



Introduction to Geographic Information Systems - GEOG 211

University Studies Program

Course Outline

COURSE IMPLEMENTATION DATE: January 2012
OUTLINE EFFECTIVE DATE: September 2020
COURSE OUTLINE REVIEW DATE: April 2025

GENERAL COURSE DESCRIPTION:

This course will introduce concepts in geographical information science (GIS) and remote sensing. Geographic Information Systems (GIS) is an applied field encompassing the acquisition, storage, processing, analysis and presentation of spatial information. GIS has become an essential tool for spatially informed decision making in government, academic and private sectors. Course lectures will cover underlying theory, concepts and applications of GIS, remote sensing of the Earth's surface, aerial photography, photogrammetry and visual image interpretation. Lab sessions will apply lecture theory through hands-on experience with industry standard GIS software (ArcGIS Pro, ArcGIS Online), aerial photography interpretation, and image assessment.

Program Information: This course can be used as either a required course or an elective in several University Arts and Sciences Programs. Refer to the College Program Guide for additional information.

Delivery: This course is delivered face-to-face.

COTR Credits: 3

Hours for this course: 90 hours

Typical Structure of Instructional Hours:

Instructional Activity	Duration
Lecture Hours	30
Seminars / Tutorials	
Laboratory / Studio Hours	60
Practicum / Field Experience Hours	
Other Contact Hours	
Total	90

Practicum Hours (if applicable):

Type of Practicum	Duration
On-the-job Experience	N/A
Formal Work Experience	N/A
Other	N/A
Total	N/A

Course Outline Author or Contact:

Katie Burles, M.Sc.

Signature

APPROVAL SIGNATURES:

Department Head
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Department Head Signature

Dean Signature

EDCO

Valid from: September 2020- April 2025

Education Council Approval Date

COURSE PREREQUISITES AND TRANSFER CREDIT

Prerequisites: GEOG 101 must be taken previously or concurrently.

Corequisites: None

Flexible Assessment (FA):

Credit can be awarded for this course through FA Yes No

Learners may request formal recognition for flexible assessment at the College of the Rockies through one or more of the following processes: External Evaluation, Worksite Assessment, Demonstration, Standardized Test, Self-assessment, Interview, Products/Portfolio, Challenge Exam. Contact an Education Advisor for more information.

Transfer Credit: For transfer information within British Columbia, Alberta and other institutions, please visit <http://www.cotr.bc.ca/Transfer>

Students should also contact an academic advisor at the institution where they want transfer credit.

Prior Course Number: N/A

Textbooks and Required Resources:

Textbook selection varies by instructor and may change from year to year. At the Course Outline Effective Date the following textbooks were in use:

Shellito, B.A., 2018. *Introduction to Geospatial Technologies*. 4th Edition. MacMillian Learning.
ISBN: 9781319060459

Please see the instructor's syllabus or check COTR's online text calculator
<http://go.cotr.bc.ca/tuition/tCalc.asp> for a complete list of the currently required textbooks.

LEARNING OUTCOMES:

Upon the successful completion of this course, students will be able to

- Describe remote sensing and GIS theory and terminology;
 - Describe sources for acquiring spatial data;
 - Explain the components of a georeferencing system;
 - Apply Raster and Vector data models;
 - Describe topology and its importance to spatial data modeling;
 - Explain the importance of database to GIS;
 - Apply basic cartographic principles;
 - Explain the difference between accuracy and precision;
 - Describe sources of spatial data error;
 - Apply geoprocessing tools to solve problems; and
 - Demonstrate competence in industry standard GIS software (ArcGIS Pro, ArcGIS Online), aerial photography interpretation, and image assessment in application of real-world scenarios.
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COURSE TOPICS:

- Remote sensing data platforms
- Air photos and Digitization
- Spatial Data Models
- Data Acquisition
- Projections and Coordinate Systems
- Raster Data Analysis
- Remote Sensing
- Vector Data Analysis
- Cluster Analysis
- Database and Spatial Data Storage
- Cartographic Modeling and Geoprocessing
- Cartography and Web GIS
- Applications of GIS

See instructor's syllabus for the detailed outline of weekly readings, activities and assignments.

EVALUATION AND ASSESSMENT (Face to Face Delivery):

Assignments	% Of Total Grade
Lab Assignments	50%
Midterms	20%
Final Exam	<u>30%</u>
Total	100%

Please see the instructor's syllabus for specific classroom policies related to this course, such as details of evaluation, penalties for late assignments, and use of electronic aids.

Note: Students must attain a 50% average on all lab-based assignments and exams and a 50% average on all class-based assignments and exams to pass Geography 211.

EXAM POLICY:

Students must attend all required scheduled exams that make up a final grade at the appointed time and place.

Individual instructors may accommodate for illness or personal crisis. Additional accommodation will not be made unless a written request is sent to and approved by the appropriate Department Head prior to the scheduled exam.

Any student who misses a scheduled exam without approval will be given a grade of "0" for the exam.

COURSE GRADE:

Course grades are assigned as follows:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
Mark (Percent)	≥ 90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	< 50

A grade of "D" grants credit, but may not be sufficient as a prerequisite for sequential courses.

ACADEMIC POLICIES:

See www.cotr.bc.ca/policies for general college policies related to course activities, including grade appeals, cheating and plagiarism.

COURSE CHANGES:

Information contained in course outlines is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational, employment, and marketing needs. The instructor endeavours to provide notice of changes to students as soon as possible. The instructor reserves the right to add or delete material from courses.