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Program and courses

The Master Geo-information science is a two-year master program. The program consists of some compulsory courses which all students have to follow. Besides the compulsory courses, there are restricted optionals, optionals and electives (free choice). This creates the option to tailor-make your program depending on your preferences, educational background and future aspirations. The figure below shows an example set-up of the study program.

**TIP:** Do you want to know how many ECTS a course is worth? The last two numbers of a course code indicate the ECTS of the course.

### MSc Geo-Information Science program overview*

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Morning</th>
<th>Period 1 Sep/Oct</th>
<th>Period 2 Nov/Dec</th>
<th>Period 3 Jan</th>
<th>Period 4 Feb</th>
<th>Period 5 Mar/Apr</th>
<th>Period 6 May/June</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Afternoon</th>
<th>Year 2</th>
<th>Morning</th>
<th>MSc Thesis (GRS80436)</th>
<th>MSc Internship (GRS70412)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compulsory courses</td>
<td>Restricted Optionals (choose 0-18 credits depending on prior education, consult with your study advisor)</td>
<td>Options GIS/IR (choose at least 12 credits from this cluster)</td>
<td>Options DATA (choose at least 6 credits from this cluster)</td>
<td></td>
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</tbody>
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*The program may change; no rights can be derived from this overview

### Compulsory courses

Compulsory courses are courses that everyone in the MGI has to follow. These consist of the following courses:

- The MGI introduction course: Geo-information Science in Context (GRS34306)
- The Academic consultancy training: Remote Sensing and GIS integration (GRS60312)
- The MSc major thesis
- MSc internship
Restricted Optionals

The restricted optionals comprise of three courses that cover the basic skills of the MGI program which the rest of the MGI courses build upon. The courses of the restricted optionals are:

- Programming in Python (INF22306)
- Remote Sensing (GRS20306)
- Geo-information tools (GRS20806)

When you followed the BSc minor Geo-information for Environment and Society (WUGIS) or these courses were in your WUR bachelor, you do not need to follow these courses during the Master program. Please consult the study advisor when you took comparable courses from another university to discuss your options.

Optionals GIS/RS

The Optionals GIS/RS consists of four courses of which you have to choose at least two. The courses included in this cluster are:

- Geoscripting (GRS33806)
- Spatial and temporal analysis (GRS33306)
- Spatial modelling and statistics (GRS30306)
- Advanced Earth observation (GRS32306)

Optionals DATA

The Optionals DATA consists of five courses of which you have to choose at least one. The courses included in this cluster are:

- Big data (INF33806)
- Machine Learning (FTE35306)
- Deep Learning (GRS34806)
- Data management (INF21306)
- Data science for smart environments (GRS35306)

Electives

When you fulfilled the program requirements you can choose an individual minor and/or elective courses to complete your MSc program up to (at least) 120 credits. These electives can be from different programs, depending on what suits your educational background and personal interests. See the Study Handbook for more information about the courses and minors at the university.
Tracks
To guide you with your choice four tracks have been formulated:

- Remote sensing and Land Monitoring
- Geo-information Systems Engineering
- Human–Space Interactions
- Geo Data Science

There are example schedules for each track. These schedules are meant to use as a guide when planning for your program and are no strict requirements; no rights can be derived from these overviews.

The Geo Data Science track
This track focuses on the data science aspect of geo-information science. Within this track, you will learn the ins and outs of how to handle, use and store data. You will discover the vital role of data in processes such as machine and deep learning. With a variety of data science-related courses, you will build your knowledge and skills. An example schedule of this track is provided below.

**MSc Geo-Information Science program overview –Geo Data Science track**

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Period 1 Sep/Oct</th>
<th>Period 2 Nov/Dec</th>
<th>Period 3 Jan</th>
<th>Period 4 Feb</th>
<th>Period 5 Mar/Apr</th>
<th>Period 6 May/Jun</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Big Data (GFR34806)</td>
<td>Geoscripting (GFS23306)</td>
<td>Spatial and Temporal Analysis (GFS23306)</td>
<td>Data Management (GFD1306)</td>
<td>Data Management (GFD1306)</td>
<td>Data Management (GFD1306)</td>
</tr>
<tr>
<td>Afternoon</td>
<td>Programming in Python (GFR22308)</td>
<td>Geo-information tools (GFR22308)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Year 2 | MSc Thesis (GKS00436) | MSc internship (GKS000424) |

*This schedule is meant to use as a guide when planning for your program and are no strict requirements; no rights can be derived from these overviews.*

Information booklet MSc Geo-information Science
Wageningen University
The Remote Sensing and Land monitoring track

This track has a focus on gaining knowledge and skills in the domains of remote sensing and land monitoring. A diverse set of courses will help you do so. This track is often combined with elective courses from other chair groups. Courses that are regularly selected within this track are:

- Wildlife Ecology and Conservation (REG32806) – Period 2 Morning
- Land Degradation & Development (SLM30806) - Period 2 Morning
- Remote Sensing Atmospheric Composition (MAQ36806) – Period 3 Whole day

Have a look at the example schedule below to get inspiration for your preferred study schedule!

Human – space interactions track

In this track, the main focus is on how we as humans interact with our environment. This can range from urban areas to tropical forest, and all in between. There is a combination of GIS/RS Optionals and DATA Optionals (see the schedule below).

Are you interested in the urban setting? Or do you prefer more an agricultural or a forestry focus? With electives, you can even dive deeper into other domains. It is up to you to create a program that interests you the most!
Learn all about how to collect, manage and analyze spatial data. This diverse track will prepare you to become a well-rounded Geo-information systems engineer. Take a look at the schedule below to get an idea of the courses in this track.
**Thesis**

A thesis research is a compulsory part of every Master study program of Wageningen University & Research. Within the Laboratory of Geoinformation Science and Remote Sensing (GRS), a major thesis for a master program focuses on designing, conducting and scientifically reporting a research project in the broad field of Geo-Information Science. Such a thesis research corresponds to at least 36 ECTS of a master program. Several information sessions are organized to get an idea of thesis topics/ opportunities. The GRS thesis topics are maintained and kept up-to-date by the thesis coordinator and made accessible online via the GRS web page. A student can also propose his/her own thesis topic for the thesis research. In this case, the feasibility of the research is checked by the thesis coordinator and examiners.

GRS thesis topics are closely related to the main fields of research of the GRS group:

1. Sensing & measuring
2. Modelling & visualization
3. Integrated land monitoring
4. Human - space interaction
5. Empowering & engaging communities

A GRS major thesis research is conducted under the supervision of a member of the GRS group. The location of the thesis work is with the GRS group but, after consultation with the supervisor, may also take place in another institute or company.

To get an impression of thesis topic possibilities please check this website.

**Internship**

An internship is a compulsory part of the MGI. It will help you gain working and research experience within the professional Geo-Information Science (GIS) and Remote Sensing (RS) domain. An MGI internship has to be a minimum of 24 ECTS, which corresponds with a 4 month period. A longer internship is possible, which a maximum of up to 36 ECTS. Please consult your study advisor when opting for an internship of more than 24 ECTS.

The internship should be in the field of Geo-Information Science and/or Remote Sensing in the broadest sense and take place at an organization in the field of GIS and/or RS. This can be any company, institute, or organization working on any aspect of GIS or RS in the Netherlands or abroad. The internship should meet the academic standards which mean that at least 60% of the internship must be spent on an MSc level personal research level.
Useful tips and links

Wageningen University information
Home page of the university: https://www.wur.nl/en.htm

Program site of the Master Geo-information Science: www.wur.eu/mgi

The online study handbook with information about courses, minors and programs: https://wur.osiris-student.nl/#/onderwijscatalogus/extern/start

Chair group site: https://www.wur.nl/en/Research-Results/Chair-groups/Environmental-Sciences/Laboratory-of-Geo-information-Science-and-Remote-Sensing.htm

Application

**General admission requirements**

Students who wish to enrol in the MSc Geo-Information Science program at Wageningen University must:

- Have a bachelor's degree in the field of Environmental Sciences (planning, soil and water, hydrology, forest and nature, ecology, biology) or Information Technology. Some basic knowledge of GIS (geo-information systems) and remote sensing is required.
- Have a Grade Point Average for their BSc of at least 7 (or 70% of the maximum of the scale);
- Be fluent in English, both written and spoken.

For information about application deadlines and steps please see: https://www.wur.nl/en/Education-Programmes/master/Apply-for-a-Master-programme.htm

Student life

Wageningen has a very active student life with a wide variety of student associations that organise many social and sport activities. An overview of the different association can be found here.

All study programmes the Wageningen University have a study association. The study association of MGI is Pyrus. They organize frequently social and educational activities.

**To contact Pyrus:**

Website: https://pyrusbwa.nl/en/

Email: pyrus.bwa@wur.nl

Or visit them at the Forum building, room 116 (On working days between 13:30 and 14:00)
**Buddy system**

The Buddy System is there to get you familiar with the MGI program, get useful tips and tricks, and expand your network. A second-year MGI student will be assigned to a small group of first-year MGI students. As a group, you can attend several activities of the student association or organise your own activities. The second-year MGI student will guide you when you want advice on courses, life in Wageningen, where to get your books, the best places to study on campus and anything else you want to know!

**Housing**

Most students who attend Wageningen University live in or near the city of Wageningen. Even though the public transportation to Wageningen is relatively good, most students prefer living close to the university. The University does not provide housing, so it is advised to start your search on time. Have a look at some tips and tricks [here](#), to help you in your process of finding a nice place to stay during your studies at Wageningen University.
Information booklet MSc Geo-information Science
Wageningen University