



COURSE OUTLINE
ADVANCED TOPICS IN GEOGRAPHICAL INFORMATION SCIENCES

Instructor: Dr. Chris Bone
Office Hours: Wednesdays 12:00pm – 1:00pm and by appointment
Office Location: DTB A237
Contact: chrisbone@uvic.ca

Teaching Assistant: Alex Goudine
Contact: a.goudine@gmail.com

COURSE DESCRIPTION

In this course, students learn how to utilize computer programming for performing a variety of geospatial processing operations. Topics covered in this course include developing geospatial models, data types, programming statements, database management through programming, project management, the geospatial technology industry, and the range of available geospatial platforms. The course focuses on ArcGIS Pro, utilizing model builder, Python programming, and ArcPy modules. At the completion of this course, students will be able to program in Python to complete a variety of geospatial tasks in ArcGIS Pro.

KEY THEMES: Geospatial processing, programming, Python, geospatial platforms

LEARNING OUTCOMES

- Demonstrate the ability to develop geospatial workflows to solve spatial data problems.
- Exhibit competency in utilizing Python for geoprocessing in ArcGIS Pro
- Provide research questions and solutions to a self-defined project that requires programming
- Exhibit competence in publishing map and data services to the web
- Demonstrate the ability to effectively communicate programming solutions and research findings in both web and oral venues.

EVALUATION

Assignments (3)	= 40%*
Final Project Proposal	= 10%
Final Project	= 40%
Presentations and Evaluations	= 10%

**Assignments are not equally weighted*

WEEKLY CALENDAR

WEEK	DATE	
1	January 8/9	Geospatial Industry and Platforms
2	January 15/16	Automating Geoprocessing
3	January 22/23	Geospatial Models and Testing
4	January 29/30	Geospatial Programming with Python
5	February 6/7	Statements and Functions
6	February 12/13	Geospatial Queries with Python
7	February 19/20	Reading Break
8	February 26/27	Cursors for Data Access
9	March 5/6	Cursors for Data Manipulation
10	March 12/13	Project Management
11	March 19/20	Automating Mapping
12	March 26/27	Preparing for the Geospatial Job Market
13	April 2/3	Final Presentations

SCHEDULE FOR COURSE DELIVERABLES

Assignment 1: Developing and Testing Geospatial Workflows and Models (10%)

Due Monday, January 28th at 11:55pm

Assignment 2: Geoprocessing with Python (15%)

Due Friday, February 15th at 11:55pm

Assignment 3: Spatial Data Analysis with Python (15%)

Due Monday, March 11th at 11:55pm

Final Project Proposal (10%)

Due Friday, February 15th at 11:55pm

Final Project (40%)

Due Sunday, March 31st at 11:55pm

Project Presentations and Evaluations (10%)

In class during final week of the term

GRADING SYSTEM

As per the Academic Calendar:

Grade	Grade point value	Grade scale	Description
A+ A A-	9 8 7	90-100% 85-89% 80-84%	Exceptional, outstanding and excellent performance. Normally achieved by a minority of students. These grades indicate a student who is self-initiating, exceeds expectation and has an insightful grasp of the subject matter.
B+ B B-	6 5 4	77-79% 73-76% 70-72%	Very good, good and solid performance. Normally achieved by the largest number of students. These grades indicate a good grasp of the subject matter or excellent grasp in one area balanced with satisfactory grasp in the other area.
C+ C	3 2	65-69% 60-64%	Satisfactory, or minimally satisfactory. These grades indicate a satisfactory performance and knowledge of the subject matter.
D	1	50-59%	Marginal Performance. A student receiving this grade demonstrated a superficial grasp of the subject matter.
F	0	0-49%	Unsatisfactory performance. Wrote final examination and completed course requirements; no supplemental.
N	0	0-49%	Did not write examination or complete course requirements by the end of term or session; no supplemental.

GEOGRAPHY DEPARTMENT INFO

Geography Department website: <http://geog.uvic.ca>

Undergraduate Advisor: Dr. Phil Wakefield – geogadvisor@uvic.ca

COURSESPACES

Please visit your CourseSpaces site to access the website for Geog 428.

POLICY ON LATE ASSIGNMENTS

Late assignments will be penalized 10% per day. Assignments will not be accepted after 5 days past the due date.

PLAGIARISM

Plagiarism is not permitted. For more information about what constitutes plagiarism, please visit: <http://www.uvic.ca/learningandteaching/students/resources/expectations/>

Policy on Academic Integrity: <http://web.uvic.ca/calendar2015-01/FACS/UnIn/UARe/PoAcl.html>

ACCESSIBILITY

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a documented disability/health consideration that may require accommodations, please feel free to approach me and/or the Centre for Accessible Learning as soon as possible. The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations <http://www.uvic.ca/services/cal/>. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

POSITIVITY AND SAFETY

The University of Victoria is committed to promoting, providing and protecting a positive and safe learning and working environment for all its members.

COURSE EXPERIENCE SURVEY (CES)

I value your feedback on this course. Towards the end of term, as in all other courses at UVic, you will have the opportunity to complete an anonymous survey regarding your learning experience (CES). The survey is vital to providing feedback to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future. The survey is accessed via MyPage and can be done on your laptop, tablet, or mobile device. I will remind you and provide you with more detailed information nearer the time but please be thinking about this important activity during the course.