



## Geog 539: Geographic Data Integration and Visualization

H (3-3) (Area III) Fall, 2006: Tentative Schedule] – last updated Sept 11, 2006

**Time table:** Lec 01, Tues, Thurs 8 :30 – 9 :45, ES307  
Lab 01, Weds 8:00 – 11:00, ES407

### Instructor:

Dr Geoffrey Hay

Office: ES 454

Office Hours: By appointment/email

Phone: 220-4768

Email: [gjhay@ucalgary.ca](mailto:gjhay@ucalgary.ca)

### Course Assistant: None

**Course Content:** The objective of this course is to provide a hands-on introduction to students for programming in IDL (Interactive Data Language) from a geographical perspective. No previous programming experience is required. IDL is a programming and visualization environment that facilitates numerical modeling, data analysis, image processing and visualization – that can be linked to, and used in ENVI (Environment for visualizing images). ENVI is a software package for analyzing remotely sensed data (and other image types), and includes tools for image analysis, fly-throughs, spatial filtering, statistics, advanced spectral tools for hyperspectral imagery, along with a complete set of tools for radar and fundamental GIS operations. ENVI is written in IDL, and both programs provide partial access to much of their code, thus – time permitting - we will explore opportunities to customize the ENVI graphical user interface (GUI) with programs we will create in IDL. Emphasis will be on IDL, labs and a student project/presentation.

**Prerequisites:** Geography 339, and two of 433, 439, 457 - or consent of instructor

**Text: required – None.** Training Manuals in PDF will be provided by instructor freely to the students

### Text: recommended

- An Introduction to Programming in IDL by Kenneth P. Bowman. 2006, Elsevier. ISBN 13: 978-0-12-088559-6 (approx \$65 on Amazon.ca)

### Grading (weighted)

- *Class participation & student project evaluations* = 10%
- *Midterm (in class - 75 mins)* = 30%
- *Final Project: presentation (30%), paper/code (30%)* = 60%

**NOTE: it is not essential to pass all elements/components to pass the course as a whole. There will be no Registrar- scheduled final exam.**

### 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

**Tentative Schedule – subject to change, depending on class needs**

<b>Wk</b>	<b>Date M/W</b>	<b>CONTENT</b>	<b>LABS</b>
1	Sept 12 Sept 14	- Overview of Content - IDL Quick Start (QS) overview, IDL demos, data setup BB, login online at ITT for demo's - Intro to IDL	<a href="http://www.itvis.com/tutorials/index.asp">http://www.itvis.com/tutorials/index.asp</a>
2	Sept 19 Sept 21	- (QS) 2&3D Plots – iTools [online] - (QS) Volume rendering	<b>Sept 20:</b> (QS) Contours and Surfaces, Working with images
3	Sept 26 Sept 28	- (QS) Advanced Signal Processing - Intro to ENVI	<b>Sept 27:</b> (QS) Advanced Image Processing), Working with Maps
4	Oct 03 Oct 05	- (QS) Advanced Graphics - (Intro) Variables	<b>Oct 04</b> (QS) Programming in IDL, (Intro) A tour of IDL ,(Intro) IDL Basics
5	Oct 10 Oct 12	- (Intro) Programming - (Mixed) Programming Structure - Design	<b>Oct 11</b> (Intermediate) Structures
6	Oct 17 Oct 19	- Project Example – Guest Lecture - (Intro) Strings	<b>Oct 18</b> (Intro) File I/O
7	Oct 24 Oct 26	- <b>MIDTERM 30% (in class – 75 mins)</b> - Project work	<b>Oct 25</b> - Project work
8	Oct 31 Nov 02	- Project work - Project work	<b>Nov 01</b> - Project work
9	Nov 07 Nov 09	- Project work - Project work	<b>Nov 08</b> - Project work
10	Nov 14 Nov 16	- <b>READING DAYS (NO CLASS)</b> - Project work	<b>Nov 15</b> - Project work
11	Nov 21 Nov 23	- Presentation (2 per class 30 mins ea) - Presentation (2 per class 30 mins ea)	<b>Nov 22</b> - Project work
12	Nov 28 Nov 30	- Presentation (2 per class 30 mins ea) - Presentation (2 per class 30 mins ea)	<b>Nov 29</b> - Project work
13	Dec 05 Dec 07	- Presentation (2 per class 30 mins ea) - Presentation (2 per class 30 mins ea)	<b>Dec 06</b> - Project work
<b>End Fall Session (Dec 07), Final Exams ( Dec 10-19)</b>			

For additional detailed course information posted by the Instructor see Blackboard at:  
<http://blackboard.ucalgary.ca/>

## 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.

### Re: Posting of Grades and Picking-up of Assignments

Assignments will be handed back only in class or by the Professor at pre-arranged time(s).

To receive your assignment back via mail, please include an appropriately sized self-addressed, stamped envelope with your assignment when handing in to the professor.

Posting of grades will be at the discretion of each Professor and, if posted, they will be scrambled. 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](mailto:suvpaca@ucalgary.ca)

SU Faculty Rep. Phone: 220-3913 and e-mail: [socialscirep@su.ucalgary.ca](mailto:socialscirep@su.ucalgary.ca)

### 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.