Exchange programme Vrije Universiteit Amsterdam

Vrije Universiteit Amsterdam - Exchange programme Vrije Universiteit Amsterdam - 2024-2025

Exchange

Vrije Universiteit Amsterdam offers many English-taught courses in a variety of subjects, ranging from arts & culture and social sciences, neurosciences and computer science, to economics and business administration.

The International Office is responsible for course approval and course registration for exchange students. For details about course registration, requirements, credits, semesters and so on, please [visit the exchange programmes webpages](#).

Land Use Change

Course Code	AB_1106
Credits	6
Period	P3
Course Level	300
Language Of Tuition	English
Faculty	Faculty of Science
Course Coordinator	dr. E. Koomen
Examiner	dr. E. Koomen
Teaching Staff	dr. E. Koomen
Teaching method(s)	Seminar, Computer lab, Lecture

Course Objective

The interactions between earth and economics that steer changes in land use are central to this course. Socio-economic processes, spatial policy and bio-physical conditions determine the way humans use the surface of the earth. These driving forces are active at various scale levels and they are often interrelated, making the analysis of land-use change a complex issue. Moreover, changes in land use (in)directly affect the social and physical environment in which humans live, creating feedback loops in the dynamics of land-use change. In order to understand the mechanisms of change and the impact of policies, researchers and practitioners have turned their attention to formulating models that simulate land-use dynamics. These land-use change models help us to understand the characteristics and interdependencies of the components that constitute spatial systems, provide valuable insights into possible future land-use configurations and develop policies that contribute to sustainable land use.

This course introduces students to the methods and tools that provide insight in the most important forces that influence land-use dynamics and allows students to independently apply this knowledge to analyse actual changes, explain these and simulate potential future land-use patterns. Ample attention will be paid to the societal application of this knowledge in addressing current sustainability challenges and contribute to spatial planning initiatives related to, for example, climate change, open space preservation and biodiversity.

Course Content

Studies of land-use change incorporate concepts and knowledge from a wide range of disciplines. Geography, as a spatial science, contributes significantly to the understanding of land-use change whilst demography and economics help explain underlying trends. Model building relies heavily on mathematics and (geographical) information science, but also includes many elements from the softer sciences, such as management studies and environmental science. This course offers a cross-sectional overview of methods, tools and current research progress in the analysis of land-use change. See the course pages on Canvas for more information.

Additional Information Teaching Methods

The course consists of 8*2 hours of lecturing, 8*2 hours supervised practical sessions and a final 4 hour interactive session in which the analysis and simulation of land-use change will be explained, practised and discussed. Outside these scheduled hours students will need additional time to finalise the assignments and independently read scientific literature. As the course only takes four weeks, students are expected to be busy with it full time. Past experiences have taught that combinations with other activities often lead to the missing of deadlines and insufficient results.

Method of Assessment

Written examination and active participation in the practical sessions. The assessment will be based on a written final examination (50%) and the marks for the practical assignments (50%). For each of these components students should obtain a mark of 5.5 or higher.

Literature

Several chapters from the book: Modelling land-use change, Springer, ISBN 9781402064845 (paperback) digitally available through Canvas. In addition various scientific papers have to be read that will also be made available through Canvas.

Additional Information Target Audience

The course stresses the importance of a multidisciplinary approach in analysing land use change and introduces concepts, methods and tools that can be relevant to a wide range of students. This course is intended for students in the third year of the Earth and Economics Bachelor programme and is, furthermore, part of the national GI-minor and several VU-minor programmes. It is open to others interested in the topic that meet the entry requirements.

Recommended background knowledge

The course makes use of Geographical Information Systems (GIS), statistics and computational models and requires some practical experience in using GIS (e.g. QGIS). The course is not only about using GIS, however, and also requires some proficiency in using other software tools, an interest in understanding land-use change processes and the ability to translate this understanding into quantitative rules.