Faculty of Science

NGEN23, Physical Geography: Spatial Analysis, 7.5 credits

Naturgeografi: Rumslig analys, 7,5 högskolepoäng

Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2022-02-14 to be valid from 2022-02-14, spring semester 2023.

General Information

The course is an elective course at second cycle level for a Degree of Master of Science (120 credits) in GIS and remote sensing and for a Degree of Master of Science (120 credits) in physical geography and ecosystem science, all specialisations.

Language of instruction: English

Main field of studies	*Depth of study relative to the degree requirements*
Geomatics	A1N, Second cycle, has only first-cycle course/s as entry requirements
Physical Geography and Ecosystem Science	A1N, Second cycle, has only first-cycle course/s as entry requirements

Learning outcomes

The overarching aim of the course is that the student should acquire basic knowledge and understanding of the principles behind spatial analysis in different applications within physical geography. At the end of the course, the student should be able to choose and use an appropriate analytical method for a given problem in spatial analysis.

Knowledge and understanding

On completion of the course, the student shall be able to:

- explain how and why knowledge in geography is important when analysing spatial data

- describe different methods that are used for the analysis of different types of spatial data
- analyse different types of geographic data by using both descriptive and inferential statistical methods
- give an account of how uncertainty and scale may lead to different limitations and possibilities in analysis of geographic data and what different patterns this could result in.

Competence and skills

On completion of the course, the student shall be able to:

- independently choose relevant spatial analytical methods for different types of geographic data, processes and phenomena
- independently analyse, interpret and criticise result of different spatial analytical methods.

Judgement and approach

On completion of the course, the student shall be able to:

- show a critical approach to spatial analytical methods
- evaluate advantages and disadvantages with different methods for spatial analysis and choose right method for a given practical application and discuss them from a wider context.

Course content

The course contains different basic components of spatial analysis, both regarding theoretical background and analytical methods. Some of the concepts and technologies that are treated in the course are point pattern analysis, geo-statistics, spatial autocorrelation, scale, uncertainty and spatial regression. The student also acquires knowledge on how to analyse spatial data by using the open source platform R.

Course design

The teaching consists of both theoretical and practical components where lectures are followed by practical exercises that illustrate, reinforce or develop the theoretical concepts that are brought up in the lectures. The emphasis lies on statistical analysis and interpretation of the results. The exercises are often cumulative, i.e. the knowledge that is received in an exercise is used as introduction to tackle the problem that is set up in the next exercise. Participation in exercises is compulsory.

Assessment

Examination takes place in the form of a written exam at the end of the course and through different written assignments during the course. Students who do not pass the regular exam will have an additional opportunity to re-sit the exam soon thereafter.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.
To pass in the whole course requires approved exam and compulsory written assignments. The grading scale for written examination is Fail, Pass, Pass with distinction, while the grading scale for written assignments is Fail, Pass. The final grade are determined by the grade of the written exam.

Entry requirements

Admission to the course requires at least 90 credits in natural sciences or technology of which at least 15 credits should be in Geographic information science equivalent to NGEA11 geographic information systems, 15 credits. English 6/English B.

Furthermore, knowledge in basic statistics is required, equivalent the statistics components that are included in NGEA07, theory and methods in physical geography, 15 credits or GISN21, GIS and statistical analysis, 5 credits. This also corresponds to the basic knowledge in statistics that one can be expected to receive during a completed undergraduate education.

Further information

The course cannot be included in a degree together with NGEN11, Spatial analysis 7.5 credits or GISN01, GIS and geostatics, 7.5 credits.

Subcourses in NGEN23, Physical Geography: Spatial Analysis

Applies from V23

2301 Written exam, 5,0 hp
Grading scale: Fail, Pass, Pass with distinction
Written exam

2302 Written hand-ins, 2,5 hp
Grading scale: Fail, Pass
Assignments