EXPANDED COURSE DESCRIPTION
EARTH, SPACE SCIENCE AND ENGINEERING
Lassonde School of Engineering
Earth and Space Science and Engineering
LE / ESSE 3600 3.0 SECTION A
GEOGRAPHICAL INFORMATION SYSTEMS (GIS)
FALL 2017 / WINTER 2018

Last Modified Date: 08/18/2017

COURSE CALENDAR DESCRIPTION

The fundamental concepts and techniques of GIS are presented along with detailed discussion of computer implementation. The emphases include database management and map analysis/spatial modelling. PC ArcView with Spatial Analyst extension GIS programs are used for hands-on exercises. Two lecture hours, three laboratory hours. One term. Three credits. Prerequisites: LE/EECS 1540 3.00 or LE/EECS 1030 3.00 or LE/EECS 1520 3.00; SC/MATH 2560 3.00 or AP/SC/GEOG 2420 3.00 or SC/MATH 1131 3.00; SC/MATH 1025 3.00 or SC/MATH 1013 3.00; both LE/ESSE 1010 3.00 and LE/ESSE 1011 3.00, or LE/ESSE 2030 3.00, or AP/SC/GEOG 1400 6.00, or permission of the instructor.

INSTRUCTOR(S)

<table>
<thead>
<tr>
<th>Name</th>
<th>Section / Format / Term</th>
<th>Contact Email</th>
<th>Contact Phone</th>
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<tbody>
<tr>
<td>Jadidi Mardkheh, Amaneh</td>
<td>Sec. A / LECT / F</td>
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TOPICS AND CONCEPTS

The following is a list of course topics:

- Introduction to GIS and Spatial Analysis.
- Data sources.
- Spatial data modeling.
- Spatial data structures.
- Data processing and spatial analysis.
- Data editing and quality.
- Spatial databases.
- Visualization of spatial data.
- Introduction to GIS modelling

LIST OF LEARNING OUTCOMES AND EXAMPLES OF

Course learning outcomes for this course include:

1. Describe the principles of geographic information systems (GIS) and explain their applications.
2. Describe and explain spatial modelling using vector and raster data models, data structures and topology.
3. Define geopositioning and describe sources of spatial data.
4. Describe structures of spatial databases.
5. Explain spatial analysis and GIS modelling and identify, explain and apply related GIS methods.
6. Demonstrate the use of GIS through hands-on labs and group projects using GIS software for various applications.
GRADED ASSESSMENT

The evaluation for this course is as follows:
Laboratory assignments: 25%
Group Project: 10%
Participation: 5%
Midterm examination(s): 20%
Final examination: 40%

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<tr>
<td>A</td>
<td>80-89</td>
<td>Excellent / Exemplary</td>
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<td>B+</td>
<td>75-79</td>
<td>Very good / Meet expectations</td>
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<tr>
<td>B</td>
<td>70-74</td>
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<td>C+</td>
<td>65-69</td>
<td>Competent / Meet expectations</td>
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<td>Fairly Competent / Marginal</td>
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<td>Failing / Below expectations</td>
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ADDITIONAL INFORMATION

REQUIRED TEXT AND MATERIAL:

SUGGESTED TEXTS AND MATERIAL:

WEBSITES:
- GIS tutor (http://www.gistutor.com/)
- ArcGIS resources (http://resources.arcgis.com/en/Tutorials/)
- The NCGIA Core Curriculum in GIScience (http://www.ncgia.ucsb.edu/giscrc/)
- The Geographer’s Craft (http://www.colorado.edu/geography/gcraft/notes/notes.html)
• The GIS Primer: An introduction to GIS (http://www.innovativegis.com/basis/primer/primer.html)
• Canadian Geospatial Data Infrastructure (CGDI) (geoconnections.ca)
• GeoBase (http://www.geobase.ca/)
• GeoGratis (http://www.geogratis.org/)
• GIS Café (giscafe.com)
• Canadian Institute of Geomatics (CIG) (http://www.cig-acsg.ca)

JOURNAL:
• Geomatica
• ISPRS International Journal of geo-Information
• International Journal of Geographic Information Science
• Journal of Geographical Systems
• Photogrammetric Engineering and Remote Sensing
• Geocarto International
• GIM International
• GeoConnexion
• GEO Informatics

ACADEMIC INTEGRITY LINKS:
• Senate Policy on Academic Honesty
• Academic Integrity

STUDENT LINKS:
• Student Rights and Responsibilities
• Religious Observance
• Academic Accommodation for Students with Disabilities
• Counselling and Disability Services

Many courses utilize Moodle, York University’s course website system. If your course is using Moodle, click here to access it.
Moodle @ York University