Syllabus

GIS applications for environmental history research - 40948

Last update 06-08-2015

HU Credits: 2

Degree/Cycle: 2nd degree (Master)

Responsible Department: geography

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: Mt. Scopus

Course/Module Coordinator: Prof Noam Levin

Coordinator Email: noamlevin@mail.huji.ac.il

Coordinator Office Hours: Wednesday 10:00-11:00

Teaching Staff:
Prof Noam Levin
Course/Module description:
An advanced MA course in GIS, providing tools and knowledge for using historical maps in GIS to assess their accuracy, reconstruct past landscapes, and analyze landscape changes.

Course/Module aims:
The course aim is to give students experience and knowledge in the following themes:

Georeferencing, maps, presenting RMSE

Evaluating the accuracy (geometric, attribute, temporal) and completeness of historical maps

Reconstructing past landscapes from historical maps - using manual and semi-automatic methods

Statistical methods to examine the correspondence between maps: overall accuracy, omission and commission errors, kappa index of agreements, further kappa indices developed by Pontius

Analyzing landscape changes using transformation matrices

Geocoding textual data

Time series analysis of historical data

Acquaintance with historical maps and aerial photos of Israel

Learning outcomes - On successful completion of this module, students should be able to:
Georeference historical maps, evaluate the accuracy and completeness of historical maps, reconstruct historical landscapes from maps, examine landscape changes, analyze time series of historical data

Attendance requirements(%):
80

Teaching arrangement and method of instruction: Frontal lectures, practical work in
GIS

Course/Module Content:
Environmental history, historical maps as tools for reconstructing past landscapes - sources of errors and spatial uncertainty

Projections and principles for georeferencing historical maps

Exercise: Georeferencing Jacotin’s map

Reconstructing landscapes from historical maps

Exercise: Digitizing from a historical map and from an historical aerial photo

Examining the correspondence between maps using confusion matrices and calculating indices

Exercise: Examining the correspondence between maps using confusion matrices and calculating indices

Analyzing changes in time between maps, predicting changes, Markov chain analysis

Exercise:
Analyzing changes in time between maps

Time series analysis

Exercise: Analyzing changes in global land uses

Quantitative analysis of textual information and its spatial analysis

Exercise: quantitative analysis of textual information from the PDF Memoirs

Course overview and presentation of the final project

Required Reading:

Additional Reading Material:
Gregory I.N. and Geddes A. (2014, eds.) Toward Spatial Humanities: Historical GIS


**Course/Module evaluation:**
End of year written/oral examination 0 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 50 %
Assignments 50 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information:
We will use ARCGIS and Idrisi