GEOG 105E - Introduction to Mapping, GPS, Remote Sensing and GIS

3 credits, 3 hours lecture, 3 hours lab

The course will train students in the acquisition, presentation and interpretation of geospatial data. Topics will include understanding the nature of geographic data, scale, coordinate systems, and cartography, land survey systems, global positioning systems (GPS), vector and raster representations, and remote sensing through the use of geographic information systems (ArcGIS). Emphasis will be placed on practical applications, but some understanding of basic principles is also essential. Lab work will cover a broad spectrum of interest areas, but also linked where possible to environmental applications.

Instructor

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Office Hours

Tuesday: 1-2 pm and 4-5 pm
Wednesday: 1-2 pm
Thursday: 1-2 pm and 4-5 pm

Hours of Instruction

Lecture	Wednesday	6:30 - 9:30 pm, in S107
Lab	Thursday	6:30 - 9:30 pm, in CC267

Required Resources

Getting to Know ArcGIS
M. Law and A. Collins; 5th Edition

Course Outcomes

The student will be able to:
- Identify and effectively use GIS technologies with emphasis on ESRI's ArcGIS Desktop.
- Explain topographic maps, map scales, symbols, and projection systems.
- Explain GPS and GIS data, and demonstrate this in data analyses and in mapping.
- Describe and work with thematic maps and cartographic principles.
- Work directly with remotely sensed images, and create useable data.
- Discuss the basic principles of remote sensing.
- Explain GIS components and their functionality,
- Describe GIS and illustrate applications at work, as well as in everyday life.

Evaluation

Please note: It is a requirement that all assignments and tests must be submitted as a condition to passing this course.

Evaluation Method	Percentage	Due Date
Lab Assignments	40% (5% each)	One Week from Lab Date
Lecture Exercises	10%	Before lecture following week
Midterm Exam	20%	Week 6
Final Exam	30%	TBD
Total	100%	

A grade of C- is required for progression or transfer.

Grading System

Descriptor	Alpha Grade	4.0 Scale	Percent	Rubric for Letter Grades
Excellent	A+	4.0	> 92.9	Work shows in-depth and critical analysis, well developed ideas, creativity, excellent writing, clarity and proper format.
	A	4.0	85 – 92.9	
	A-	3.7	80 – 84.9	
Good	B+	3.3	77 – 79.9	Work is generally of high quality, well developed, well written, has clarity, and uses proper format.
	B	3.0	74 – 76.9	
	B-	2.7	70 – 73.9	
Satisfactory **Progression**	C+	2.3	67 – 69.9	Work has some developed ideas but needs more attention to clarity, style and formatting.
	C	2.0	64 – 66.9	
	C-	1.7	60 – 63.9	
Poor **Minimum Pass**	D+	1.3	55 – 59.9	Work is completed in a general way with minimal support, or is poorly written or did not use proper format.
	D	1.0	50 – 54.9	
Failure	F	0.0	< 50	Responses fail to demonstrate appropriate understanding or are fundamentally incomplete.

Proposed Schedule of Topics

Week	Main Topic	Chapters
1 Jan 8/9	**Lecture:** Introduction to GIS and ArcGIS **Lab:** No Lab	**1-3**
2 Jan 15/16	**Lecture:** Spatial Data **Lab:** Introduction	4-5
3 Jan 22/23	**Lecture:** Georeferencing and Coordinate Systems **Lab:** Projection	6
4 Jan 29/30	**Lecture:** Cartography **Lab:** Map Production	7-10
5 Feb 5/6	**Lecture:** GIS Data Capture and Collection **Lab:** Digitizing	11-14
6 Feb 12/13	**Midterm**	
7 Feb 19/20	**Reading Week**	
8 Feb 26/27	**Lecture**: GIS Database, Querying **Lab:** Database	15-17
9 Mar 4/5	**Lecture**: Metadata and Documentation **Lab:** GPS - Outdoor Field Activity	-
10 Mar 11/12	**Lecture:** Global Positioning Systems **Lab:** GPS - Importing Field Data	-
11 Mar 18/19	**Lecture:** Geoprocessing **Lab:** Vector Geoprocessing	18-19
12 Mar 25/26	**Lecture:** Raster GIS **Lab:** Raster	20
13 Apr 1/2	**Lecture:** Remote Sensing **Lab:** Remote Sensing Tutorial	-
14 Apr 8/9	**Final Review / Guest Lecture**	

Please Note:
Date and time allotted to each topic is subject to change. It is your responsibility as a student to contact the Office of the Registrar to complete the forms for Withdrawal or Change of Registration, and any other forms. Please refer to the list of important dates as noted in the Academic Schedule in the Keyano College Credit Calendar.

Performance Requirements

Student Attendance

Class attendance is useful for two reasons. First, class attendance maximizes a students' learning experience. Second, attending class is a good way to keep informed of matters relating to the administration of the course (e.g., the timing of assignments and exams). Ultimately, you are responsible for your own learning and performance in this course.

It is the responsibility of each student to be prepared for all classes. Students who miss classes are responsible for the material covered in those classes and for ensuring that they are prepared for the next class, including the completion of any assignments and / or notes that may be due.

Academic Misconduct

Students are considered to be responsible adults and should adhere to principles of intellectual integrity. Intellectual dishonesty may take many forms, such as:

- Plagiarism or the submission of another person's work as one's own
- The use of unauthorized aids in assignments or examinations (cheating)
- Collusion or the unauthorized collaboration with others in preparing work
- The deliberate misrepresentation of qualifications
- The willful distortion of results or data
- Substitution in an examination by another person
- Handing in the same unchanged work as submitted for another assignment
- Breach of confidentiality.

The consequences for academic misconduct range from a verbal reprimand to expulsion from the College. More specific descriptions and details are found in the Student Rights and Student Code of Conduct section of the Keyano College 2015-2016 credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Student Code of Conduct Policies.

In order to ensure your understanding of the concept of plagiarism, you must successfully complete the online tutorial found on ilearn.keyano.ca. Then print the certificate, sign it, and show it to each of your instructors. Your course work will not be graded until you show this signed certificate.

Specialized Supports

Counselling and Disability Services

Counselling Services provides a wide range of specialized counselling services to prospective and registered students, including personal, career and academic counselling.

SKILL Centre

The SKILL Centre is a learning space in the Clearwater Campus at Keyano College where students can gather to share ideas, collaborate on projects and get new perspectives on learning from our tutorial staff.

The SKILL Centre, through a variety of delivery methods, provides assistance in skill development to Keyano students. Assistance is provided by instructors, staff and student tutors. Individuals wishing to improve their mathematics, writing, grammar, study, or other skills, can take advantage of this unique service.