GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2018-2019

Spatial Analysis II (C003864)

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

Credits 5.0	Study time 150 h	Contact hrs	62.5 h

Course offerings and teaching methods in academic year 2019-2020

A (semester 1)	Dutch	seminar: coached exercises	35.0 h
		lecture	40.0 h

Lecturers in academic year 2019-2020

Witlox, Frank	WE12	lecturer-in-charge
Van Acker, Veronique	WE12	co-lecturer

Offered in the following programmes in 2019-2020	crdts	offering
Bachelor of Science in Geography and Geomatics	5	A
Linking Course Master of Science in Geography	5	A
Linking Course Master of Science in Geomatics and Surveying	5	A
Preparatory Course Master of Science in Geography	5	A
Preparatory Course Master of Science in Geomatics and Surveying	5	A

Teaching languages

Dutch

Keywords

Spatial analysis, research methods and techniques, mathematical geography

Position of the course

The objective of the course is to bring a thorough insight in a large amount of the different research methods and techniques that can be applied to conduct spatial analysis. 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.

Contents

This course builds on "Spatial Analysis I" (in the Second Year Bachelor of Geography and Geomatics). A first part of the course "Spatial Analysis II" focuses on the assumptions of a linear regression analysis, and which research methods and techniques can be applied if these assumptions are not fulfilled. A second part of the course "Spatial Analysis II" focuses on discrete choice models.

Part 1: what to do if assumptions of a linear regression analysis are not fulfilled?
- Recapitulation of several basic concepts
- Factor- and cluster analysis
- Path analysis and SEM
- Spatial and temporal regression
- Logistic regression

Part 2: discrete choice models
- Choice- and preference data; revealed vs stated preference
- Discrete choice models (binary logit, multinomial logit, ordered logit, nested logit, probit)
- Conjoint measurements (decompositional multi-attribute preference models)

Initial competences

Final competences of the courses Wiskunde I and Wiskunde II from Ba1 and Spatial

Analysis I from Ba2.

Final competences

1 Judge if an existing spatial research method or technique has been applied in a correct manner (reliability and validity).
2 Plan a simple research design. Choose and implement the appropriate methods and techniques to solve a problem.

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

Extra information on the teaching methods

Theoretical exposé based on the principle of Flipped Classroom and in which the dialogue with the student is stimulated (use of examples, tables, diagrams) completed with practical exercises. Different types of spatial datasets (partly obtained through the internet) are used to illustrate a method and technique.

Learning materials and price

Syllabus (reader + extracts of journal papers)
Cost: 13 EUR

References

- Bahrenberg G., Fisher M. & Nijkamp P. (Eds.) (1984) Recent Developments in Spatial Data Analysis: Methodology, Measurement, Models. Aldershotand Brookfield, Gower.
- Blauwens G., De Baere P. & Van de Voorde E. (2002) Transport Economics. Antwerpen, De Boeck Uitgevers
- De Pelsmaker P. & Van Kenhove P. (2003) Marktonderzoek: Methoden en toepassingen (4de gewijzigde druk). Antwerpen en Apeldoorn, Garant Uitgevers.
- Dieleman F.M., Hauer J. & Van Staalduine J. (Red.) (1980) Wegen in het ruimtelijk onderzoek. Utrecht, Bohn, Scheltema & Holkema.
- Dieleman F.M., Folmer H. & Timmermans H.J.P. (Red.) (1983) Technieken voor ruimtelijke analyse. Romen en Weesp, De Wereld in Perspectief.
- Gärling T. &Golledge R.G. (Eds.) (1993) Behaviour and Environment: Psychological and Geographical Approaches. Amsterdam, Elsevier Science Publishers.
- Hendriks P. & Ottens H. (Red.) (1997) Geografische Informatie Systemen in Ruimtelijk Onderzoek. Assen, Van Gorcum.
- Pitfield D.E. (Ed.) (1984) Discrete Choice Models in Regional Science. London, Pion Press.
- Rogerson, P. (2014) Statistical Methods for Geography (4th edition). London: Sage.
- Timmermans H. (1984) "Decompositional multi-attribute preference models in spatial choice analysis: a review of some recent developments". The Professional Geographer. 8(2), pp. 189-221.
- Van der Smagt T. & Hendriks P. (Red.) (1988) Methoden op hun keerpunt. Amsterdam en Nijmegen, KNAG.
- Zwart P.S. (1992) Methoden van marktonderzoek. Leiden en Antwerpen, Stenfert Kroese.

Course content-related study coaching

Students can appeal to the assistance and guidance of a member of the assistant academic staff (AAP).

Evaluation methods

end-of-term evaluation and continuous assessment

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

Written examination with open questions, oral examination

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

Written examination with open questions, oral examination

Examination methods in case of permanent evaluation

Assignment

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible

Extra information on the examination methods

Oral examination with written preparation. Details are not that important, overall insight prevails.
Students must participate at all parts of the examination in order to pass this course (exercises ánd oral examination). If no exercises are submitted, then the student is not allowed to participate at the oral examination.
When you do not participate in the evaluation of one or more components (exercises, theory parts) or you receive a score of less than 10/20 for one of these parts (exercises, theory parts of both lecturers), then you cannot earn a credit for the course. If somehow the final calculated score is a grade of ten or more out of twenty, but with a fail on one or more of the components, then the final grade will be brought back to a fail for the course. The usual standards when rounding are applied (between 0 and 0.499 to 0 and between 0.5 and 0.999 to 1).

Calculation of the examination mark

Periodic (75%) and non-periodic (25%)