School of Economics and Management

EKHT27, Advanced Topics in Economic Demography- Geographical Information Systems for Economic History, 7.5 credits

Fördjupningskurs i Ekonomisk Demografi- Geografiska informationssystem, 7,5 högskolepoäng

Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Academic Director of Studies at Department of Economic History on 2023-01-17 to be valid from 2023-08-31, autumn semester 2023.

General Information

This is a graduate level course, which can become one of two mandatory tutorial courses in the second year of the master's program EAETU Economic Growth, Population Studies and Development, track EKDE Economic Demography.

Language of instruction: English

Main field of studies	*Depth of study relative to the degree requirements*
Economic History	A1F, Second cycle, has second-cycle course/s as entry requirements

Learning outcomes

The purpose of the course is to provide basic theoretical and practical knowledge of concepts and methods within geographic information systems (GIS), and how this knowledge can be applied within economic demography. Knowledge and skills include storage, processing, modeling, visualization, and analysis of spatial information. The overall aim of the course is that the student, after completion of the course, should have acquired basic theoretical knowledge and practical skills can be used for applications within economic demography and related fields, as well as competence for further studies and use of GIS.

Knowledge and understanding

- Explain basic and central spatial concepts
- Describe data models for geographic data (raster and vector data) and compare advantages and disadvantages with regard to storage, analysis and visualization.
- Be able to explain how map projections are used.
- Explain georeferencing and how information can be gathered from maps.
- Describe theoretical and practical aspects of how Geographic Information Systems (GIS) can be applied within economic demography.
- Explain how relevant geographic variables, including ones at the micro-level, can be created and later used in demographic analysis.
- Explain basic spatial analysis methods, with particular application to economic demography.
- Explain and problematize spatial autocorrelation.
- Explain basic methods in cartography and visualization of spatial data, including visualization of geocoded demographic data.
- Discuss and problematize concepts for analyzing and visualizing geographic and demographic data, including demographic microdata, over long periods of time (spatiotemporal data).

Competence and skills

- Collect (e.g., by digitizing objects from maps), organize and manage digital spatial data.
- Based on a problem statement, be able to independently and in a group carry out basic analyzes of linked geographic and demographic data in raster and vector formats using standard and free software for GIS (QGIS).
- Create geographic variables that can be included in demographic analyses.
- Cartographically, graphically and in simple text be able to present results and workflow from collection to analysis of geographic data for specialists and laymen.
- Interpret and discuss linked geographic and demographic data from a statistical perspective.

Judgement and approach

- Be aware of the importance of using geographic information and analysis in economic demography and related subject fields.
- Understand the importance of, as well as have achieved a critical approach to, geographic data, its sources, and analysis results.
- Judge the importance of using geographic information and analysis in economic demography and other related fields.

Course content

Several projects in demography have a connection to spatial information. To include a spatial aspect in demographic studies, a prerequisite is that geographic data have been collected, stored and structured in a way that allow for performing statistical analyses. Once these prerequisites are fulfilled, it is possible to create geographic variables to be included in demographic analyses, conduct spatial analyses for the demographic data, and spatially visualizing the results.

This course provides the student with basic practical and theoretical knowledge and skills in spatial data, spatial analysis and visualization, and Geographic Information Systems (GIS), with a particular focus on applications in economic demography. Understanding of analysis and visualization of spatial elements is emphasized. The course also provides preparatory insights into how spatiotemporal demographic microdata can be managed, analyzed and visualized. The course provides a theoretical

and practical basis for further work and studies related to geographic concepts and data.

Course design

The course consists of mandatory group meetings. During each meeting, theoretical and practical aspects related to the management, analysis and visualization of linked geographic and demographic data are discussed. In preparation for each meeting, students will work on related tasks, and this work is then discussed with faculty and students at the meeting. The student is expected to actively participate in the discussions. At the meetings, guidance is also given linked to the tasks. Some of the work is done with the help of free and opensource software in GIS, for example Quantum GIS.

At the end of the course, students will complete an individual project. Within the project, they will define a research question, manage and manipulate geographic data, create relevant geographic variables, and perform a spatial and demographic analysis necessary to answer the research question. The project is described in a report, where the research questions are defined, the data and method are described, and the results are presented and discussed. The students present their work to the group and comment on each other's work.

Assessment

Grading is based on individual performance via written assignments, papers, presentations and other compulsory activities. The examination is continuous. In this tutorial, equal emphasis is placed on the active participation in discussions at the group meetings and oral presentations. Examination may draw on teaching as well as the course literature.

The University views plagiarism very seriously, and will take disciplinary actions against students for any kind of attempted malpractice in examinations and assessments. The penalty that may be imposed for this, and other unfair practice in examinations or assessments, includes suspension from the University.

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, E, D, C, B, A.
At the School of Economics and Management grades are awarded in accordance with

a criterion-based grading scale UA:

A: Excellent

B: Very good

C: Good

D: Satisfactory

E: Sufficient

U: Fail

Grade (Definition). Characteristic

A (Excellent). A distinguished result that is excellent with regard to theoretical depth, practical relevance, analytical ability and independent thought. B (Very good). A very good result with regard to theoretical depth, practical relevance, analytical ability and independent thought.

C (Good). The result is of a good standard with regard to theoretical depth, practical relevance, analytical ability and independent thought and lives up to expectations.

D (Satisfactory). The result is of a satisfactory standard with regard to theoretical depth, practical relevance, analytical ability and independent thought.

E (Sufficient). The result satisfies the minimum requirements with regard to theoretical depth, practical relevance, analytical ability and independent thought, but not more.

U (Fail). The result does not meet the minimum requirements with regard to theoretical depth, practical relevance, analytical ability and independent thought.

To pass the course, the students must have been awarded the grade of E or higher.

Students who do not obtain grades A-E on their written class room exam will be offered opportunities to retake the exam in which case the student will be assessed according to regular procedure. In the case of home exams that are handed in after the set deadline the teacher can: a) hand out a new exam which will be assessed according to regular procedure, b) may penalize the student by handing out a lower grade on the assignment in question unless the student can demonstrate special circumstances for the delay.

Entry requirements

Students accepted for the second year of the master's programme EAETU Economic Growth, Population and Development, track EKDE Economic Demography and students that have already acquired the equivalent knowledge are qualified for this course.

Subcourses in EKHT27, Advanced Topics in Economic Demography-Geographical Information Systems for Economic History

Applies from H23

2301 Economic Demography - Geographical Information Systems, 7,5 hp
Grading scale: Fail, E, D, C, B, A