



GEOGRAPHY FINAL COURSE OUTLINE: FALL 2012

GEOGRAPHY 567 GFC Hours (3-3) Introduction to Programming in Geographic Information Systems

Section	Days	Time	Location
LEC01	Mo	18:00 - 20:45	EEEL 151
LAB01	Th	15:30 - 18:15	ES 407

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 or consent of the Department. 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.

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.

Required Text(s)/Readings:

One of the following is recommended for this course (and both are available electronically through the U of C Library website):

Beginning Python: Using Python 2.6 and Python 3.1 (2010), by James Payne. Wrox Publishing. ISBN: 978-0470414637

Learning Python: Powerful Object-Oriented Programming, 4th Edition (2009), by Mark Lutz. O'Reilly Publishing ISBN: 978-0596158064.

Optional Readings:

ESRI, 2005. *Writing Geoprocessing Scripts with ArcGIS*. ESRI Press, Redlands, CA. (online version available)

Students are also encouraged to make full use of the World Wide Web, Internet news groups, and online support from ESRI.

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 Blackboard system. Email submissions will not be accepted.

Term Project:

All students will complete a term project due the last day of lectures (9 December 2011). For their term project, each student will develop a mapping automation 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 Blackboard 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 (2):	40%	(dates TBA in mid-October and late November)
Laboratory assignments (5):	45%	(see assignment schedule on Blackboard)
Term project:	15%	(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 Blackboard at:

<http://blackboard.ucalgary.ca/>

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 Centre in the Effective Writing Office 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 **required** 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.

Disability Resource Centre Accommodations

If you are a student with a documented disability who may require academic accommodation and have not registered with the Disability Resource Centre, please contact their office at 220-8237. Students who have not registered with the Disability Resource Centre are not eligible for formal academic accommodation. You are also required to discuss your needs with your instructor no later than fourteen (14) days after the start of this course.

Re: Posting of Grades and Picking-up of Assignments

- All assignments will be handles on Blackboard.
- Their own grades will be available to each student on Blackboard 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: suypaca@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 Program Information Centre (PIC) is your information resource for everything in Arts! Drop in at SS110, call us at 403-220-3580 or email us at artsads@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 program planning and advice, contact the Student Success Centre (formerly the Undergraduate programs Office) at (403) 220-5881 or visit them in their new space on the 3rd Floor of the Taylor Family Digital Library.
- For registration (add/drop/swap), paying fees and assistance with your Student Centre, contact Enrolment Services at (403) 210-ROCK [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