GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2020-2021

Spatial Analysis I (C003790)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course size (nominal values; actual values may depend on programme)

Credits	Study time	Contact hrs
5.0	150 h	62.5 h

Course offerings and teaching methods in academic year 2020-2021

A (semester 1)	Dutch	Gent	seminar: coached exercises	25.0 h
			lecture	22.5 h
			seminar: practical PC room classes	15.0 h

Lecturers in academic year 2020-2021

Storme, Tom	WE12	lecturer-in-charge

Offered in the following programmes in 2020-2021	crdts	offering
Bachelor of Science in Geography and Geomatics	5	A
Linking Course Master of Science in Geography and Geomatics	5	A
Linking Course Master of Science in Urbanism and Spatial Planning	5	A
Preparatory Course Master of Science in Geography and Geomatics	5	A

Teaching languages

Dutch

Keywords

Probability theory, statistical analysis of spatial patterns, correlation and regression, geostatistics

Position of the course

The objective of this unit is to introduce students to the basics of applied statistics, and to allow the student to design simple studies in a correct way. The student also learns to perform the major basic statistical analyses. The emphasis is on the spatial applications. Additionally, the student is taught how to use a software package to analyze data, to interpret the associated output correctly and report justified conclusions in a clear and exact manner.
Geostatistics aims to predict spatial variables into spatial continuous layers from point measurements. This course provides the basis for this approach.
The course “Spatial Analysis II” in the Third Year Bachelor of Geography and Geomatics builds on this course.

Contents

Statistics:
- Descriptive statistics: basic methods for the development of insight in the structure of a given data set
- The concept of probability and probabilistic calculus
- Distributions for discrete and continuous variables in a study population
- Estimation of population parameters, construction of confidence intervals and hypothesis tests
- Basic correlation analysis, linear regression and analysis of variance

Geostatistics:
- Spatial statistics, autocorrelation, semivariance and variogram
- Spatial interpolation

Initial competences

Basic knowledge of mathematics as covered in the first year of the Bachelor programme. There are, in principle, no prerequisites in terms of statistical knowledge.

Final competences

1 Adequately perform basic statistical calculations.
2 Correctly interpret correctly the results of a simple statistical analysis.
3 Verify the assumptions that are/need to be made in a statistical analysis.
4 Clearly and correctly formulate the results of a statistical analysis.
5 Know which data manipulations are (not) allowed to obtain reliable and objective information from spatial data.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture, seminar: coached exercises, seminar: practical PC room classes

Learning materials and price

Rogerson, P. (2019) Statistical Methods for Geography (5th edition). London: Sage. Estimated cost: 45 Euro.

References

Rogerson, P. (2014) Statistical Methods for Geography (4th edition). London: Sage.
Webster R. & Oliver M.A., 2007. Geostatistics for Environmental Scientists 2nd Edition. Wiley-Blackwell.

Course content-related study coaching

Assistants oversee exercises en computer-led tutoriais

Evaluation methods

end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period

Oral examination, skills test

Examination methods in case of periodic evaluation during the second examination period

Oral examination, skills test

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation

not applicable

Extra information on the examination methods

Only periodical evaluation. Oral examination with written preparation. Half of the evaluation is based on theoretical questions that enquire into a correct overview of, and insight into the statistical techniques addressed in this course. The other half of the evaluation is a practical test in the sense that students are asked to solve a number of practical statistical exercises.
Students must pass both the theoretical and practical part of the exam to be able to pass for the course as a whole: if a student would get a sufficient mark based on the simple numerical combination of both parts but fails one of these, then s/he is awarded an overall score of 9.

Calculation of the examination mark

Only periodical evaluation. Oral examination with written preparation. Half of the evaluation is based on theoretical questions that enquire into a correct overview of, and insight into the statistical techniques addressed in this course. The other half of the evaluation is a practical test in the sense that students are asked to solve a number of practical statistical exercises.
Students must pass both the theoretical and practical part of the exam to be able to pass for the course as a whole: if a student would get a sufficient mark based on the simple numerical combination of both parts but fails one of these, then s/he is awarded an overall score of 9.