and the Thesis Coordinator (see Article 4 below). The arrangement should specify tasks and responsibilities of the student and the supervisor and arrangements for regular communication.</li> </ol> <p><b>Article 2 – Aims of the master thesis</b></p> <ol style="list-style-type: none"> <li>1. <i>See course objectives above</i></li> </ol> <p><b>Article 3 – Scientific standards</b></p> <ol style="list-style-type: none"> <li>1. Both the research, development and/or design, as well as the written thesis and publications, will have to adhere to international scientific standards.</li> <li>2. The thesis should include:       <ol style="list-style-type: none"> <li>a. an introduction to and conceptualization of the topic (conceptual model based on an international review of relevant scientific literature),</li> </ol> </li> </ol>								

	<ul style="list-style-type: none"> <li>b. clearly stated goals and objectives,</li> <li>c. a dedicated, well worked out and justified methodology and application of methods and techniques,</li> <li>d. a transparent description of the work process and the outcomes of the study,</li> <li>e. a thorough, critical discussion of results in line with the project goals and objectives, and</li> <li>f. a summary publishable in a magazine for peers.</li> </ul> <ol style="list-style-type: none"> <li>3. The thesis has to be produced according to international standards for a scientific publication with respect to complete listing of sources used, full insight into methods used, systematic literature references and etcetera.</li> <li>4. During the project, the Dutch code of conduct for scientific work (The Netherlands Code of Conduct for Scientific Practice) of the Association of Universities in the Netherlands as to be followed.</li> </ol> <p><b>Article 4 – Organization</b></p> <ol style="list-style-type: none"> <li>1. The Board of the GIMA MSc programme appoints MSc Thesis Coordinator and a second, substitute coordinator. The Thesis Coordinator executes his/her task in accordance with the Programme Director.</li> <li>2. The Thesis Coordinator organizes the contacts, meetings, seminars, et cetera of the thesis phase of the GIMA programme, monitors the progress of the thesis projects and resolves conflicts between students and supervisors.</li> <li>3. The Thesis Coordinator informs the GIMA Program Director on a regular base in favour of the overall organization of Midterm presentations, Defences and Examinations</li> <li>4. Students can choose to propose a theme, approach and/or supervisor for the thesis project themselves or to select a theme/approach/supervisor from a list posted on the GIMA Blackboard site. The list will be maintained by the Thesis Coordinator and will be updated at the beginning of every school year.</li> <li>5. The students make their choice/preference known to the Thesis Coordinator and he/she will discuss the preferences with the students and try to grant the requests or mediate an alternative.</li> <li>6. The Thesis Coordinator takes the final decision about the allocation of projects and supervisors.</li> <li>7. Each student will be allocated one supervisor, who takes care of ‘daily’ supervision, and a reviewer who will read and co-assess the thesis when officially submitted for defence. The reviewer must be from a university, different than the university of the supervisor(s).</li> <li>8. Each student will be allocated one full professor (from the same university as the supervisor) guarding for the scientific quality (see Article 3) by approving the research outline and study plan (see Articles 5.1 a/b and 6.1) and final thesis.</li> <li>9. The total amount of time available for supervision is 50 hours, including the time of the supervisor(s), reviewer, full professor, and Thesis Coordinator.</li> <li>10. The student prepares a Thesis plan, which has to contain detailed information about research topic, methodology, time schedule and contact hours with the supervisors. The Thesis plan has to be submitted to the Thesis Coordinator, who uses it to register formally the begin of the research period.</li> </ol> <p><b>Article 5 – Phasing</b></p> <ol style="list-style-type: none"> <li>1. The project work follows the regular phasing of a scientific study:       <ul style="list-style-type: none"> <li>a. developing a Thesis plan (theme, objectives, approach, schedule, contact hours),</li> <li>b. writing the first chapters based on the literature review, resulting in a conceptual model and an analysis/design scheme,</li> <li>c. carrying out empirical analysis and/or design activities,</li> <li>d. writing the empirical and/or design chapters,</li> <li>e. writing the final chapters on interpretation of results, evaluation and discussion.</li> </ul> </li> <li>2. After the phases a and b are completed, students have to participate in a seminar in</li> </ol>
--	---

	<p>which they will report, within a 20 minutes presentation, on their progress and discuss their and other progress reports.</p> <ol style="list-style-type: none"> <li>3. Upon approval of the completed research by the responsible professor and the supervisor, the student hands to the Thesis Coordinator 5 printed copies of his/her thesis (3 for the TEC and 2 for GIMA administration) and a CD-ROM with a PDF-file containing the thesis text and illustrations and, when applicable, produced data sets and software.</li> <li>4. After the thesis is finished, the student will give a second (graduation) presentation of 30 minutes on the outcomes of his study and defend the research by participating in discussion. <i>Further details are given under procedures.</i></li> <li>5. The Thesis Coordinator will organize four seminars per year to accommodate these presentations during the 'contact education' period.</li> <li>6. Before starting an MSc thesis project every student must have to attend the one day Introduction on research skills and thesis writing. The Thesis Coordinator will organize this introduction twice a year.</li> <li>7. During the MSc thesis project every student must attend at least one more session of midterm presentations. All attendances will be registered on behalf of the Thesis Coordinator.</li> </ol> <p><b>Article 6 – Assessment</b></p> <ol style="list-style-type: none"> <li>1. After phase a mentioned in article 5.1, a go/no-go decision on the project will be taken by the supervisor and professor and discussed with the student. The go/no-go decision is registered by the Thesis Coordinator.</li> <li>2. In case of a no-go decision, the student has first to revise his/her Thesis Plan before he/she can continue with the project work. The coordinator has to be involved in the guidelines for revision given by the supervisor.</li> <li>3. After the phases a and b are completed a mid-term review will take place. Part of this review is the presentation as mentioned in art. 5 part 2. After the presentation, the supervisor will review progress and presentation with the student and report the outcome to the Thesis Coordinator.</li> <li>4. After all the phases are completed, the student submits his work to the responsible professor and supervisor, who approve the research and inform the Thesis Coordinator.</li> <li>5. In case the work is not accepted, the student has to revise/extend his work according to the recommendations of the supervisors. The required additional work and expected delay is registered by the Thesis Coordinator.</li> <li>6. In case the work is still not acceptable after the revision based on these recommendations, a new thesis project has to be started.</li> <li>7. After the presentation mentioned in article 5, part 4, the student will receive a written and motivated individual assessment of the thesis work with a mark between 1 and 10, undersigned by supervisor and reviewer (see for details Appendix 1).</li> <li>8. All MSc-theses graded with a positive mark will be made public with a short announcement in national and international magazines by the Thesis Coordinator.</li> <li>9. <i>The weights for the different parts of the thesis work can be found under examination.</i></li> <li>10. The MSc thesis will be available for the public via the digital UU thesis library. Thesis that obtained a mark 7 or higher are published on the GIMA Web site. All MSc theses will be available on the BB.</li> </ol> <p><b>Article 7 – Final regulations</b></p> <ul style="list-style-type: none"> <li>• In the event of a situation arising that is not covered by these master thesis regulations, or when there is a good reason to deviate from these regulations, a written request can be submitted to the GIMA Examining Board by the student and/or the supervisor. The final decision rests with the GIMA Examining Board.</li> </ul>
--	--

<p><b>Procedures</b></p>	<p><b>The rounding off of the MSc Research</b></p> <p>When rounding off the graduation research and completing the thesis, the student is expected to have fulfilled the final requirements and be ready to defend his research.</p> <p>The thesis must be written in English and must contain a one-page-long summary. The thesis must be prepared in A4 format and must use the GIMA cover page.</p> <p><b>Four weeks</b> before the graduation presentation date, at the very latest, the supervisor must inform the GIMA MSc Thesis Coordinator about upcoming defence, who will request assembling of the MSc. Thesis Examination Committee.</p> <p><b>Four weeks</b> before the graduation presentation date, at the very latest, the student must submit 5 printed copies of his/her thesis and a CD-ROM with a PDF-file containing the thesis text and illustrations (if applicable, produced data sets and software) to the MSc Thesis Coordinator. The MSc Thesis Coordinator will distribute the material to the MSc Thesis Examination Committee and the GIMA Secretariat.</p> <p><b>The Examination Components</b></p> <p>The examination is split up into the following four parts, which are to be considered by the GIMA MSc Thesis Examination Committee (TEC):</p> <ol style="list-style-type: none"> <li>1. written thesis,</li> <li>2. research process,</li> <li>3. graduation presentation,</li> <li>4. discussion.</li> </ol> <p><b>1. The written thesis</b></p> <p>The written thesis is the most important part of the evaluation. While evaluating the thesis, the following three general points are taken into consideration:</p> <ul style="list-style-type: none"> <li>• scientific content and level: problem definition, relevance of research questions, critical discussion, understanding and mastering of the topic and innovation.</li> <li>• scientific method: methodology, appropriateness of case studies, data and data collection procedures, objectives vs. results and conclusions.</li> <li>• presentation of the work: structure, logical sequencing, insight revealed, layout, organisation, language use, total length and expressive skills.</li> </ul> <p><b>2. The research process</b></p> <p>This part of the evaluation judges the candidate's working method and actual research process. The following important points are considered:</p> <ul style="list-style-type: none"> <li>• originality and motivation,</li> <li>• independence of thought and own initiative,</li> <li>• planning of time and how that has been adhered to,</li> <li>• communication with supervisors and other involved staff.</li> </ul> <p><b>3. The graduation presentation (public)</b></p> <p>The graduation presentation is oral and lasts for 30 minutes. The presentation should be of an academic standard and should expose the thesis motivation, followed approach and obtained results in the best possible way. The aspects to be assessed in the oral presentation are:</p> <ul style="list-style-type: none"> <li>• structure, logical sequencing, insight revealed,</li> <li>• quality of the overhead slides, organisation, use of language, length, expressive skills.</li> </ul> <p><b>4. The discussion (public)</b></p> <p>The discussion is the process of defending the thesis in the presence of the GIMA MSc Thesis Examination Committee (TEC) and the public. The discussion always takes place after the graduation presentation has been given. Generally, such sessions last between 30-35 minutes. The GIMA MSc Thesis Committee members ask questions first, in the order reviewer, responsible professor and supervisor, followed by the public. Questions can be asked which:</p> <ul style="list-style-type: none"> <li>• focus directly on the thesis and work on the thesis,</li> <li>• pertain to subjects directly related to the field of study in which the student is graduating.</li> </ul>
--------------------------	--

### The Assessment Approach

The whole graduation process is assessed by the TEC consisting of at least 3 persons (from GIMA programme):

- a supervisor,
- a reviewer (The reviewer will only review the final report),
- the chairperson of the TEC (a member of the GIMA Examining Committee). This member should preferably not be someone within the supervisor's department and it should not be the reviewer. In exceptional cases, if no member of the Board is available, the GIMA examining committee appoints a chairperson.

If the thesis research is practically oriented (involving a supervisor from a company), then the supervisor may be invited to witness the defence of the thesis. Alternatively, if he cannot be present, the responsible professor will seek opinions about the quality of the research undertaken from that same practical supervisor and will subsequently report these findings to the graduation committee.

The MSc Thesis Examination Committee evaluates the MSc project results with respect to the four Examination Components during a closed session (15-20 min) bearing in mind the knowledge and skills that the GIMA student is expected to possess by the time he/she has completed his/her studies. This is to say, the student should be able to demonstrate capabilities of:

- working in an individual and independent fashion,
- overseeing the implications of an assignment,
- carrying out research,
- demonstrating professional competence,
- giving written and oral presentations,
- carrying out discussions.

The MSc Thesis Examination Committee draws up proposals for:

- the marks to be given for each of the four graduation components,
- the final mark.

The final mark is based on the four graduation components, which are weighted according to the percentages as stated under *examination*.

### After the assessment

Immediately after the closed session of the MSc Thesis Examination Committee the student will be invited and explained the final mark.

The student will receive a copy of a written document, signed by the members of the MSc Thesis Examination Committee, with the motivated individual assessment of the MSc research work and the final mark (between 1 and 10). Two reports of the MSc thesis assessment has to be submitted to the GIMA secretary: one for GIMA's archive and one for the archive of Faculty of Geosciences of University Utrecht.

A digital copy has to be uploaded to the MSc thesis archive of University Utrecht:

Via <https://osiris.library.uu.nl/scrol2/index.html?ou=GEO>

### Graduation ceremony and deregistration

Upon successfully completing the thesis OR the internship as the last course module, the student can choose to obtain the diploma during a graduation ceremony (which is earliest the next examination date after the last assessment results have been submitted), or to receive the diploma by mail carrier.






It is highly advisable to check OSIRIS whether all the marks are correct and complete. Then, deregistration can be done via Studielink. All students will be deregistered at August 31<sup>st</sup>, if no action has been taken by August 1<sup>st</sup>.

## Staff Information

Inst.	Title	Name / Field of work	Mod.	Picture	Phone	Room	Email
TU-ITC	Ir.	Augustijn, Ellen-Wien Simulation models	1,8		+31 (0) 53-4874414	ITC 2-068	<a href="mailto:augustijn@itc.nl">augustijn@itc.nl</a>
TU-ITC	Dr.	Blok, Connie Cartography	0,1,8		+31 (0) 53-4874433	ITC 1-060	<a href="mailto:blok@itc.nl">blok@itc.nl</a>
WU	Prof. Dr. Ir.	Bregt, Arnold Spatial Data Infrastructures and Environmental Modelling	6,8		+31 (0) 317-481699	GAIA C308C	<a href="mailto:arnold.bregt@wur.nl">arnold.bregt@wur.nl</a>
WU	Dr. Ir.	Clevers, Jan Remote sensing	1,8		+31 (0) 317-481802	GAIA C305	<a href="mailto:jan.clevers@wur.nl">jan.clevers@wur.nl</a>
KUL	Prof. Dr. Ir.	Crompvoets, Joep Spatial Data Infrastructures	8		+32 (0) 16-323134 / 3610	-	<a href="mailto:joep.crompvoets@soc.kuleuven.be">joep.crompvoets@soc.kuleuven.be</a>
RUG	Drs.	de Bakker, Marinus	4		+31 (0) 50-363 3869	5417-0008	<a href="mailto:m.de.bakker@rug.nl">m.de.bakker@rug.nl</a>
WU	Dr. Ir.	de Bruin, Sytze Spatial data quality assessment and modelling	8		+31 (0) 317-481830	GAIA C308E	<a href="mailto:sytze.debruin@wur.nl">sytze.debruin@wur.nl</a>
TU-ITC	Dr. Ir.	de By, Rolf	8		+31 (0) 53-4874553	ITC 2-054	<a href="mailto:deby@itc.nl">deby@itc.nl</a>
UU	Dr.	de Jong, Tom Network Analysis	5,8		+31 (0) 30-2531393	UNNIK 403	<a href="mailto:t.dejong@geo.uu.nl">t.dejong@geo.uu.nl</a>
TUD	Drs.	de Vries, Marian distributed geo- information systems	6,8		+31 (0) 15-2784268	OTB 2.230	<a href="mailto:m.e.devries@tudelft.nl">m.e.devries@tudelft.nl</a>

Inst.	Title	Name / Field of work	Mod.	Picture	Phone	Room	Email
TU-ITC	Ir.	de Vries, Walter	1,4		+31 (0) 53-4874475	ITC 3-016	<a href="mailto:devries@itc.nl">devries@itc.nl</a>
UU	Dr.	Geertman, Stan Planning Support Systems	0,4,8		+31 (0) 30-2534527	UNNIK 418B	<a href="mailto:s.geertman@geo.uu.nl">s.geertman@geo.uu.nl</a>
WU	Dr.	Grus, Łukasz Spatial Data Infrastructures	3,8		+31 (0) 317-481697	GAIA C214	<a href="mailto:lucas.grus@wur.nl">lucas.grus@wur.nl</a>
UU	Dr.	Harts, Jan Jaap Urban development monitoring and simulation	1,8		+31 (0) 30-2531367	UNNIK 407	<a href="mailto:j.harts@geo.uu.nl">j.harts@geo.uu.nl</a>
WU	Dr.	Heuvelink, Gerard Spatial Statistics	8		+31 (0) 317-482716	GAIA B121	<a href="mailto:gerard.heuvelink@wur.nl">gerard.heuvelink@wur.nl</a>
UU	Dr.	Karssenber, Derek Geostatistics and Dynamic modelling	5, 6, 8		+31 (0) 30-2532768	ZON 103	<a href="mailto:d.karssenber@geo.uu.nl">d.karssenber@geo.uu.nl</a>
TU-ITC	Drs.	Knippers, Richard Land Cover Monitoring	4,8		+31 (0) 53-4874450	ITC 1-056	<a href="mailto:knippers@itc.nl">knippers@itc.nl</a>
TU-ITC	Drs.	Köbben, Barend Distributed Geo-Services	2,5,6,8		+31 (0) 53-4874253	ITC 1-065	<a href="mailto:kobben@itc.nl">kobben@itc.nl</a>
TU-ITC	Prof. Dr.	Kraak, Menno-Jan Cartography	0,8		+31 (0) 53-4874463	ITC 2-050	<a href="mailto:kraak@itc.nl">kraak@itc.nl</a>
TUD	Dr.	Ledoux, Hugo 3D GIS programming and interpolation methods	2,8		+31 (0) 15-2786114	OTB 2.190	<a href="mailto:h.ledoux@tudelft.nl">h.ledoux@tudelft.nl</a>
TU-ITC	Dr. Ir.	Lemmens, Rob Open GIS and internet GIS	5,6,8		+31 (0) 53-4874529	ITC 1-064	<a href="mailto:lemmens@itc.nl">lemmens@itc.nl</a>

Inst.	Title	Name / Field of work	Mod.	Picture	Phone	Room	Email
<b>TUD</b>	Dr. Ir.	Lemmens, Tjeu	8		+31 (0) 15-2781042	OTB 2.250	<a href="mailto:M.J.P.M.Lemmens@tudelft.nl">M.J.P.M.Lemmens@tudelft.nl</a>
<b>WUR</b>	Dr. Ir.	Ligtenberg, Arend GIS modelling and planning	6, 8		+31 (0)317- 481845	GAIA C212	<a href="mailto:arend.ligtenberg@wur.nl">arend.ligtenberg@wur.nl</a>
<b>TU-ITC</b>	Dr.	Morales, Javier Design of geo-information services	5,8		+31 (0) 53-4874299	ITC 1-058	<a href="mailto:jmorales@itc.nl">jmorales@itc.nl</a>
<b>TUD</b>	Drs.	Quak, Wilko Performance of spatial databases	8		+31 (0) 15-2783756	OTB 2.260	<a href="mailto:c.w.quak@tudelft.nl">c.w.quak@tudelft.nl</a>
<b>WU</b>	Ir.	Stuiver, John Spatial Data use and Lineage and environmental applications	7		+31 (0) 317-481628	GAIA C308F	<a href="mailto:John.stuiver@wur.nl">John.stuiver@wur.nl</a>
<b>WU</b>	Ing.	Ten Haaf, Willy GI Education	2,8		+31 (0) 317-481865	GAIA C308B	<a href="mailto:willy.tenhaaf@wur.nl">willy.tenhaaf@wur.nl</a>
<b>UU</b>	Drs.	Toppen, Fred AGILE and GI Education	4,8		+31 (0) 30-2533887	UNNIK 419	<a href="mailto:f.toppen@geo.uu.nl">f.toppen@geo.uu.nl</a>
<b>TU-ITC</b>		Van der Steen, Sjef Project Management / Academic skills	4,8		+31 (0) 53-4874377	ITC 3-101	<a href="mailto:steen@itc.nl">steen@itc.nl</a>
<b>TU-ITC</b>	Dr.	Van Elzakker, Corné Map use	1,8		+31 (0) 53-4874478	ITC 1-062	<a href="mailto:elzakker@itc.nl">elzakker@itc.nl</a>
<b>WUR</b>	Dr. Ir.	Van Lammeren, Ron	8		+31 (0) 317-481553	GAIA C306	<a href="mailto:ron.vanlammeren@wur.nl">ron.vanlammeren@wur.nl</a>

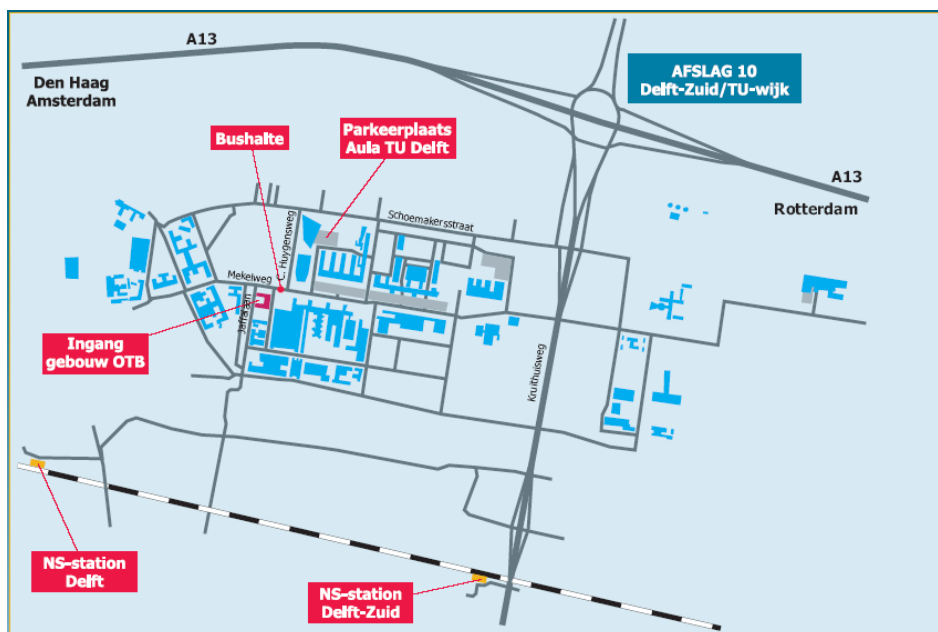
Inst.	Title	Name / Field of work	Mod.	Picture	Phone	Room	Email
<b>TUD</b>	Dr. Ir.	Van Loenen, Bastiaan Information Policies	3,8		+31 (0) 15-2782554	OTB 1.240	<a href="mailto:b.vanloenen@tudelft.nl">b.vanloenen@tudelft.nl</a>
<b>TUD</b>	Prof. Dr. Ir.	Van Oosterom, Peter Topography, Spatial data structures and geodatabases	5,8		+31 (0) 15-2786950	OTB 2.280	<a href="mailto:p.j.m.vanoosterom@tudelft.nl">p.j.m.vanoosterom@tudelft.nl</a>
<b>TU-ITC</b>		Vries, Walter de Organizational and economic aspects of geoinformation	3,8		+31 (0)53-4874475	ITC 3-015	<a href="mailto:devries@itc.nl">devries@itc.nl</a>
<b>TUD</b>	Ir.	Welle Donker, Frederika	3,8		+31 (0) 15-2781383	OTB 1.190	<a href="mailto:f.m.welledonker@tudelft.nl">f.m.welledonker@tudelft.nl</a>
<b>TU-ITC</b>	Prof. Dr.	Zevenbergen, Jaap Legal issues concerning geo-information	3,8		+31 (0) 53-4874351	ITC 3-001	<a href="mailto:zevenbergen@itc.nl">zevenbergen@itc.nl</a>
<b>UU</b>	Drs.	Zeylmans van Emmichoven, Maarten Geodata, ArcGIS, ERDAS/Imagine	6,8		+31 (0) 30-2531237	UNNIK 405	<a href="mailto:m.zeylmans@geo.uu.nl">m.zeylmans@geo.uu.nl</a>
<b>TUD</b>	Dr. Dipl. Ing.	Zlatanova, Sisi 3D data models	5,6,8		+31 (0) 15-2782714	OTB 2.220	<a href="mailto:s.zlatanova@tudelft.nl">s.zlatanova@tudelft.nl</a>



## Course Venues

### *Delft University of Technology*

Technische Universiteit Delft  
 Onderzoeksinstituut OTB  
 Jaffalaan 9, 2628 BX Delft  
 Postbus 5030, 2600 GA Delft  
 tel. (015) 278 30 05  
 fax (015) 278 44 22  
 URL: <http://www.otb.tudelft.nl>  
 e-mail: mailbox@otb.tudelft.nl



#### **Route description to OTB institute:**

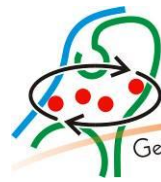
##### **By public transport:**

From Rotterdam/Dordrecht/Amsterdam/Schiphol/Den Haag/Utrecht:

Get off the train at NS-Station Delft. Take bus 51 (Zoetermeer Centrum West), 69 (Delft Zuid/TU wijk), 121 (Zoetermeer Centrum West via Pijnacker), 174 (Zoetermeer Centrum West via Bleiswijk) or 40 (Rotterdam Centraal Station). Get off at bus stop "Aula TU Delft" (bus 40 calls at Jaffalaan instead). Walk back and take the first turn to the left. The OTB institute is at number 9, building 30 (take the side exit, not the student affairs entrance!)

##### **By car:**

From the A13, heading Den Haag/Amsterdam and Rotterdam: exit Delft-Zuid. Keep the right hand side of the road, direction TU-Wijk. At the bottom of the viaduct, turn right (Schoemakersstraat). Then turn into the third street to the left (C. Huygensweg), end of the road turn right (Mekelweg). Then it is the second street left (Jaffalaan). You'll find sufficient parking space at the nearby Aula/Congress of Delft University.



## University of Twente - ITC

Faculty of  
Geo-Information Science and  
Earth Observation (ITC)  
Hengelosestraat 99  
7514 AE Enschede  
Phone: +31 (0)53 4874 444  
Fax: +31 (0)53 4874 400  
URL: <http://www.itc.nl>  
E-mail: [pr@itc.nl](mailto:pr@itc.nl)



### Route description to ITC:

#### By car:

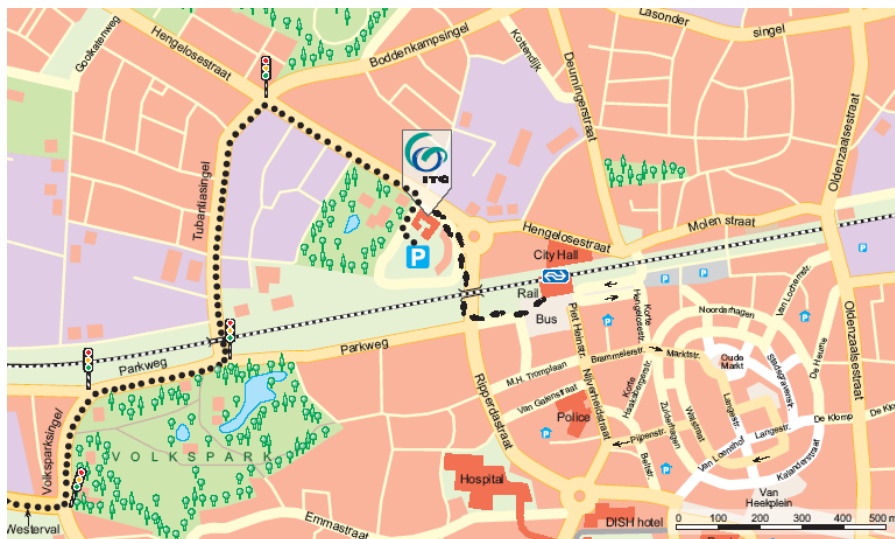
(assuming that you are coming from the west on the A1 Motorway)

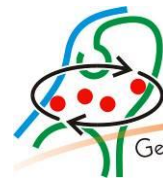
- If Enschede is not mentioned on the road signs yet then follow directions to Hengelo until Enschede is mentioned.
- Take the A35, direction Enschede, then take exit number 26 "Enschede-West/Universiteit".
- At the exit follow the direction Enschede and continue at the Westerval to the traffic lights (approximately 4 km).
- Go straight ahead until the next traffic lights.
- Turn left to enter the Parkweg.
- Keep right at the next traffic lights.
- Turn left at the next traffic lights to enter the Volksparktunnel.
- At the next traffic light turn right to enter the Hengelosestraat.
- After about 500 m. turn right into the small service road (Fortuinstraat) alongside the ITC building.
- You will find a parking lot behind the building. Use the intercom at the barrier to gain admission to the car park.

#### By train

Coming from Schiphol Airport, there are direct trains to Enschede leaving a few minutes before every hour. Sometimes you need to change trains at Amersfoort and/or Hengelo station, usually on the other side of the platform.

- Coming out of the Enschede railway station (facing the bus station), walk to your right.
- Cross the street at the traffic lights and follow the pavement through the tunnel on your right.
- After 500 m. you will see the ITC building on your left.





## Utrecht University

Willem C. van Unnikgebouw  
 Heidelberglaan 2  
 3584 CS Utrecht  
 tel: (+31) 30 253 2024  
 fax: (+31) 30 254 0604

URL: <http://www.geo.uu.nl>



## Route description

### By car:

From Amsterdam:

- A2, Exit Utrecht Noord
- Follow the N230 till A27
- A27, intersection Rijnsweerd direction De Uithof
- A28, First exit De Uithof

From Hilversum or Breda:

- A27, intersection Rijnsweerd direction De Uithof
- A28, First exit De Uithof

From Den Haag/Rotterdam or Arnhem:

- A12, junction Lunetten direction Amersfoort
- A27, intersection Rijnsweerd direction De Uithof
- A28, First exit De Uithof

From Den Bosch and Eindhoven:

- A2, junction Oudenrijn direction Amersfoort
- A27, junction Lunetten direction Amersfoort
- A28, First exit De Uithof

From Amersfoort:

- A28, Exit De Uithof (after exit Zeist/Den Dolder)

You'll arrive at the Uithof on the north side. Buildings are numbered. The Willem van Unnik building is number 2. There are several parking locations on the Uithof (see map). The Marinus Ruppert building is number 21.

### By public transport:

From/to Utrecht Central Station:

- Every 3 or 5 minutes bus 11 and 12(s), exit at bus stop Heidelberglaan.



### Wageningen University and Research

Droevendaalsesteeg 3  
 Building: 100 + 101  
 6708 PB Wageningen  
 The Netherlands

URL: <http://www.wur.nl>



#### By public transport:

All trains between Utrecht and Arnhem stop at Ede-Wageningen Station, with exception of the ICE-trains. Take bus line 88 to Wageningen Busstation and exit at bus stop Droevendaalsesteeg (bus departs from the southern exit 'zuid' of the railway station; coming from platform 3/4, turn left). For detailed travel information see [www.9292ov.nl](http://www.9292ov.nl), or the NS train journey planner, [www.ns.nl](http://www.ns.nl), or call 0900-9292. Alternatively, take a taxi.

#### By car:

##### From Utrecht or Arnhem:

From the A12 motorway take the 'Ede, Bennekom, Wageningen' exit.  
 Follow signposts to Wageningen.  
 Once you enter Wageningen follow the Wageningen UR signs for the building number.

##### From Nijmegen:

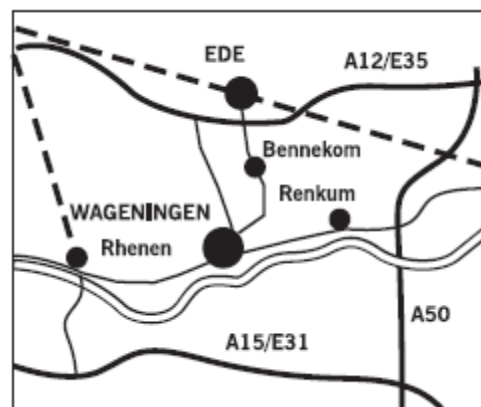
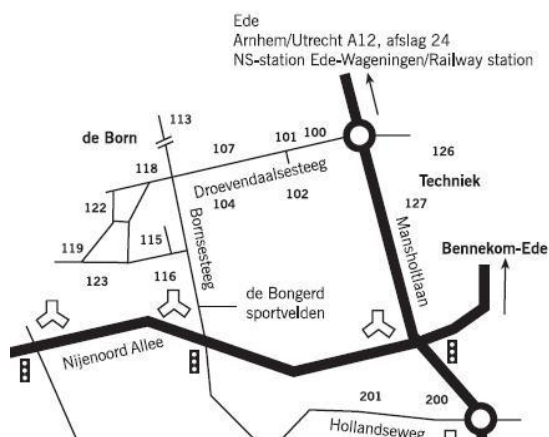
From the A50 motorway take the 'Renkum, Oosterbeek, Wageningen' exit.  
 Follow signposts to Wageningen.  
 Once you enter Wageningen follow the Wageningen UR signs for the building number.

##### From Tiel:

From the A15 motorway take the 'Rhenen' exit.  
 Follow signposts to Wageningen.  
 Once you enter Wageningen follow the Wageningen UR signs for the building number.

#### Building number

All buildings of Wageningen UR have a unique building number. Signs along the main roads in Wageningen show where clusters of buildings are located (for example, building numbers 100-200). Within the various clusters, routes to individual buildings are shown.



## FAQ

### **Where can I see what marks I have?**

You can see your marks in the blackboard environment of the specific module. The official marks are sent to the student administration of the UU, and will be accessible via Osiris. Please check these marks on Osiris.

### **Why do I have two email-addresses?**

Both the UU and the ITC provide you with an email account. You can use them both, but the ITC will be the one that is used by tuition staff for communication. In some cases we may use your private email address.

### **The (interim) exams are next week and I don't have time to study for them!**

There is a possibility for you to make a re-examination during the next contact days. It is however not advisable as this will require a lot more time the next contact days: you'll have to study for both your re-examination and the other exams you have.

### **I started GIMA full-time, but now I notice it takes a lot more time than I expected. I would like to switch to part-time.**

#### **How do I arrange that?**

To make it official at the UU, use [qdesk.uu.nl](http://qdesk.uu.nl) to find the correct form. Furthermore, you will have to report it to the module coordinator of the module you are not going to follow; possibly you'll have to arrange something for your project group;

### **I would like to stop with GIMA and receive proof of my finished modules. How do I arrange that?**

See the special section 'Completion of the GIMA programme' in this course catalogue.

### **I would like to have access to a certain module via blackboard**

Please send an email to [gima@geo.uu.nl](mailto:gima@geo.uu.nl) and your request will be processed.

### **I would like to have the documents that I left in the group folder of a module last year.**

That's tricky. Not all modules are kept online for eternity. The best thing to do is save relevant documents on your own computer when ending a module.

### **I would like to ask for exemption of the GIMA internship. What do I have to do?**

Have a look at the GIMA work placement regulations (in the course catalogue). There are the conditions needed to substantiate your request. Sent the documents plus accompanying letter to the chairman of the exam committee.

### **Where can I reach the chairman of the exam committee?**

The chairman of the examining committee can be found in the section General Information, under GIMA management. Contact details of all staff members are provided in the Staff Information section of this Course Catalogue.

### **Can I email my fellow students? I have built a nice web mapping service (e.g.) and would like to show my work.**

That is possible through the GIMA general information blackboard module, choose communication, sent email, etc. Please note that blackboard has a built-in limit of 60 recipients. Therefore, if you just simply click "email all users", it is likely nothing will happen, simply because we have more than 60 active students.

### **How do I change my address after moving?**

You can do that via <http://www.studielink.nl>. Also, it will be appreciated if you sent an email to [gima@geo.uu.nl](mailto:gima@geo.uu.nl).

### **I am a foreign student – how do I get myself to the venues?**

A separate guidebook is available on how to get around in the Netherlands. You can find it on our website <http://www.msc-gima.nl>, blackboard or e-mail [gima@geo.uu.nl](mailto:gima@geo.uu.nl).

# **Part II: GIMA regulations**

## **GIMA Teaching and Examination Regulations (TER) 2011/2012**

GIMA General Regulations (= model rules) as determined by the Dean of the Faculty of Geosciences of Utrecht University (= present coordinating institute), 2011 coded by Teaching and Examination Regulations 2011/2012 (TER 11/12)

### **Teaching and Examination Regulations 2011/2012**

**for the Master's degree programmes in**

- **Earth Sciences**
- **Environmental Sciences**
- **Human Geography and Planning**
- **Science and Innovation Management**
- **Development Studies**
- **Planning**
- **Human Geography**
- **Geographical Sciences**  
(incl Geographical Information Management and Applications)

The Teaching and Examination Regulations set out the degree programme-specific rights and obligations of students on the one hand and of Utrecht University on the other. The University's student statute sets forth the rights and obligations that apply to all students.

## Table of contents

<b>SECTION 1 – GENERAL PROVISIONS .....</b>	<b>51</b>
Art. 1.1 – applicability of the regulations .....	51
Art. 1.2 – definition of terms .....	51
<b>SECTION 2 – ADMISSION .....</b>	<b>52</b>
Art. 2.1 – degree programme admission requirements.....	52
Art. 2.2 – English language.....	52
Art. 2.3 – proficiency in Dutch for holders of foreign qualifications (in relation to the Dutch-taught Master’s Degree Programmes) .....	52
Art. 2.4 – Admission to the Master’s programmes .....	52
Art. 2.5 - deficiencies .....	53
Art. 2.6 – admissions procedures.....	53
Art. 2.7 – admission for a six-month period.....	54
Art. 2.8 – limited entry.....	54
<b>SECTION 3 – CONTENT AND STRUCTURE OF THE DEGREE PROGRAMMES .....</b>	<b>55</b>
Art. 3.1 – aims of the degree programmes .....	55
Art. 3.2 – study mode .....	55
Art. 3.3 – language of instruction .....	55
Art. 3.4 – credit value.....	55
Art. 3.5 – Master’s programmes; entry points.....	56
Art. 3.6 – components of the Master’s programmes.....	56
Art. 3.7 – components taken elsewhere .....	56
<b>SECTION 4 – COURSES.....</b>	<b>57</b>
Art. 4.1 – course.....	57
Art. 4.2 – course admission requirements.....	57
Art. 4.3 – course enrolment.....	57
Art. 4.4 – attendance and effort requirements .....	57
<b>SECTION 5 – ASSESSMENT .....</b>	<b>58</b>
Art. 5.1 – general .....	58
Art. 5.2 – assessment of placement or research assignment .....	58
Art. 5.3 – grades.....	58
Art. 5.4 – repeat exams: supplementary or replacement tests .....	58
Art. 5.5 – assessment mode.....	58
Art. 5.6 – oral tests.....	59
Art. 5.7 – assessment provision for special circumstances .....	59
Art. 5.8 – assessment turnaround time .....	59
Art. 5.9 – validity period .....	59
Art. 5.10 – right of inspection .....	59
Art. 5.11 – retention of assessments .....	59
Art. 5.12 – exemption .....	59
Art. 5.13 – fraud and plagiarism .....	59
Art. 5.14 – right of appeal .....	60
<b>SECTION 6 – EXAMINATION .....</b>	<b>61</b>
Art. 6.1 – examination .....	61
Art. 6.2 – cum laude designation .....	61
Art. 6.3 – degree .....	61
Art. 6.4 – degree certificate .....	61
Art. 6.5 - Grade Point Average (GPA).....	61
<b>SECTION 7 – STUDENT SUPPORT AND GUIDANCE .....</b>	<b>63</b>
Art. 7.1 – student progress administration .....	63
Art. 7.2 – student support and guidance .....	63
Art. 7.3 – disabilities .....	63
<b>SECTION 8 – TRANSITIONAL AND FINAL PROVISIONS.....</b>	<b>64</b>
Art. 8.1 – safety net arrangements .....	64
Art. 8.2 – amendments .....	64
Art. 8.3 – publication .....	64
Art. 8.4 – effective date .....	64
<b>ANNEX 1 – Structure of master programmes .....</b>	<b>65</b>

<b>GIMA Additional TER</b> .....	<b>66</b>
<b>SECTION 1 – General provisions (additional to TER 11/12 section 1)</b> .....	<b>66</b>
Art. 1.1 – Applicability of the additional regulations .....	66
Art. 1.2 – GIMA examining committee .....	66
<b>SECTION 2 – Admission (additional to TER 11/12 section 2)</b> .....	<b>67</b>
Art. 2.1 – Admissions Committee .....	67
Art. 2.2 – Admission to the programme of study.....	67
Art. 2.3 – Admittance of students not having a bachelor’s degree.....	67
Art. 2.4– Admission review: deadline dates, admission notice.....	67
Art. 2.5 - Limitations on module participation .....	67
<b>SECTION 3 – Programme structure (additional to TER 11/12 section 3)</b> .....	<b>68</b>
Art. 3.1 – Aim of the programme.....	68
<b>SECTION 4 – Courses (additional to TER 11/12 section 4)</b> .....	<b>68</b>
Art. 4.1 –Composition of a programme of study: courses .....	68
Art. 4.2 – Required sequence of modules.....	68
<b>SECTION 5 – Assessment (additional to TER 11/12 section 5)</b> .....	<b>69</b>
Art 5.1 – General.....	69
Art 5.2 – Assessment of placement or research assignment .....	69
Art. 5.3 – Repeat exams .....	69
Art. 5.4 – Assessment turnaround time .....	69
Art. 5.5 – Period of validity .....	69
Art. 5.6 – Exemption .....	69
<b>SECTION 6 – Examination (additional to TER 11/12 section 6)</b> .....	<b>70</b>
Art. 6.1 – Cum laude designation.....	70
Art. 6.2 – GIMA degree certificate .....	70
<b>SECTION 7 – Student support and study guidance (additional to TER 11/12 section 7)</b> .....	<b>70</b>
Art. 7.1 – Student academic records.....	70
<b>SECTION 8 – Transitional and final provisions (additional to TER 11/12 section 8)</b> .....	<b>70</b>
Art. 8.1 – Amendments .....	70
Art. 8.2 – Publication .....	70
Art. 8.3 – Effective date .....	70
<b>GIMA Internship Regulations</b> .....	<b>71</b>
Article 1 – General .....	71
Article 2 – Aims of the internship .....	71
Article 3 – Organisation and set-up .....	71
Article 4 - The GIMA internship supervision .....	71
Article 5 – The internship report and presentation .....	72
Article 6 - Assessment.....	72
Article 7 – Exemption.....	72
Article 8 – Validity .....	72

## SECTION 1 – GENERAL PROVISIONS

### ***Art. 1.1 – applicability of the regulations***

These regulations apply to the teaching and examinations of the Master's degree programmes in Development Studies, Earth Sciences, Environmental Sciences, Geographical Sciences (incl Geographical Information Management and Applications – GIMA-), Human Geography, Human Geography and Planning (research), Planning and Science and Innovation Management (hereinafter called the degree programmes) and to all students enrolled on these degree programmes. The degree programmes are run by the Graduate School of Geosciences within the Faculty of Geosciences.

### ***Art. 1.2 – definition of terms***

In these regulations, the following terms have the following meanings:

- a. the Act: the Higher Education and Research Act.
- b. student: anyone who is enrolled at the University to take courses and/or sit partial exams and final exams of the programme.
- c. credit point: a value expressed in ECTS, where each credit point is approximately equivalent to 28 hours of learning.
- d. degree programmes: the Master's degree programmes mentioned in Art. 1.1 of these regulations. A degree programme may comprise several Master's programmes.
- e. component: a unit of study (course) within the degree programme, as included in the Course Catalogue and the University's Course Catalogue.
- f. course: a unit of teaching and assessment. In GIMA called module.
- g. test: partial examination as meant by Art. 7.10 of the Act.
- h. exam: the final exam of the degree programme, which is completed successfully if all the degree requirements have been met.
- i. special needs contract: the contract entered into by the Director of Teaching (or other representative of the degree programme) and the disabled student specifying the necessary and reasonable facilities which the student is entitled to.
- j. International Diploma Supplement: the document attached to the degree certificate that explains the nature and content of the qualification (in an internationally understandable form).
- k. Board of Studies: the Board of the Graduate school.
- l. Student Information Desk of Geosciences: student information desk and student progress administration unit of the Faculty.
- m. course guide: document specifying for each course: the learning outcomes; the requirements (such as the attendance and effort requirements) that a student must meet to complete the learning outcomes; the way in which the final mark is calculated; the timetable and the instructional formats; name and availability of the course coordinator. The information in the course guide prevails over information contained in the University's Course Catalogue.
- n. summer vacation period: the period between the end of semester 2 and the start of semester 1 of the following year; it follows the University academic calendar.

The other terms have the meanings ascribed to them in the Act.

## SECTION 2 – ADMISSION

### ***Art. 2.1 – degree programme admission requirements***

1. The holder of a Dutch or foreign higher education degree who demonstrates knowledge, understanding and skills in sub-areas of Geosciences can be admitted to one of the Master's degree programmes mentioned in Article 1.1.
2.
  - a. The holder of a Bachelor's degree with a Utrecht University major in Earth Sciences is assumed to have gained the knowledge, understanding and skills referred to in the first paragraph, and is for that reason admitted to the Master's degree programme in Earth Sciences.
  - b. The holder of a Bachelor's degree with a Utrecht University major in Environmental Sciences or a Bachelor's degree with a Utrecht University major in Environmental Studies is assumed to have gained the knowledge, understanding and skills referred to in the first paragraph, and is for that reason admitted to the Master's degree programme in Environmental Sciences.
  - c. The holder of a Bachelor's degree with a Utrecht University major in Science and Innovation Management is assumed to have gained the knowledge, understanding and skills referred to in the first paragraph, and is for that reason admitted to the Master's degree programme in Science and Innovation Management.
  - d. The holder of a Bachelor's degree with a Utrecht University major in Human Geography and Planning is assumed to have gained the knowledge, understanding, and skills referred to in the first paragraph, and is for that reason admitted to the Master's degree programme International Development Studies, Geographical Information Management and Applications, Human Geography, or Planning.
3. Admissions decisions are made by the Board of Admissions, taking account of the applicant's preferred programme within the Master's degree programme and of the text of Art 2.3.
4. The applicant must master spoken and written English.

### ***Art. 2.2 – English language***

1. Prior to undertaking the degree programme (taught in English), students must demonstrate proficiency in English by passing one of the following tests:
  - IELTS (International English Language Testing System). The minimum IELTS score required is an Overall Band Score of 6.5 and no less than 6.0 in the writing section.
  - TOEFL (Test of English as a Foreign Language). The minimum required TOEFL score is 93 (internet-based).
  - Cambridge EFL (English as a Foreign Language) Examinations, presenting one of the following certificates:
    - Cambridge Certificate in Advanced English; minimum score B.
    - Cambridge Certificate of Proficiency in English; minimum score C.
2. The holder of a Bachelor's degree gained at a university in the Netherlands meets the English language requirement for admission.

### ***Art. 2.3 – proficiency in Dutch for holders of foreign qualifications (in relation to the Dutch-taught Master's Degree Programmes)***

Holders of foreign qualifications may only register:

1. if they demonstrate required proficiency in Dutch by passing the state examination in Dutch as a Second Language, Programme 2, or by obtaining the certificate in Dutch as a Second Language, 'Academic Language Skills Profile' (PAT) or 'Higher Education Language Skills Profile' (PTHO), and
2. if they demonstrate required proficiency in English by passing one of the following tests:
  - IELTS (International English Language Testing System). The minimum IELTS score required is an Overall Band Score of 6.5 and no less than 6.0 in the writing section.
  - TOEFL (Test of English as a Foreign Language). The minimum required TOEFL score is 93 (internet-based).
  - Cambridge EFL (English as a Foreign Language) Examinations, presenting one of the following certificates:
    - Cambridge Certificate in Advanced English; minimum score B.
    - Cambridge Certificate of Proficiency in English; minimum score C.

### ***Art. 2.4 – Admission to the Master's programmes***

1. The different Master's programmes within the degree programme in Earth Sciences have no further specific admission requirements in addition to those listed in Art. 2.1.

2. The different Master's programmes within the degree programme in Environmental Sciences have specific admission requirements in addition to those listed in Art. 2.1:
  - Applicants holding a Bachelor's degree with a Utrecht University major in Environmental Sciences have guaranteed admission to the Master's programme in Sustainable Development, track Energy & Resources, track Global Change and Ecosystems and track Environmental Governance.
  - Applicants holding a Bachelor's degree with a Utrecht University major in Environmental Studies have guaranteed admission to the Master's programme in Sustainable Development, track Environmental Governance.
  - Applicants holding a Bachelor's degree with a Utrecht University major in Environmental Studies or Environmental Sciences and a Utrecht University minor Development Studies have guaranteed admission to the Master's programme in Sustainable Development, track International Development.
3. The Master's programme in Human Geography and Planning (Research Master's) has the following specific admission requirements in addition to those listed in Art. 2.1:
  - High positive motivation and dedication to undertake the Master's programme.
  - Good academic results in their previous studies. Applicants must be able to demonstrate that they belong to the top 10 percent of their programme.
  - The applicant must have completed previous studies with a grade point average of at least 3.0 (on a scale of 1-4) or of at least 7.0 under the Dutch system.
4. The Master's programme in Development Studies has the following specific admission requirements in addition to those listed in Art. 2.1:
  - Knowledge and understanding of the concepts and theories of Human Geography, and knowledge at an advanced level in at least the issues of developing and transition countries;
  - Knowledge and understanding of the methods and techniques of socio-spatial research and some experience in carrying out such research;
  - Academic skills on a par with those expected at the level of a university Bachelor's degree.
5. The Master's programme in Human Geography has the following specific admission requirements in addition to those listed in Art. 2.1:
  - Knowledge and understanding of the concepts and theories of Human Geography, and at least one of the fields of specialization in Human Geography;
  - Knowledge and understanding of the methods and techniques of socio-spatial research and some experience in carrying out such research;
  - Academic skills on a par with those expected at the level of a university Bachelor's degree.
6. The Master's programme in Planning has the following specific admission requirements in addition to those listed in Art. 2.1:
  - Knowledge and understanding of the concepts of Planning and Human Geography, planning theory and methods, and at least one of the fields of specialization in planning;
  - Knowledge and understanding of the methods and techniques of socio-spatial research and some experience in carrying out such research;
  - Academic skills on a par with those expected at the level of a university Bachelor's degree.
7. The Master's programme Geographical Sciences has the following specific admission requirements in addition to those listed in Art. 2.1:
  - Knowledge and understanding of the concepts of geo-information;
  - Academic skills on a par with those expected at the level of a university Bachelor's degree.

#### **Art. 2.5 - deficiencies**

The Board of Admissions of the Graduate School may require those applicants who do not meet the admission requirements referred to in Art. 2.1 and Art 2.3 to complete a package of courses to a maximum of 60 ECTS, to be taught by Utrecht University and tailored to the Master's programme concerned, in order to remove background deficiencies.

#### **Art. 2.6 – admissions procedures**

1. Responsibility for admission to the degree programmes of the Graduate School and the different Master's programmes lies with the Board of Admissions of the Graduate School.
2. With an eye to admission to the degree programme, the Board of Admissions will review the knowledge, understanding and skills of the applicant. In addition to documentary evidence of programmes completed, the Board may have specific knowledge, understanding and skills assessed by experts inside or outside the University.
3. With an eye to admission to a Master's programme within the degree programme, the Board of Admissions will conduct an admissions review to determine if the applicant meets, or will meet in a timely manner, the requirements

for admission referred to in Art. 2.3. In its review, the Board will include the applicant's motivation and ambition for the programme concerned as well as the applicant's knowledge of the programme's language of instruction.

4. Admissions reviews are conducted twice a year.
5. Requests for admission to the degree programme and to a specific Master's programme are submitted to the Board of Admissions before 1 March and 1 September. In special cases, the Board of Admissions may consider requests submitted after the deadline dates.
6. The Board of Admissions will make an admissions decision within the time frames set by the Board of Studies. Admission will be granted on the condition that the applicant meets the knowledge and skills requirements referred to in Art. 2.3 by the start date of the degree programme, as evidenced by certificates of programme completion.
7. The applicant will receive written notification of acceptance or non-acceptance into the degree programme and a specific Master's programme. The decision letter will call attention to the possibility of appeal to the Examinations Appeal Board.

#### ***Art. 2.7 – admission for a six-month period***

1. In special cases, the Board of Admissions may, at the request of an applicant who is preparing for the final exam of one of the Bachelor's degree programmes referred to in Art. 2.1, paragraph 2, admit the applicant to the degree programme for a six-month period if:
  - the applicant has successfully completed the required components of the major programme and only has to complete components of the Bachelor's degree programme with a total credit value of no more than 15, and if
  - the applicant can be reasonably expected to complete the Bachelor's degree programme in a very short period, but not later than six months from the time he or she is conditionally admitted to the Master's degree programme, and if
  - the applicant, due to circumstances beyond his or her control, has not been able to make satisfactory academic progress and would disproportionately fall behind in studies if they were unable to begin the Master's degree programme at the scheduled start date.
2. After completing the final exam of one of the Bachelor's degree programmes referred to in Article 2.1, paragraph 2, the six-month admission period will be converted to regular admission.
3. If the student does not successfully complete the final exam of one of the Bachelor's degree programmes referred to in Art. 2.1, paragraph 2, within six months of starting the Master's degree programme, he or she will be excluded from the Master's degree programme until the Bachelor's exam has been passed.

#### ***Art. 2.8 – limited entry***

1. The Board of Studies will determine the maximum number of students to be admitted to the degree programmes and the different Master's programmes.
2. The Board of Admissions will rank the submitted requests according to knowledge and skills of the applicants.
3. The Board of Admissions will grant the requests based on the rankings established.

## SECTION 3 – CONTENT AND STRUCTURE OF THE DEGREE PROGRAMMES

### ***Art. 3.1 – aims of the degree programmes***

1. The degree programmes aim to:
  - equip students with specialised knowledge, skills and understanding in the field of Geosciences, and to help them achieve the learning outcomes referred to in paragraph 2;
  - prepare students for a career in one or more sub-fields of Geosciences;
  - prepare students for undertaking a programme to train as a researcher in the field of Geosciences.
2. The graduate:
  - has a deep knowledge and understanding of the subject matter of Geosciences;
  - has a thorough knowledge of a specialism in their degree programme, or a thorough knowledge at the interface of the degree programme and another subject area;
  - has the skill to independently identify, formulate, and analyse problems in the field of Geosciences, and to propose possible solutions;
  - has the skills to conduct research in the field of Geosciences and to report on this research in a manner that meets the standards usual for the discipline;
  - possesses professional and academic skills, in particular in relation to research in the field of Geosciences;
  - is able to apply knowledge and understanding in such a way that he or she demonstrates a professional approach to their work;
  - is able to communicate conclusions, as well as the knowledge, reasons and considerations underlying these conclusions, to an audience of specialists or non-specialists.

The course catalogues for the Master's programmes set out the subject-specific learning outcomes for the different Master's programmes.

### ***Art. 3.2 – study mode***

The degree programmes Development Studies, Earth Sciences, Environmental Sciences, Human Geography and Planning (research) and Science and Innovation Management are offered full-time. The degree programmes in Planning, Geographical Information Management and Applications and Human Geography are offered full-time as well as part-time.

### ***Art. 3.3 – language of instruction***

The degree programmes Development Studies, Earth Sciences, Environmental Sciences, Geographical Information Management and Applications, Human Geography and Planning (research) and Science and Innovation Management are taught in English. The degree programmes in Planning and Human Geography are taught in Dutch. The Master's programme Urban Geography within the degree programme Human Geography is taught in English.

### ***Art. 3.4 – credit value***

The degree programmes Earth Sciences, Environmental Sciences, Geographical Information Management and Applications, Human Geography and Planning (research) and Science and Innovation Management have a total credit value of 120. The degree programmes in Development Studies, Planning, and Human Geography have a total credit value of 60.

### **Art. 3.5 – Master’s programmes; entry points**

1. The Graduate School of Geosciences offers the following Master’s degree programmes and Master’s programmes:

<b>Master’s degree programme</b>	<b>Master’s Programme</b>
Earth Sciences	Earth, Life and Climate Earth Structure and Dynamics Earth Surface and Water
Environmental Sciences	Sustainable Development
Geographical Sciences	Geographical Information and Management Applications
Human Geography and Planning	Human Geography and Planning
Science and Innovation Management	Science and Innovation Management
Development Studies	International Development Studies
Planning	Planologie
Human Geography	Economische Geografie Geo-communicatie Urban Geography/Stadsgeografie

The Master’s programmes prepare students for undertaking research in one or more sub-fields of Geosciences.

2. The Master’s programmes Earth Sciences, Environmental Sciences and Science and Innovation Management start twice a year: 1 September and 1 February. The Master’s programmes Development Studies, Geographical Sciences, Human Geography and Planning (Research Master), Planning, and Human Geography have one start date a year: 1 September.

### **Art. 3.6 – components of the Master’s programmes**

1. The core components of the different Master’s programmes and their credit loads are described in Annex 1.
2. Upon approval of the Board of Examiners, the student will choose one or more components. The credit values for the elective components of the specific Master’s programmes are set out in Annex 1.
3. In departure from Art 3.6.2, if a student who has been accepted into one of the programmes has deficiencies, he or she may be required to use (part of) the free-choice component of the programme to remove the deficiencies.
4. The Course Catalogue for the Master’s programmes provides more detailed information about the content and structure of the components of each programme, including any prior knowledge that would help students successfully complete the component concerned.

### **Art. 3.7 – components taken elsewhere**

1. In order to pass the Master’s degree exam the student must complete at least half of the Master’s programme through components offered by Utrecht University.
2. Components taken elsewhere as part of the programme of study may only be counted towards the student’s degree requirements with prior approval of the Board of Examiners.
3. Components completed at a higher education institution prior to the start of the Master’s degree programme may only qualify for exemption pursuant to Art. 5.12.

## **SECTION 4 – COURSES**

### ***Art. 4.1 – course***

All courses that may be part of the degree programmes have been included in the course catalogues for the programmes and can be found at the website of the Student Information Desk of Geosciences: <http://studenten.geo.uu.nl>.

### ***Art. 4.2 – course admission requirements***

The Board of Studies will decide the order in which the required components of a Master's programme must be completed. This will be announced in the Course Catalogue.

### ***Art. 4.3 – course enrolment***

A student may only take part in a course if he or she has enrolled for the course in a timely manner. The Board of Studies will decide how and when enrolment takes place. Enrolment rules and enrolment deadlines will be published through the website of the Student Information Desk of Geosciences: <http://studenten.geo.uu.nl>.

### ***Art. 4.4 – attendance and effort requirements***

1. Every student is expected to actively participate in the course on which he or she is enrolled.
2. In addition to the general requirement of active participation in class, any additional requirements per unit are listed in the University's Course Catalogue and the Course Guide.
3. A student may be granted exemption from attendance if he or she is incapacitated (for instance as a result of illness or family circumstances). Any leave or absence must be agreed with the Programme Office in advance by phone.
4. If participation is inadequate, qualitatively or quantitatively, the course coordinator may decide to exclude the student from the remainder or any part of the remainder of the course.

## SECTION 5 – ASSESSMENT

### ***Art. 5.1 – general***

1. During the course the student will be assessed on academic skills and on the extent to which he or she has achieved the stated learning outcomes. All assessment activities will be completed by the end of the course.
2. The Course Guide and/or the University's Course Catalogue detail the achievements the student must demonstrate for him or her to successfully complete the course, as well as the criteria on which the student is assessed.
3. The published (see: Course Catalogue/Website) rules and regulations of the Board of Examiners outline the assessment process.
4. If a course has to be repeated, the last acquired judicium counts. Should a student pass for a course, but still wishes to repeat the course, the complete course should be repeated.

### ***Art. 5.2 – assessment of placement or research assignment***

1. The student's performance during a placement or his or her research assignment will be assessed by the supervisor in question and by one or more other internal and/or external experts.
2. Master's theses will be assessed by two lecturers.

### ***Art. 5.3 – grades***

1. Grades will be awarded on a scale from 1 to 10. The final course grade will be satisfactory or unsatisfactory, or, if expressed in numbers, 6 or higher and 5 or lower respectively.
2. The final course grade will be rounded to one decimal place. A grade for a partial test will not be rounded.
3. The final course grade of 5 and lower will not have any decimal places. An average grade of 4.95 to 5.49 is unsatisfactory (5); an average grade of 5.50 to 5.99 is satisfactory (6)
4. The Course Guide sets out the way in which the final course grade is calculated.

### ***Art. 5.4 – repeat exams: supplementary or replacement tests***

1. If during the course the student satisfies all the effort requirements and does not receive a satisfactory grade but does receive a final grade of at least 4.00, he or she will be given one opportunity to take a supplementary or replacement test, except as provided in subsection 2.
2. Notwithstanding subsection 1, if during a course of the master's programmes Economische Geografie, Geo-communicatie, Human Geography and Planning (Research Master's), International Development Studies, Planologie or Urban Geography the student satisfies all the effort requirements and does not receive a satisfactory grade but does receive a final grade of at least 5.00, he or she will be given one opportunity to take a supplementary or replacement test.
3. The teacher will determine the form and content of the supplementary test.
4. The study load for the supplementary test must be proportionate to the portion of the course that is being repaired.
5. If the student passes the supplementary test, a final course grade of 6 will be recorded in the student progress administration system. Partial results that the student has achieved will not be taken into account in establishing the final grade of the supplementary test.
6. If the student does not pass the supplementary test, the initial final grade will be entered into the student progress administration system, thus rendering all partial course grades defunct.
7. The teacher will determine the form and the content of the replacement test.
8. The result of the replacement test is taken into account in establishing the final grade of the entire course, except as provided in subsection 9.
9. If the grade for the replacement test replaces all exams in the course, the result of the replacement test will be recorded in the student progress administration system; it replaces the initial final grade.

### ***Art. 5.5 – assessment mode***

1. Assessment as part of a course will take place as stated in the course guide for the course.
2. Upon request, the Board of Examiners may give permission for a test to be administered in a manner which departs from the provisions of the first paragraph.

**Art. 5.6 – oral tests**

1. Only one person at a time may be tested, unless the Board of Examiners decides otherwise.
2. Oral tests will be administered in public, unless the Board of Examiners or the examiner concerned decides otherwise in exceptional circumstances, or unless the student objects.

**Art. 5.7 – assessment provision for special circumstances**

1. If not providing special assessment arrangements was to lead to a ‘compelling case of unreasonableness’, the Board of Examiners may decide to grant special assessment arrangements.
2. Requests for special assessment arrangements must be submitted as early as possible together with supporting documentary evidence. They must be submitted to the Board of Examiners through the student adviser.

**Art. 5.8 – assessment turnaround time**

1. Within 24 hours of administering an oral test the examiner will determine the grade and provide the student with a statement of the grade received.
2. The examiner will grade a written or differently administered test within 10 working days of the test date, and will supply the administrative office of the Faculty the information necessary for providing the student with the written or electronic proof of the grade received.
3. Time frames for assessment do not apply during the summer vacation period.
4. The written statement of the grade received includes a reference to the right of inspection, as addressed in Art. 5.10, as well as to the possibilities of appeal to the Examinations Appeals Board.

**Art. 5.9 – validity period**

1. Successfully completed components of one-year degree programmes have an unlimited validity. Notwithstanding this, the Board of Examiners can impose a supplementary or replacement test for a component of which the assessment has been more than three years ago (master’s degree programmes of one year) or six years ago (master’s degree programmes of two years).
2. Partial tests and assignments passed in a component that was not successfully completed will expire at the end of the academic year in which they were passed. Partial tests and assignments expire at the end of the period in which they were passed, if the concerning course is taught more than once per academic year.

**Art. 5.10 – right of inspection**

1. Within 30 days after the announcement of the result of a written test, the student is allowed to inspect his or her graded work upon request. Upon request, a copy of that work will be supplied to the student at cost.
2. During the period referred to in the first paragraph, any stakeholder may inspect the questions and tasks of the test in question, as well as, if possible, the standards on which the grade is based.

**Art. 5.11 – retention of assessments**

**The assessment tasks, answers and the assessed work will be retained for a period of one year after the assessment date.**

**Art. 5.12 – exemption**

At the student’s request, the Board of Examiners, after hearing the examiner concerned, may grant the student exemption from a programme component if he or she:

- a. prior to starting the Master’s programme has either completed a higher education programme component which is equivalent in content and level; or
- b. has demonstrated through work or professional experience that he or she has sufficient knowledge and skills in relation to that component.

**Art. 5.13 – fraud and plagiarism**

1. Fraud and plagiarism mean any action or non-action of a student that wholly or partly prevents an accurate assessment of his or her knowledge, understanding and skills.

2.
  - a. If fraud is discovered or suspected, the examiner will so inform the Board of Examiners in writing.
  - b. If the examiner detects or suspects plagiarism:
    - he or she will so inform the student in writing;
    - he or she will give the student the opportunity to respond to this in writing;
    - he or she will subsequently send the written documents and findings to the Board of Examiners.
  - c. The Board of Examiners will provide the opportunity for the examinee to be heard.
3. The Board of Examiners will determine if fraud or plagiarism has occurred and will inform, in writing, the examinee of its decision and any sanctions pursuant to provision 4 of Art. 5.13, also mentioning the possibility of appeal to the Examinations Appeals Board.
4. The Board of Examiners will punish fraud and plagiarism as follows:
  - a. In any case:
    - o the submitted assignment or partial exam will be declared invalid.
    - o the student will be given a reprimand, which will be noted in OSIRIS.
  - b. And furthermore, depending on the nature and size of the fraud or plagiarism, and on the stage of the programme the student has reached, one or more of the following sanctions:
    - o the student will be removed from the course.
    - o the student will no longer qualify for a cum laude designation as referred to in Art.6.2.
    - o the student will be disqualified from partial exams or other forms of assessment that are part of the course in question for the then current academic year or for a 12-month period.
    - o the student will be disqualified from all partial exams and other forms of assessment for a period of 12 months.
  - c. If a student has been reprimanded before:
    - he or she will be disqualified from all partial exams or other forms of assessment for a 12-month period and advised to leave the Master's programme.
  - d. In case of extremely serious and/or repeated fraud, the Board of Examiners may recommend that the Executive Board permanently terminate the registration for the programme of the student concerned.

***Art. 5.14 – right of appeal***

1. The student has a right to appeal decisions taken by the Board of Examiners or by examiners. The appeal must be made in writing, and explaining the basis for the appeal, to the Examinations Appeals Board within six weeks of taking the test or examination, or of the decision being made, pursuant to Article 7.61 WHW 1992.

## SECTION 6 – EXAMINATION

### **Art. 6.1 – examination**

2. At the moment a student meets the requirements of the examination programme, the Board of Examiners determines the result of the examination and grants the certificate to the student, as described in Article 6.4.
3. Prior to determining the examination result, the Board of Examiners may examine the student's knowledge of one or more components or aspects of the programme of study, if and in so far as the results of the tests concerned give them reason to do so.
4. Review of the student's assessment file constitutes part of the final examination. The examination date will be the last working day of the month in which the Board of Examiners has determined that all components have been successfully completed.
5. Conditions to pass the examination are
  - All components are passed with a sufficient result
  - The composition of the course package meets the determined level requirements
6. A further condition for passing the examination and receiving the certificate is that the student was registered for the programme during the period in which the tests were taken. If the student does not fulfil this condition, the Executive Board may issue a statement of no objection in relation to the passing of the examination and the issue of the certificate, after the student has paid tuition fees and administration charges owing for the 'missing' periods.
7. One who has passed the examination and is entitled for a certificate, may request the Board of Examiners to not yet grant the certificate. This request has to be submitted within two weeks after the student has been informed about the result of the examination. The student will indicate in this request when he or she does want to receive the certificate. The Board of Examiners will grant the request in 2011-2012 when the student:
  - is going to perform board activities for which the Utrecht University grants compensation
  - is going to do an internship or component abroad
8. After the student has passed the final examination he/she can request the institution to terminate his/her registration.

### **Art. 6.2 – cum laude designation**

1. If a student has demonstrated outstanding academic achievement in his or her Master's programme, the degree will be awarded cum laude; this designation will be noted on the degree certificate.
2. The cum laude designation will be awarded if
  1. the weighted average of the grades earned for the Master's programme components is at least 8.
  2. the student has received exemptions for no more than 15 credit points
  3. there has not been any Board of Examiners decision (as meant by Art. 5.13, paragraph 4 under b) that fraud/plagiarism has been committed.
  4. all grades have been earned within one and a half year (one-year degree programmes) or three years (two-year degree programme) of beginning the degree programme.
3. The Board of Examiners may decide to award the cum laude designation even if not all the requirements mentioned in paragraph 2 are met. Such a decision must be unanimous.
4. Designations other than cum laude will not be noted on the degree certificate.

### **Art. 6.3 – degree**

1. The candidate who has successfully completed the exam will be awarded the degree of Master of Science.
2. The awarded degree will be noted on the exam certificate.

### **Art. 6.4 – degree certificate**

1. As evidence of successful completion of the exam, the Board of Examiners will issue a degree certificate.
2. The Board of Examiners will append to the degree certificate the International Diploma Supplement, which, for the sake of international transparency, gives information about the nature and content of the programme of study.

### **Art. 6.5 - Grade Point Average (GPA)**

1. The final Grade Point Average (GPA) is stated on the International Diploma Supplement, and represents the academic performance of the student concerned).
2. The final GPA is the average figure from the results achieved within the course's examinations programme, weighted by the course credits and expressed on a scale of 1 to 4 with two decimals.
3. The final GPA is calculated as follows:
  - all applicable examinations achieved as part of the examination programme of the master's degree, are converted to quality points;
  - quality points are the applicable examination result x the number of course credits (ECTS) for the section in question;
  - the total number of quality points achieved divided by the total number of course credits (ECTS) obtained, results in the average examination result;
  - the average examination result is converted into the final GPA.

## **SECTION 7 – STUDENT SUPPORT AND GUIDANCE**

### ***Art. 7.1 – student progress administration***

1. The Faculty records each student's individual grades and makes these available through Osiris-student.
2. Certified student progress files may be obtained from the Student Information Desk of Geosciences.

### ***Art. 7.2 – student support and guidance***

1. The Faculty is responsible for providing student support and guidance to students enrolled on the degree programmes.
2. Student support and guidance consists of:
  - allocation of a tutor and/or student adviser
  - an orientation / induction programme in the first week of the first year of study
  - providing referral and support for students experiencing difficulties during their studies.

### ***Art. 7.3 – disabilities***

Students with special needs are afforded the opportunity to take classes and sit tests in the manner agreed in their Special Needs Contracts. Requests for special needs contracts are submitted to the student adviser.

## **SECTION 8 – TRANSITIONAL AND FINAL PROVISIONS**

### ***Art. 8.1 – safety net arrangements***

If a circumstance arises for which the regulations do not provide, do not clearly provide or seem to have unreasonable effects or lead to unreasonable results, the matter will be determined by or on behalf of the Dean, after having heard the Board of Examiners.

### ***Art. 8.2 – amendments***

1. Amendments to these regulations will be laid down by the Dean after having heard the Degree Programme Committee and after consultation with the Faculty Council or Degree Programme Council, in separate resolutions.
2. Any amendments to these regulations are not to be applied to the then current academic year, unless it can be assumed that they will not unreasonably harm the interests of the students.
3. Furthermore, with respect to the students an amendment may not adversely affect any other decision taken pursuant to these regulations by the Board of Examiners in relation to a student.

### ***Art. 8.3 – publication***

The Dean is responsible for publishing these regulations, and any amendments to them, via the internet.

### ***Art. 8.4 – effective date***

**These regulations take effect on 1 September 2011.**

**These regulations were approved by the Dean of the Faculty of Geosciences on 26 April 2011.**

## ANNEX 1 – Structure of master programmes

### Earth Structure and Dynamics

Theoretical courses: required electives	45 EC
Deficiency courses	0-15 EC
MSc research/thesis	30-60 EC
Individual programme/ internship	up to 30 EC
Additional theoretical courses, seminar modules, advanced-level courses	0- 45 EC

### Earth, Life and Climate

Theoretical courses: required electives	45 EC
Deficiency courses	0-15 EC
MSc research/thesis	30-60 EC
Individual programme/ internship	up to 30 EC
Additional theoretical courses, seminar modules, advanced-level courses	0- 45 EC

### Earth Surface and Water

Theoretical courses: required electives	45 EC
Deficiency courses	0-15 EC
MSc research/thesis	30-60 EC
Individual programme/ internship	up to 30 EC
Additional theoretical courses, seminar modules, advanced-level courses	0- 45 EC

### Economische Geografie

Required / theoretical	22.5 EC
Methods of research	7.5 EC
MSc research/thesis	30 EC

### Geo-communicatie

Required / theoretical	30 EC
Individual project/ internship	7.5- 15 EC

### Geographical Information Management and Applications

Required / theoretical	40 EC
Methods of research	20 EC
MSc research/thesis	30 EC
Internship	30 EC

### Human Geography and Planning

Required / theoretical	60 EC
------------------------	-------

## GIMA Additional TER

GIMA Additional Regulations (= model rules) as determined by the Dean of the Faculty of Geosciences of Utrecht University (= present coordinating institute) on August, 2011 known by Teaching and Examination Regulations 2011/2012 (TER 11/12).

### SECTION 1 – General provisions (additional to TER 11/12 section 1)

#### **Art. 1.1 – Applicability of the additional regulations**

- In addition to the provisions of art. 1.1 :
  - These additional regulations apply to the teaching and the examinations of the Master programme GIMA: Geographical Information Management and Applications of the Master's degree programme MSc Geographical Sciences.
  - This programme is conducted as a partnership between Utrecht University (UU), Wageningen University (WU), Delft University of Technology (TUD) and University Twente (UT) .
- In addition to the provisions of art 1.2:
  - programme board: consists of the formal representation of the four cooperating institutes of higher education referred to in art. 1.1 (WHW).

#### **Art. 1.2 – GIMA examining committee**

- In addition to the provisions of art. 1.2, definitions of terms
  - The GIMA programme of study (which is a partnership between universities) has an Examining Committee. This Committee is comprised of at least one representative of each participating university who is engaged in teaching within the GIMA programme..
  - The members of the Committee will be appointed by the partners in GIMA according to art. 7.12 of the Dutch Higher Education and Research Act.
  - The members of the Committee will appoint a chairperson from within the group. The present chairperson of the GIMA Examining Committee is mentioned on Blackboard, including address information. Requests to the Committee should always be sent to the chairperson of the Examining Committee.

## SECTION 2 – Admission (additional to TER 11/12 section 2)

### **Art. 2.1 – Admissions Committee**

- In addition to the provisions of art. 2.6 for admission procedure:
  - Final admission decisions for the GIMA programme of study are made by GIMA's Admissions Committee. The Committee is comprised of:
    - The Programme Director, who is also the chair of the Admissions Committee, in principle appointed from among the senior-staff engaged in teaching within the GIMA programme;
    - A member or the GIMA Programme Board;
    - If deemed needed the Admission Committee can consult external experts, within or outside the GIMA programme.
    - The Programme Board of GIMA appoints the Committee members.

### **Art. 2.2 – Admission to the programme of study**

- In addition to the provisions of art. 2.4.7, for admission to the programme of study GIMA:
  - students must have gained basic knowledge of and experience in geo-information and geo-information processing;
  - professional experience in the field of geo-information is highly appreciated;

### **Art. 2.3 – Admittance of students not having a bachelor's degree**

- In addition to the provisions of art. 2.4.7, for admission to the programme of study GIMA:
  - Contrary to the provisions of admission articles, the student who has successfully completed the foundation exam ("propedeutisch examen") and the modules of the "doctoraal" programme with an academic load of 120 ECTS ("84 stp.") may request admission to the GIMA programme.

### **Art. 2.4– Admission review: deadline dates, admission notice**

- In addition to the provisions of art. 2.6 for admission procedure:
  - The Admissions Committee will make an admission decision within 20 working days of the deadlines mentioned in art. 4.5.2.
  - The applicant will receive written notification that he/she has been admitted to the GIMA programme.
  - If an applicant isn't admitted, he/she will get a well-reasoned refusal.
  - Applicants can challenge refusal at the Appeal Board of the coordinating institute.

### **Art. 2.5 - Limitations on module participation**

- In addition to the provisions of art. 2.8 for admission procedure:
  - When there is a maximum for participation in a certain module, this is announced in the course guide. If a module is required at that particular moment of time in a students' study programme, these students are awarded priority.
  - If the number of participants in a module is low, the programme director can decide, after consulting the coordinator of the module, to adjust the organisation of the module or to depart from the description of the module, given in the course guide. This adjustment of or departure from the regular programme may not influence negatively the intended quality of the programme.

### SECTION 3 – Programme structure (additional to TER 11/12 section 3)

#### Art. 3.1 – Aim of the programme

- In addition to the provisions of art. 3.5.1, Master programmes
  - The programme aims to:
    - provide specialised knowledge, skills and insights within the field of geo-information,
    - prepare the student for a professional career as an all-round manager of geo-information,
    - prepare the student for a professional career as a specialist in the field of geo-information applications,
    - prepare the students for a career as a researcher in the field of geo-information.

### SECTION 4 – Courses (additional to TER 11/12 section 4)

#### Art. 4.1 – Composition of a programme of study: courses

- In addition to the provisions of art. 4.1, courses:

The programme of study includes:

- theoretical and methodological modules with an academic load of 40 EC , including minimally 18 EC of elective components ;
- practical training with an academic load of 20 EC ;
- an internship with an academic load of 30 EC ;
- an individual assignment (research or design) with an academic load of 30 EC.

The course guide sets out the content of the required components as well as the teaching and learning modes. It also specifies the desirable previous knowledge needed to successfully complete the components concerned.

Half-time	Week 36	Week 37-49	Week 50-11	Week 12-24	Full time
Year 1	<b>Introduction</b>	<b>Module 1</b> (10 ects) Methods and techniques	<b>Module 2</b> (10 ects) Basic applications	<b>Module 3</b> (10 ects) Management in organisations	Year 1
Year 2		<b>Module 4</b> (10 ects) Project management	<b>Module 5</b> (10 ects) Advanced methods and techniques	<b>Module 6</b> (10 ects) Advanced applications	
Year 3	<b>Internship</b> (30 ects)				Year 2
Year4	<b>MSc thesis</b> (30 ects)				

#### Art. 4.2 – Required sequence of modules

- In addition to the provisions of art. 4.1, course
  - These pre-requisite modules must be successfully completed before the tests of subsequent modules may be taken:
    - module 2 after passing module 1
    - module 5 after passing module 1
    - module 6 after passing modules 2 and 5
    - the internship and the individual research assignment after successfully completing at least five out of the first six modules (modules 1-6, 60 EC)
  - Students who want to deviate from these rules should contact the GIMA Programme Director and write a request letter to the chairperson of the GIMA Examining Committee.

## SECTION 5 – Assessment (additional to TER 11/12 section 5)

### **Art 5.1 – General**

- In addition to the provisions of art. 5.1, general
  - The partner hosting the module will make every effort to accommodate students with functional disabilities in their class work and tests. If necessary, the Examining Committee will obtain expert advice before taking their decision.
  - At a student's request, the Examining Committee may give permission for a test to be administered in a manner, which departs from the provisions of the first paragraph.

### **Art 5.2 – Assessment of placement or research assignment**

- In addition to the provisions of art. 5.2, assessment: internship or research assignment
  - The supervisor in question and at least one another expert assesses an internship or research assignment. At least one of them should be a staff member in the GIMA-programme of this Masters' degree programme.

### **Art. 5.3 – Repeat exams**

- In addition to the provisions of art. 5.4, repeat exams: supplementary or replacement tests
  - If the student has completed a module (as described in the course guide), but has not received a satisfactory mark, he/she has the opportunity to take one additional or substitute test at the end of the following module. Any further granting of opportunities to take additional or substitute tests is left to the discretion of the examining committee.

### **Art. 5.4 – Assessment turnaround time**

- In addition to the provisions of art. 5.8.2, assessment turnaround time
  - In case of written testing, the examiner marks the test within 10 working days of the date on which it was administered. In particular circumstances the period of 10 working days may be extended by the Examining Committee to 30 days as a maximum. In this case students should be informed.

### **Art. 5.5 – Period of validity**

- In addition to the provisions of art. 5.9, validity period
  - Modules which have been successfully completed have unlimited validity. Contrary to this provision, the Examining Committee may impose an additional or substitute test in respect of a module, which was passed more than four years ago.
  - In case of completing a test without completing the entire module the Examining Committee may restrict the validity of the test result to at least one full year (e.g., in case of substantial alteration of the module programme).

### **Art. 5.6 – Exemption**

- In addition to the provisions of art. 5.12, exemption
  - At the student's request, the Examining Committee may, after consulting the examiner in question, grant the student exemption from a programme module if he/she:
    - has completed an equivalent module of a university or higher professional programme of study;
 or
    - has demonstrated through work or professional experience that he/she has sufficient knowledge or skills in relation to that module.
  - Requests for exemptions should be addressed to the chairperson of the GIMA Examining Committee, approximately one module period in advance (2 till 4 months).

## SECTION 6 – Examination (additional to TER 11/12 section 6)

- In addition to the provisions of art. 6.1 and 6.2 the Board of Examiners mandate the GIMA examining committee.

### **Art. 6.1 – Cum laude designation**

- In addition to the provisions of art. 6.2, cum laude designation
  - A decision for obtaining a 'degree with distinction' is taken by the Board of GIMA MSc programme provided that:
    - the final mark for the thesis module is 8 or more

### **Art. 6.2 – GIMA degree certificate**

- In addition to the provisions of art. 6.4, degree certificate
  - The degree certificate includes the GIMA certificate signed by the Examining Committee representatives of the four participating universities

## SECTION 7 – Student support and study guidance (additional to TER 11/12 section 7)

### **Art. 7.1 – Student academic records**

- In addition to the provisions of art. 7.1, student progress administration
  - The module coordinating institute records individual student results. The coordinating institute provides each student on request with a certified copy of the results achieved.

## SECTION 8 – Transitional and final provisions (additional to TER 11/12 section 8)

### **Art. 8.1 – Amendments**

- In addition to the provisions of art. 8.2, amendments
  - In the event of a situation arising that is not covered by these regulations, or when there is a good reason to deviate from these regulations, the final decision rests with the GIMA Programme Board. The Programme Board will lay down amendments to these rules in a separate resolution, after consulting the partners in GIMA.
  - In amendment to these rules is not to be applied to the current academic year, unless it is reasonable to assume that it will not harm the interests of the students.
  - Furthermore, with respect to the students an amendment may not have an adverse effect on:
    - approval granted pursuant to art. 2.3;
    - any other decision taken pursuant to these rules by the Examining Committee in relation to a student.

### **Art. 8.2 – Publication**

- In addition to the provisions of art. 8.3, amendments
  - The Programme Board is responsible for proper publication of these additional regulations, the regulations and guidelines established by the Examining Committee and each amendment to these documents.
  - Any interested party may obtain from the students' helpdesk a copy of the documents referred to in the first section.

### **Art. 8.3 – Effective date**

These additional regulations take effect on September 1, 2011.

# GIMA Internship Regulations

## **Article 1 – General**

1. These regulations on the internship (or stage, also referred to in English as the work placement or traineeship) apply to all students enrolled in the GIMA MSc programme, whether full-time or part-time.
2. The final stage of the programme includes mandatory internship of 30 EC.
3. Entry requirements are a pass of at least five out of the six modules GIMA1 to GIMA6.
4. The internship may consist of one or two parts, i.e. can be done in one company or two different companies. For example, a person enrolled in the full-time degree programme may do two internships, each counting 15 EC. If the internship is divided between two companies, then the total internship must be 30 EC and the internship regulations apply in full to each of the two component internships.
5. The internship will preferably not be in one of the institutions involved in GIMA (Utrecht, Twente, Wageningen and Delft universities).

## **Article 2 – Aims of the internship**

1. To apply in practice and test the theoretical and practical knowledge the student has accumulated in the first six modules, thereby contributing to the student's internalisation of the curriculum and improving the student's basis for graduation.
2. To enable the student to acquire or increase technical experience, insight into business, and social and other skills.
3. To give the student the opportunity to become familiar with a geo-information working environment.

## **Article 3 – Organisation and set-up**

1. The internship will be done in public or private organisations or research institutes in the Netherlands or abroad.
2. The work the student is expected to do must be of a level appropriate for a person with a university degree in geo-information. In the case of an internship outside the Netherlands, it also entails overcoming any specific problems that the student encounters from this.
3. The student is expected to take the initiative to find an internship, after contacting the GIMA internship coordinator. The GIMA internship coordinator will assign a GIMA internship supervisor.
4. When looking for and arranging their internship, students may use the designated notice board (on Blackboard) or contact the GIMA internship coordinator.
5. The internship place and the internship assignment will be chosen in consultation with the GIMA internship supervisor.
6. Wherever possible, an internship agreement will be drawn up between the organisation offering the internship and the student.
7. Well before the commencement of the internship the student will submit a concise internship plan to the internship supervisor in the GIMA institution concerned, for approval.
8. The internship plan must contain information about the period of the internship, the address of the internship organisation, the GIMA internship supervision, the name, address, telephone and email details of the local internship supervisor and an estimate of the duties.

## **Article 4 - The GIMA internship supervision**

1. In consultation with the GIMA internship coordinator and before starting the internship, the student will be assigned an internship supervisor from one of the GIMA institutions.
2. The internship supervisor from the GIMA institution involved must approve the student's internship plan before the student starts the internship.
3. The internship supervisor from the GIMA institution involved is responsible for checking the suitability of the content and standard of the student's internship duties.
4. The day-to-day supervision of the student is the responsibility of the local internship supervisor from the internship organisation.
5. If the local supervisor or student have any complaints or problems they should take them to either the internship supervisor of the GIMA institution involved, or the GIMA internship coordinator.

### **Article 5 – The internship report and presentation**

1. The student will write a report of the work done during the internship and submit it in triplicate, no later than 1 month after the internship has ended. Students who do not submit their internship report to their internship supervisor in time may be penalised by a lower mark.
2. One hardcopy of the report will be given to the internship supervisor of the appropriate GIMA institution, one hardcopy is for the local internship supervisor in the internship organisation, and the third hardcopy is for the GIMA internship coordinator. Also a digital copy must be given to the GIMA internship coordinator.
3. An electronic version of the summary of the internship report (approximately 1000 words) will be posted on Blackboard for a period of at least 4 years.
4. The report must contain at least the following:
  - a description of the student's induction in and supervision within the internship organisation;
  - a description of the nature and structure of the internship organisation;
  - the student's duties during the internship;
  - the student's opinion of the level and usefulness of the internship and the terms of employment;
5. The student must also give a presentation on his/her internship for the internship organisation, if possible in the presence of the GIMA internship supervisor.

### **Article 6 - Assessment**

1. Assessment forms are available from the GIMA internship coordinator and can be downloaded from Blackboard.
2. The internship organisation will prepare an assessment of the internship student, which will be appended to the internship report.
3. The internship supervisor from the appropriate GIMA institution will complete two assessment forms (of the internship organisation and of the internship student)
4. The internship student will complete an assessment form of the internship organisation.
5. The internship supervisor from the appropriate GIMA institution will write an evaluation of the internship report and assign the report a mark (from 1 to 10). When assigning the mark, the assessment of the internship organisation will also be taken into account. The final mark is assessed as follows: Report (90%), presentation (10%).
6. The four assessment forms and the final evaluation of the internship report, together with the mark, will be submitted by the GIMA internship supervisor to the GIMA internship coordinator within 10 working days after receipt of the internship report - including the appended assessment of the internship student by the internship organisation - and the assessment of the internship organisation by the student.

### **Article 7 – Exemption**

1. A student may only be exempted from the internship requirement if the following conditions are met:
  - proof can be supplied that the student has a minimum of 3 years GIMA-relevant work experience (appr. 3600 hours) in a geo-information environment;
  - the student has handed in a portfolio of the projects in which he or she was involved when working in a geo-information environment;
  - the student has submitted a written request for exemption to the GIMA Examining Board.
2. All documents relating to the points above must be handed in to the present chairperson of the GIMA Examining Board (see Blackboard).
3. After granting exemption, the student has to write a 3000-word essay (in English or Dutch) discussing how the work he or she performed in the geo-information environment is related to the GIMA modules.

### **Article 8 – Validity**

1. In the event of a situation arising that is not covered by these internship regulations, or if there is good reason to deviate from these regulations, a written request must be submitted to the present chairperson of the GIMA Examining Board (see Blackboard). The final decision rests with the GIMA Examining Board.

**These rules take effect on September 1, 2011.**