



GEOGRAPHY FINAL COURSE OUTLINE: FALL 2016

GEOGRAPHY 567

GFC Hours (3-3)

Introduction to Programming in Geographic Information Systems

Section	Days	Time	Location
LEC 01	TuTh	12:30 – 13:45	EEEL 151
LAB 01	Fr	09:00 – 11:50	ES 415

Instructor: Darren Bender	Office: ES 338
Telephone: 220 6398	Email: dbender@ucalgary.ca

Please note: The appropriate emergency evacuation assembly point for classes taught in EEEL and Earth Sciences is ICT Food Court.

Official Course Description:

Introduction to computer programming for customizing and automating a GIS. Topics include object-oriented programming techniques, advanced geoprocessing, scripting, and automation using a programming language such as Python or Visual Basic.

Prerequisite: Geography 357. **Notes:** Geography 457 is recommended.

Course Preparation:

This course assumes no prior knowledge of programming. However, students are expected to understand fundamental GIS concepts. Past experience with the ArcGIS application suite is essential. At least one advanced undergraduate-level course in GIS is strongly recommended.

Required Text(s)/Readings:

Zandenberg, Paul A. 2013. Python Scripting for ArcGIS. ESRI Press, Redlands, CA. 368 pp

Note: Readings from other sources may be assigned. Notifications of these will be posted on D2L. They will not require purchase.

Administrative Policies and Procedures

Course administrative policies and procedures related to office hours, assignments, lab submissions, online discussions, sending questions to the instructor, etc. are available on the course web page on the university D2L site at: <http://d2l.ucalgary.ca>. All students are required to familiarize themselves with course policies and procedures.

Course Objectives:

This course provides an introduction to programming and is intended for students with no previous programming experience. The focus of the course is to teach fundamental programming skills using the Python programming language, with particular application to GIS-related tasks within ArcGIS. Approximately one-half of the course will be spent learning general and transferable programming skills, and the second half will cover GIS-specific applications. GIS-specific tasks will include basic scripting, batch processing and automation of repetitive tasks, and geoprocessing tasks.

Lab Assignments:

Students will undertake a series of lab assignments designed to provide hands-on experience programming with the Python programming language, particularly within the ArcGIS desktop software. All assignments must be submitted using the Desire2Learn (D2L) system. Email submissions will not be accepted.

Term Project:

All students will complete a term project due the last day of lectures (6 December 2013). For their term project, each student will develop a custom tool using Python within ArcGIS. Term project guidelines will be provided to students' mid-way through the course. All projects must be submitted using the D2L system. Email submissions will not be accepted.

Evaluation:

Students will be evaluated in two areas: (1) their knowledge of lecture material, and (2) programming assignments/term project. All exams will be 'open-book' and will test the students' knowledge of the conceptual issues of programming and application development in GIS. The application of this knowledge will be evaluated through laboratory assignments and a term project. The distribution of marks will be:

Mid-term tests (3):	45%	(see schedule on D2L)
Laboratory assignments (5):	45%	(see assignment schedule on D2L)
Term project:	10%	(due last day of lectures)

There is no final exam scheduled for this course.

Grading System:

96-100	A+	77-80	B	59-61	C-
90-95	A	71-76	B-	55-58	D+
86-89	A-	65-70	C+	50-54	D
81-85	B+	62-64	C	0-49	F

For additional detailed course information posted by the Instructor, see the course D2L page online at: <https://d2l.ucalgary.ca>.

USRI

At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses (www.ucalgary.ca/usri). Your responses make a difference - please participate in USRI Surveys.

Writing across the Curriculum

Writing skills are not exclusive to English courses and, in fact, should cross all disciplines. The University supports the belief that throughout their University careers, students should be taught how to write well so that when they graduate their writing abilities will be far above the minimal standards required at entrance. Consistent with this belief, students are expected to do a substantial amount of writing in their University courses and, where appropriate, members of faculty can and should use writing and the grading thereof as a factor in the evaluation of student work. The services provided by the Writing Support Services can be utilized by all undergraduate and graduate students who feel they require further assistance.

Principles of Conduct

The University of Calgary Calendar includes a statement on the Principles of conduct expected of all members of the University community (including students, faculty, administrators, any category of staff, practicum supervisors and volunteers) whether on or off the University's property. This statement applies in all situations where the members of the University community are acting in their University capacities. All Members of the University Community have a responsibility to familiarize themselves with this statement which is available at: <http://www.ucalgary.ca/pubs/calendar/current/j-2.html>

Plagiarism

Academic dishonesty is not an acceptable activity at the University of Calgary and students are **strongly advised** to read the Student Misconduct section in the University Calendar. Quite often, students are unaware of what constitutes academic dishonesty or plagiarism. The most common are 1) presenting another student's work as your own 2) presenting an author's work or ideas as your own without proper referencing and 3) using work completed for another course. This activity will not be tolerated in this course and students conducting themselves in this manner will be dealt with according to the procedures outlined in the calendar. <http://www.ucalgary.ca/honesty/plagiarism>

Academic Accommodations:

It is the student's responsibility to request academic accommodations according to the university policies and procedures listed below. The student accommodation policy can be found at: www.ucalgary.ca/policies/files/policies/student-accommodation-policy.pdf

Students needing an accommodation because of a Disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities. The procedure can be found at: www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities_0.pdf

Students needing an accommodation based on a Protected Ground other than Disability, should communicate this need, in writing, to the Instructor.

Freedom of Information and Protection of Privacy

FOIP: The Freedom of Information and Protection of Privacy (FOIP) legislation disallows the practice of having students retrieve assignments from a public place, e.g., outside instructor's office, the department office, etc. Term assignments will be returned to students individually, during class or during the instructor's office hours; if students are unable to pick up their assignments from the instructor, they provide the instructor with a stamped, self-addressed envelope to be used for the return of the assignment.

Re: Posting of Grades and Picking-up of Assignments

- All assignments will be handled through D2L or personally.
- Their own grades will be available to each student on D2L by password access. Grades will not be available at Geography's main office.

Contact Information for Student and Faculty Representation

- SU VP Academic Phone: 220-3911 and e-mail: suvpaca@ucalgary.ca
- SU Faculty Rep. Phone: 220-3913 and e-mail: arts1@ucalgary.ca

The students ombudsman office information can be found at:

<http://www.su.ucalgary.ca/page/affordability-accessibility/su-structure/contact-info>

Campus Safewalk

Campus Security, in partnership with the Students' Union, provides the Safewalk service, 24 hours a day, to any location on Campus including the LRT, parking lots, bus zones and University residences. Contact Campus Security at 220-5333 or use a help phone, and Safewalkers or a Campus Security officer will accompany you to your Campus destination.

Faculty of Arts Program Advising and Student Information Resources

- Have a question, but not sure where to start? The new Faculty of Arts Students Centre is your information resource for everything in Arts! Drop in at SS 102, call us at 403-220-3580 or email us at ascarts@ucalgary.ca you can also visit the Faculty of Arts website at <http://arts.ucalgary.ca/undergraduate> which has detailed information on common academic concerns.
- For registration (add/drop/swap), paying fees and assistance with your Student Centre, contact Enrolment Services at (403) 210 7625 or visit them at the MacKimmie Library Block.

Contact for Students Union Representatives for the Faculty of Arts:

arts1@su.ucalgary.ca, arts2@su.ucalgary.ca, arts3@su.ucalgary.ca, arts4@su.ucalgary.ca