



Faculty of Health, Science and Technology
Geo-Science

Syllabus

Introduction to Python for Geomatics

Course Code:	GMAN04
Course Title:	Introduction to Python for Geomatics <i>Introduktion till Python för geomatiker</i>
Credits:	7.5
Degree Level:	Master's level
Progressive Specialisation:	Second cycle, has only first-cycle course/s as entry requirements (A1N)

Major Field of Study:
GEM (Geomatics)

Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2026-01-28, and is valid from the Autumn semester 2026 at Karlstad University.

Prerequisites

Upper secondary level English 6 or English level 2. 60 credits completed in a Science or Technology programme. An equivalence assessment can be made.

Learning Outcomes

Upon completion of the course, students should be able to

- give an account of basic concepts in programming,
- apply scientific data analysis using a programming language,
- use a programming language for geospatial analyses (Python), and
- use Python elements relevant to geographic information technology.

Content

The course introduces and applies basic Python concepts such as

- looping and conditioned statements,
- development and application of functions,
- basic data analysis (read, convert, and extract information to solve problems), and
- data visualisation.

The programming environment is interactive (Jupyter Notebooks). The course includes lectures on specific topics related to Python programming, combined with exercises related to those topics. Students also complete a project based on the course content.

Reading List

See separate document.

Examination

Assessment is based on individual written assignments and a written project completed individually or in groups and presented and discussed in a seminar. Submissions for assessment must clearly indicate individual contributions.

If students have a decision from Karlstad University entitling them to Targeted Study Support due to a documented disability, the examiner has the right to give such students an adapted examination or to examine them in a different

manner.

Grades

One of the grades Pass with Distinction (5), Pass with Credit (4), Pass (3), or Fail (U).

Quality Assurance

Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

Course Certificate

A course certificate will be provided upon request.

Additional information

The local regulations for studies at the Bachelor and Master levels at Karlstad University stipulate the obligations and rights of students and staff.