ERASMUS Exchange Module:

GEOINFORMATICS AND CHANGING CITIES

Urban regions are the main drivers of innovation and economic growth and are the arenas for social and environmental challenges of the contemporary world. International master modules examine the topics of urbanisation, sustainable development, and information and communication technology (ICT) in urban areas, and develop skills in geoinformatics and spatial analysis.

AUTUMN SEMESTER

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<th>Module Name</th>
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<th>Credits</th>
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| Spatial Data Studio                             | LTOM.02.011 / 15 ECTS | Provides knowledge of spatial data acquisition and management, and basic spatial data analysis skills. Covers topics related to spatial data quality, spatial reference systems, data interoperability, and spatial data standards. | PhD E. Uuemaa  
PhD A. Kmoch  
PhD R. Aunap |
| Introduction to Geographic Information Systems  | LTOM.02.012 / 3 ECTS | Provides basic overview of geoinformatics, use of (spatial) databases, fundamentals of cartography and practical skills to use GIS software and database management. | Prof. T. Oja |
| ArcGIS Software                                 | LTOM.02.015 / 3 ECTS | Introduces geographic information system software ArcGIS for working with maps and geographical datasets. Hands-on teaching course for the beginners in GIS. | PhD K. Mõisja |
| PostgreSQL/PostGIS and GeoServer (WMS) Basics   | LTOM.02.023 / 3 ECTS | Trains students in creating, using and publishing geospatial databases with PostgreSQL/PostGIS and GeoServer WMS. | PhD V. Sagris |
| Geospatial Analysis with Python and R            | LTOM.02.025 / 5 ECTS | Develops the coding/scripting skills of students for spatial analysis and statistics based on the standard approaches of scripting environments Python and R. This course with hands-on teaching has a focus on automating different GIS-related tasks. | PhD A. Aasa  
PhD E. Uuemaa  
PhD A. Kmoch |
| 3D Modelling and Analysis                       | LTOM.02.024 / 5 ECTS | Provides knowledge and skills of using 3D geospatial data and models in terrain and surface analysis and planning, both in urban and rural settings. The students create and analyse models and visualizations, and conduct visibility, hydrological and flood analysis. | PhD M. Muru  
PhD R. Aunap |

Module co-ordinators:
Senior researcher PhD Evelyn Uuemaa, evelyn.uuemaa@ut.ee
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Information about applying as an exchange or visiting student:
www.ut.ee/semester
www.geograafia.ut.ee/en
### Planning Project
**LTOM.02.010 / 15 ECTS**
Focuses on various methods and applications used in active/passive remote sensing of environment. Students will learn how to combine data from various sources to analyse the changes in environment.

**PhD K. Silm**

### Applied Remote Sensing
**LTTO.00.008 / 4 ECTS**
Focuses on various methods and applications used in active/passive remote sensing of environment. Students will learn how to combine data from various sources to analyse the changes in environment.

**PhD K. Alikas**

### Demography and Urban Social Geography
**LOOM.02.341 / 4 ECTS**
Provides students with an understanding about the interaction of social and spatial processes in contemporary cities and the different ways urban policies intervene in neighbourhood. The course develops analytical skills and critical thinking in the field.

**Prof. T. Tammaru**  
**PhD A. Kährrik**  
**MSc I. Pastak**

### Demography, Global Migration and Contemporary Cities
**LTOM.02.030 / 6 ECTS**
The aim is to get overview of the global population trends and their relationship to urban development and planning.

**Prof. T. Tammaru**  
**PhD K. Leetmaa**  
**PhD A. Kährrik**

### Introduction to Urban Planning
**LOOM.02.347 / 2 ECTS**
Sets a framework for understanding urban planning by introducing the historical evolution of urban spatial structure and the complexity of challenges that urban planners face today.

**Prof. D. Hess**  
(University at Buffalo)

### Energy Flows and Material Cycles
**LTOM.02.006 / 3 ECTS**
Introduces various approaches and methods used in landscape and climate change studies. The students practice the use of complex study and data analysis methods in physical geography.

**Prof. Ü. Mander**  
**PhD I. Ostonen-Märtin**

### Modelling with UML/GML and Web Feature Service
**LTOM.02.003 / 3 ECTS**
Provides students with understanding how to apply their knowledge in the information structure of the model using UML/XML/GML and how to publish data with and use data from the Web Feature Service (WFS).

**PhD V. Sagris**

### Socio-spatial Changes in Cities in Transition
**LOOM.02.330 / 2 ECTS**
Gives an overview of the research and theoretical arguments related to urban development in formerly centrally planned countries in Europe and the urban change in the post-socialist period in this region.

**PhD K. Leetmaa**

### Economic Geography of Urban Systems
**LOOM.02.328 / 2 ECTS**
Provides an understanding of contemporary urban networks, including their role in economic processes, creativity and the logistical challenges of contemporary cities and urban systems.

**Prof. F. Witlox**  
(Ghent University)

### Geography, Communication and Spatial Mobility
**LOOM.02.258 / 4 ECTS**
The aim of the course is to introduce the theoretical and methodological aspects of spatial mobility, information society and Smart City. Special focus is on mobile telephone and ICT-based research methods and applications used in urban planning.

**PhD A. Aasa**  
**Prof. M. Zook**  
(University of Kentucky)

### Visual Geodata Mining
**LOOM.02.349 / 2 ECTS**
The course deals with spatial and visual data mining techniques in multivariate data sets.

**Prof. J. M. Krisp**  
(Augsburg University)

### Spatial Data Analysis
**LTOM.02.029 / 3 ECTS**
Supports pro-active attitude towards developing new ideas and products and gives students the experience in entrepreneurship, teambuilding, developing a new product or start-up.

**PhD R. Aunap**  
**PhD K. Möisma**

### Introduction to Urban Planning
**LOOM.02.347 / 2 ECTS**
The aim of the course is to develop the knowledge and practical skills of students for composing urban and regional plans.

**PhD P. Metspalu**  
**MSc I. Pastak**

### Start-up Project
**LTOM.02.010 / 15 ECTS**
Supports pro-active attitude towards developing new ideas and products and gives students the experience in entrepreneurship, teambuilding, developing a new product or start-up.

**PhD R. Aunap**

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**WHY University of Tartu:**

- Belongs to the top 1.2% of the world’s best universities;
- The oldest, biggest and most prestigious university in Estonia founded in 1632;
- 13,000 students, incl. 2,100 international students from 105 countries;
- 97% of our international students would recommend UT for studies;
- Excellent study abroad opportunities at our partner universities and through various networks (Erasmus+, ISEP, AEN etc.);
- The heart of a picturesque campus city: Tartu is a compact historic settlement full of greenery.

**send us your questions:**  
[www.ut.ee/ask](http://www.ut.ee/ask)