



## **GEOG-211 – Introduction to Geographic Information Systems**

**University Arts and Science**

**Effective Term & Year: Fall 2022**  
**Course Outline Review Date: 2025-04-01**

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**Program Area:** Math and Sciences

**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.

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**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 Methods:** On-campus (Face-to-Face)

**Credit Type:** College of the Rockies Credits

**Credits:** 3

**Course type/s:** Sciences, Lab Sciences

**Instructional Activity and Hours:**

**Activity**

**Hours**

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Classroom, Directed Studies or Online Instruction	30
Seminar/Tutorials	
Laboratory/Studio	60
Practicum/Field Experience	
Co-op/Work Experience	
Other	
Total	90

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**Course Requisites:**

- Completed or concurrently enrolled in:
  - **GEOG101** – Introduction to Physical Geography 1 (3)

**Flexible Assessment:** Yes

In some cases students may be able to apply for recognition of prior learning outside the classroom. This flexible assessment process provides equivalent course credit. It is a rigorous process that may include external evaluation, worksite assessment, demonstration, standardized test, self-assessment, interview, products/portfolio, and challenge exam, or other measures as appropriate. Tuition fees apply. Contact an education advisor for more information.

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**Course Transfer Credit:**

For information about receiving transfer credit for courses taken at either British Columbia or Alberta institutions, please see <https://www.bctransferguide.ca/> or <https://transferalberta.alberta.ca> . For more transfer credit information, please visit <https://www.cotr.bc.ca/Transfer>

All requests for course transfer credit from institutions in British Columbia or elsewhere should go to the College of the Rockies Enrolment Services office.

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**Textbook 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*

<https://textbook.cotr.bc.ca/> for a complete list of the currently required textbooks.

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## 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.*

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## Evaluation and Assessments

### Assessment Type: On-Campus (face-to-face)

Assessment Type	% of Total Grade
Lab Assignments	50%
Midterms	20%
Final Exam	30%
Total	100%

### Grade Scheme

A+	A	A-	B+	B	B-	C+	C	C-	D	F
>=90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	<50

**Pass requirements:** A passing average (50% or higher) in both the theory and practical components.

**Evaluation Notes:** A grade of “D” grants credit, but may not be sufficient as a prerequisite for sequential courses.

#### Exam Attendance:

Students must attend all scheduled exams at the appointed time and place. Instructors may approve an alternate exam to accommodate an illness or personal crisis. Department heads will consider other written requests. Any student who misses a scheduled exam without prior approval will receive a “0” on the exam.

#### Academic Policies:

College of the Rockies policies related to courses can be found at <https://cotr.bc.ca/about-us/college-policies/> and include the following:

- Policy 2.4.3 Students with Documented Disabilities
- Policy 2.4.4 Student Conduct (plagiarism, other cheating, behavioral misconduct)
- Policy 2.5.8 Academic Performance
- Policy 2.5.3 Grade Appeal
- Policy 2.4.9 Student Concerns Re Faculty

#### Course Changes:

The College of the Rockies updates course outlines regularly to meet changing educational, employment and marketing needs. The instructor will notify students in writing of any updates to this outline during the semester. The instructor reserves the right to revise, add or delete material while meeting the learning outcomes of this course outline.

