

**GEOGRAPHY 639
H(3-3) Area III**

Advanced Spatial Analysis and Modelling

Timetable: See current Infonet information at: <http://www.ucalgary.ca/InfoNet/> **Catalogue #:** See current information on Infonet

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Official Course Description:

History of spatial modelling in geography; comprehensive coverages of techniques, spatial analysis and spatial modelling as currently used within GIS and remote sensing.

Prerequisite:

Consent of the Department

Course Description:

This course provides an in depth look at both the theoretical and applied aspects of spatial statistics and modelling. Geolocated datasets coupled with the importance of space has facilitated an increased interest in spatial statistics and modelling. Data in close proximity in space are often more similar than that of data located farther away. A spatial statistical model attempts to take this spatial dependence of the data into account. The scope of this course is to make students aware of such spatial processes and arm them the comprehensive knowledge and analytical tools required to undertake spatial modeling. In addition everywhere environments change, the ability to sample this change is limited. As a result, this course will also address the issue of sampling (or undersampling) related to interpreting spatial processes.

Main topics that will be covered in the course:

- Introduction to Spatial Analysis
- Spatial Processes
- Point Pattern Analysis
- Interpolation Methods and Trend Surface Analysis

- Sampling and Aliasing
- Geostatistics
- Spatial Autocorrelation and Spatial Regression
- Geographically Weighted Regression
- Empirical Orthogonal Functions
- Canonical Correlation Analysis

Text(s)/Readings:

No specific text is required for this course, however, the following texts are recommended:

Rogerson, P.A. (2001) *Statistical Methods for Geography* Sage Publications Ltd., London. 236 pp.

Fotheringham, A. S., Brunson, C., Charlton, M., (2000), *Quantitative Geography. Perspectives on Spatial Data Analysis.* London: SAGE. 270 pp.

Lab Assignments:

Students will undertake a series of lab assignments designed to provide hands-on experience programming with popular statistical packages (i.e. SPSS, S-PLUS). Students will also be exposed statistical routines within ArcGIS.

Grading*

The distribution of marks will be:

Laboratory Assinments (n=6) @ 5 marks each:	30%
Journal Article Review: Presentation	5%
Report	15%
Project: Proposal	5%
Literature Review	10%
Presentation	5%
Final Report	25%
Participation	5%

Grading Scheme:

Grade	Percent	Graduate Description
A+	95.0 - 100	Outstanding
A	90.0 - 94.9	Excellent – superior performance showing comprehensive understanding of the subject matter

* subject to change before classes officially start.

A-	85.0 – 89.9	Very good performance
B+	80.0 – 84.9	Good performance
B	75.0 – 79.9	Satisfactory performance
B-	70.0 – 74.9	Minimum pass for students in the Faculty of Graduate Studies
C	60.0 – 69.9	All grades below B- are indicative of failure at the graduate level and cannot be counted toward Faculty of Graduate Studies course requirements.
D	50.0 – 59.9	
F	<50.0	

Academic Misconduct:

Students are required to be familiar with the University of Calgary regulations pertaining to academic misconduct, particularly plagiarism. This course will have a zero-tolerance policy for academic misconduct. Please consult the Faculty of Graduate Studies 2004-2005 Calendar for details on Student Misconduct.

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.

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: suypaca@ucalgary.ca
- SU Faculty Rep. Phone: 220-3913 and e-mail: 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.

"It is the student's responsibility to request academic 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."