

Department of Geography, Planning and Environment

Geographic Information Systems

Introduction to GIS GEOG 363 - URBS 335

This course is an introduction to current theoretical and practical approaches to Geographic Information Systems (GIS). As a student you acquire basic skills and understanding in the use of GIS for spatial analysis. Training is centred on a series of practical assignments using ArcGIS. For the term project, you explore the potential of GIS addressing a real-world problem.

Transportation GIS URBS 498T

This course introduces you to the transportation planning and modeling process aided by the use of a GIS-based transportation decision tool. You use a real world case-study region and transportation system to illustrate the different elements of the planning and modeling process. The course aims to highlight both the strengths and weaknesses of the traditional transportation planning approach.

GIS for EIA ENVS 663

This course examines the use of Geographical Information Systems (GIS) in Environmental Impact Assessment (EA), particularly focusing on the role of GIS in the analysis of environmental data and in decision-making processes. Topics covered include data acquisition (e.g. digitizing, integrating data from different sources), multi-criteria decision analysis, fuzzy sets, interpolation techniques and error analysis. The instruction is built around a series of practical exercises mainly using industry-standard GIS software. The differences between raster and vector approaches are stressed throughout the course. The objective of the course is to provide a sound theoretical and practical background in the use of GIS for EA applications.

Remote Sensing GEOG 458

This course provides basic knowledge about the theory and practice of remote sensing its potential and limits. The course is divided in five parts: 1) fundamentals of remote sensing, where the physical basis of remote sensing; 2) sensors and orbits; 3) digital image processing, looking at image enhancement, filtering, classification, and how to obtain thematic data from raw imagery; 4) applications of remote sensing such as forestry, urban studies, water pollution, and agriculture; and 5) problems and challenges associated with remote sensing. Practical examples for all these topics will be covered in the laboratory sessions.

Advanced GIS GEOG 463

This course focuses on database structure and management as well as advanced spatial analysis techniques. It considers both practical and theoretical questions of interpretation of GIS in the context of particular problems and real data sets. The course involves hands-on use of ArcGIS software in a laboratory setting.

Geomedia and the Geoweb GEOG 466

This course introduces you to geospatial technologies that have dramatically changed the way people interact with the environment. You acquire the geovisualization skills required to design meaningful maps in the context of the Geoweb, and are exposed to the growing body of literature that critically envisions the socio-political dimensions of these new forms of cartographic expression.

Software

GIS software provides the functions and tools users need to store, analyze, and display geographical information.

Hardware

The hardware is the computer and peripherals on which the GIS operates. Today, this could be a centralized computer server running UNIX, Windows Server or MacOS X. The computer may operate in isolation or in a networked configuration.



GIS

People

GIS technology is clearly of limited value without people to manage the system and to develop plans for applying it. Users of GIS range from highly qualified developers and technical specialists to planners, foresters, and market analysts who use GIS to help with their everyday work.



Methods

Methods are well designed plans and application-specific business rules describing how technology is applied. This includes:

- Guidelines
- Specifications
- Standards
- Procedures



Data

One of the most important components of GIS is the data. The most common types of data that GIS manages are:

- Vector data
- Raster data
- Attribute data

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Concordia University

Geography, Planning and Environment

Faculty of Arts and Science

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