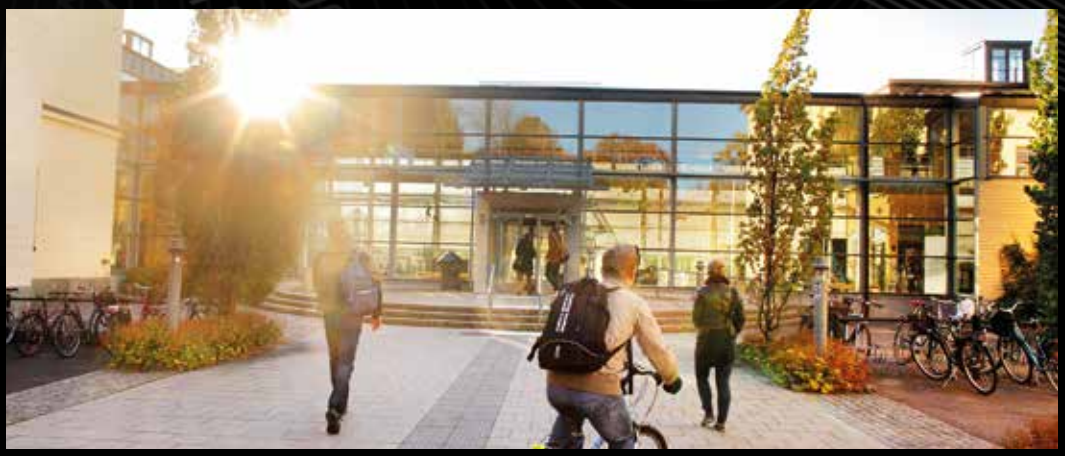
Master Programme in Geomatics

60 credits



We, at the division of geomatics of University of Gävle, are one of the few best among all science and engineering subjects following the recent national higher education evaluation conducted by the Swedish higher education authority!

UNIVERSITY OF GÄVLE

FACULTY OF ENGINEERING AND SUSTAINABLE DEVELOPMENT




QUALIFICATION

Those qualified to be accepted for the programme are those who have an examination at basic level consisting of a minimum of 180 credits or equivalent foreign examination with focus on Geomatics.

DEGREE OF MASTER

Scope

A Degree of Master is awarded after the student has completed the courses required to gain 60 credits with a defined specialisation determined by each higher education institution itself, of which at least 30 credits are for specialised study in the principal field (main field of study) of the study programme. In addition the prior award of a Degree of Bachelor, a Degree of Bachelor of Fine Arts, a professional or vocational qualification of at least 180 credits or a corresponding qualification from abroad is required.

The requirement of the prior award of a qualification may be waived for a student admitted to the programme without the basic entry requirement in the form of a qualification. This does not, however, apply if a waiver was granted during admission pursuant to the second paragraph of Section 28 of Chapter 7 on the grounds that the qualification had not yet been issued.

Outcomes

Knowledge and understanding

For a Degree of Master the student shall

- demonstrate knowledge and understanding in the main field of study, including both an overview of the field and specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- demonstrate specialised methodological knowledge in the main field of study.

Competence and skills

For a Degree of Master the student shall

- demonstrate the ability to integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information
- demonstrate the ability to identify and formulate issues autonomously as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames
- demonstrate the ability in speech and writing to report clearly and discuss his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and
- demonstrate the skills required for participation in research and development work or employment in some other qualified capacity.

Judgment and approach

For a Degree of Master the student shall

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

Independent project (degree project)

A requirement for the award of a Degree of Master is completion by the student of an independent project (degree project) for at least 15 credits in the main field of study.

Miscellaneous

Specific requirements determined by each higher education institution itself within the parameters of the requirements laid down in this qualification descriptor shall also apply for a Degree of Master with a defined specialisation.

Particular objectives for the programme

The student shall obtain new knowledge, and develop understanding and problem solving ability which means deepening and/or broadening of previous university studies.

After the study, the student shall have the ability and skills for work, largely autonomous and independent, which will be required to be able to be employed as an expert in geomatics related fields and/or for continued PhD studies.

The education shall have a high international standard and the degree received should be attractive internationally.

Ability and understanding

On completion of the education the student shall show

- ability and understanding within the field of geomatics with deepened knowledge in at least one of the fields geographic information technology (GIT) geodesy, or spatial planning
- insight in relevant research and development within the field of Geomatics, and
- knowledge of advanced methods for management and analysis of geographical data.

Skills and ability

On completion of the education the student shall be able to

- integrate knowledge from the field of Geomatics and independently analyze, judge and manage complex problems,




- apply advanced methods, within a given time independently identify and formulate theoretical questions as well as plan and carry out advanced projects,
- critically summarize both orally and in writing the knowledge situation within the field of Geomatics and neighboring fields, including the latest results of research, and thereby
- give a correct and well balanced mixture of methods, results, conclusions and possible future application fields, and
- report orally and through writing on completed project work and in dialogue with both practitioners and academics to make clear the usefulness of the results

Assessment ability and attitude

On completion of the education the student shall show,

- the ability to judge the effects of different methods from a technical and an environmental perspective,
- awareness of the ethical aspects of research and development work, and
- an attitude towards knowledge and life long learning which is characterised by an ability to be able to identify the need for further knowledge and a continued development of competence.

MAIN FIELD OF STUDY OF GEOMATICS

Geomatics is the collective name for individual academic disciplines, such as photogrammetry, geodesy, land surveying, cartography, GIT, GPS, and remote sensing. The courses in this discipline are sometimes identical with courses in for example geography and spatial planning. Specialization within the programme mainly deals with advanced uses or preparation for research in GIT and GPS.

The programme consists of courses at both basic and advanced level. The breadth in the choice of courses offered allows for specialisation at an advanced level in one or two of the disciplines within geomatics. The courses given at basic level have two purposes. The first is to offer the opportunity for progression, that is students with insufficient knowledge in one of the disciplines in geomatics are given the possibility to catch up at basic level at the beginning of the programme and afterwards continue at advanced level. The other purpose is to offer students the chance to broaden knowledge in one or other of the subject's disciplines.

GENERAL ORGANISATION

The master's degree at Swedish Universities is given as an advanced programme after a bachelor's degree or a professional degree of 180 credits. The master's degree is a preparation for doctorial studies, but it can also be given with a certain breadth with professional special competence in mind.

According to the Higher Education Ordinance a master's degree is achieved after completed course requirements of 60 credits. The education is directed towards those with a previous academic education within geomatics related subject fields who wish to further educate themselves in the field.

The master programme is given as studies at either full time or part time over a period of one or two years. At full time studies the part time courses are read two at a time except for the degree thesis work which is read full time. The programme is run preferably as a closely connected theme which embraces all aspects of the subject and is adapted for the needs of the labour market of a specially educated work force.

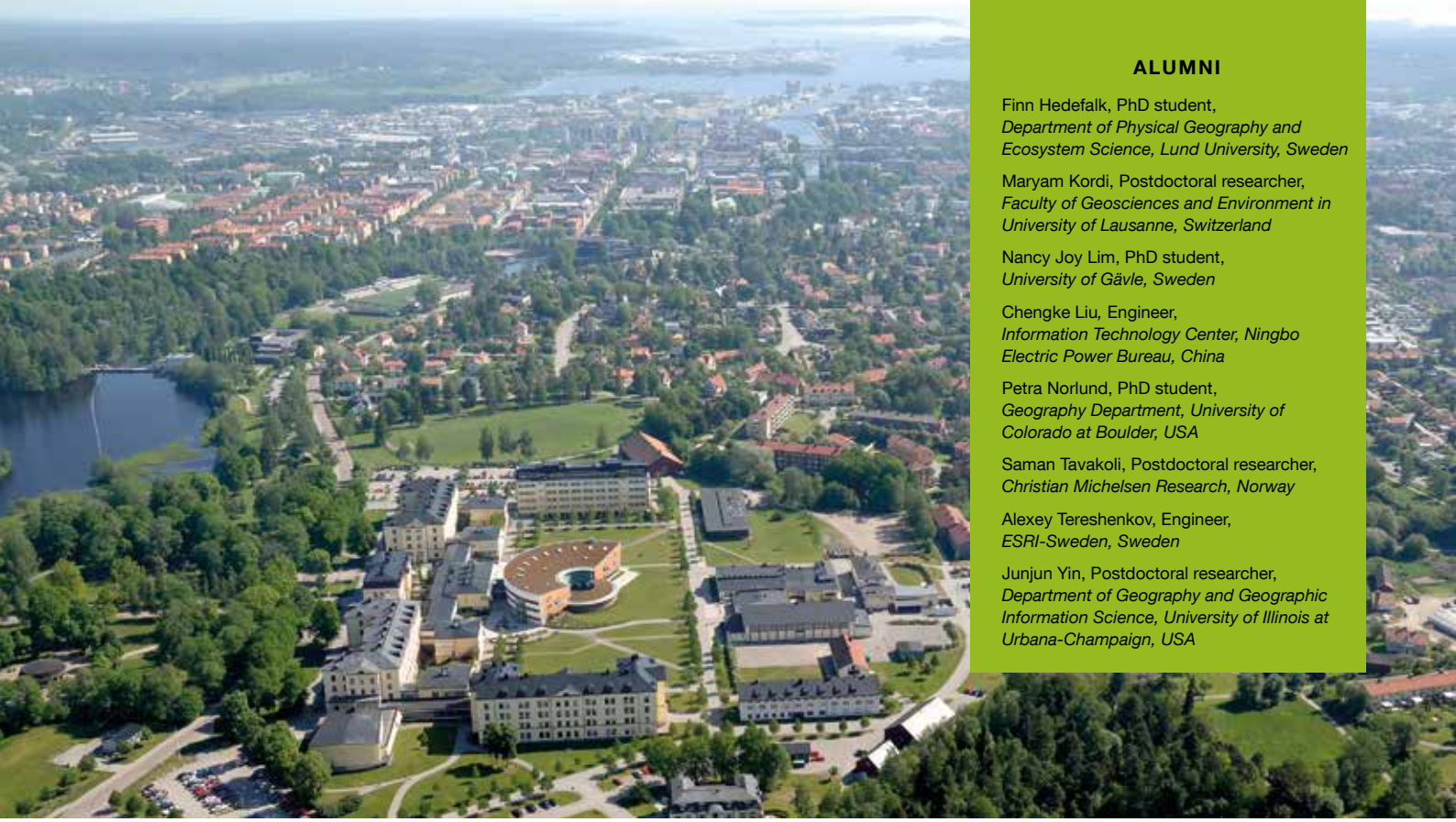
The programme is designed as a continuation of the student's education at basic level in the land surveying, IT with a specialisation in GIS or the spatial planning programmes of 180 credits at HiG (University of Gävle), but it is also open for students with an equivalent Swedish or foreign education background. An advanced level degree puts great demand on the student's attitude to both academic form and content. Furthermore it should clearly focus towards future professional work. The education may be wholly or partly given in English.

COURSES WITHIN THE PROGRAMME

Students have guaranteed places for the courses within the programme. Applications for the courses for the forthcoming term should be made. Changes in the order of the courses can be made after discussion with students active in the programme. The faculty board decides on changes to the study programme's courses. Alternative course choices can be made after consultation with the Programme Director with the condition that the objectives for the programme are fulfilled.

PERIOD	COURSE NAME	CREDITS	LEVEL	MAIN FIELD OF STUDY
1:1	Thematic and Web Cartography	5,0	B	Geomatics
1:1	GIS Data Structures and Algorithms	5,0	B	Geomatics
1:1	Introduction to Studies on Advanced Level in Geospatial Information Science	5,0	B	Geomatics
1:2	Spatial Analysis for Planning	5,0	A	Geomatics
1:2	Remote Sensing	5,0	A	Geomatics
1:2	Spatial databases and data infrastructure	5,0	A	Geomatics
1:3	Spatial Multicriteria Decision Analysis	5,0	A	Geomatics
1:3	Satellite Sensors and their Applications in Geospatial Information Science	5,0	A	Geomatics
1:3	GIScience seminar	5,0	A	Geomatics
1:4	Thesis	15	A	Geomatics

B = Basic level A = Advanced level



ALUMNI

Finn Hedefalk, PhD student,
Department of Physical Geography and Ecosystem Science, Lund University, Sweden

Maryam Kordi, Postdoctoral researcher,
Faculty of Geosciences and Environment in University of Lausanne, Switzerland

Nancy Joy Lim, PhD student,
University of Gävle, Sweden

Chengke Liu, Engineer,
Information Technology Center, Ningbo Electric Power Bureau, China

Petra Norlund, PhD student,
Geography Department, University of Colorado at Boulder, USA

Saman Tavakoli, Postdoctoral researcher,
Christian Michelsen Research, Norway

Alexey Tereshenkov, Engineer,
ESRI-Sweden, Sweden

Junjun Yin, Postdoctoral researcher,
Department of Geography and Geographic Information Science, University of Illinois at Urbana-Champaign, USA

DEGREE REGULATIONS

In order to obtain a degree, all the courses given in the syllabus must be completed.

DEGREE

Master of Science (60 credits) with a major in Geomatics

STUDENT INFLUENCE AND EVALUATION

An Education Advisory Committee shall be associated with the Study Programme. The Programme Director shall be included in the committee and be the Chairman and Convener. The purpose of the Education Advisory Committee is to give students and representatives of the business community and the society influence on the Study Programme.

Every year, the students in the programme shall be given an opportunity to provide viewpoints on the Study Programme by means of a programme evaluation. The programme evaluation shall be carried out by using an evaluation tool common to the university. A compilation of the evaluation result shall be submitted to the Board of Education and Research.

MISCELLANEOUS

Credit transfer of courses passed is done in consultation with the Programme Director and the Subject Supervisor concerned.

TRANSITION STIPULATIONS

A student admitted to the programme in a previous year follows the curriculum that was in force at that time. For a student admitted to a later part of the programme or a student having had an interruption of studies, a special curriculum is drawn up by the Programme Director in consultation with the student and, when need arises, the Study Counsellor or the Director of Studies.

PREREQUISITES

Bachelor of Science (BSc) or Bachelor of Engineering (BEng) degrees in Geomatics or equivalent (e.g. geography or geology including GIS).
Also required is knowledge equivalent to Swedish upper secondary school course English B or equivalent to one of the following tests;
IELTS: an overall mark of 6.5 and no section below 5.5
TOEFL (paper-based): Score of 4.5 (scale 1-6) in written test and a total score of 575
TOEFL (internet-based): Score of 20 (scale 0-30) in written test and a total score of 90

APPLICATION

For International students
You apply to the programme online at **www.universityadmissions.se**. The application period starts at December 1 and deadline is January 15, 2017. Applications received after this date can only be considered if there are vacancies left.

For European and Swedish students
Deadline April 15, 2017
Apply through: **http://www.hig.se/TAGEM or http://www.hig.se/TAGEM_en**
Link opens one month before the deadline.

Application code autumn 2017: HIG-17075

MORE INFORMATION

www.hig.se/english or contact the student counsellor, +46 26 64 89 46 or ***studievagledningen@hig.se***

Programme director Prof. Bin Jiang, ***bin.jiang@hig.se***

http://fromto.hig.se/~bjg/geomaticsprogram/
for more updated information.

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