

**GEOG 639 H (3-3) AREA III****ADVANCED SPATIAL ANALYSIS AND MODELING**

<b>Timetable</b>	Lec #01	M	14:00	ES 920	<b>Catalogue #</b>
	Lab #01	T	16:00	ES 415	

**Instructor:** Stefania Bertazzon  
 Office: ES 336  
 Office hours: Wed. 14:00-16:00  
 Phone: 220-7355  
 e-mail: bertazzs@ucalgary.ca

**TA: TBA**  
 Office: TBA  
 Office hours: TBA  
 Phone: TBA  
 e-mail: TBA

**Course Description:**

Scope of the course is the analysis and comprehension of spatial stochastic processes. Geographical analysis has always concerned itself with spatial processes and spatial variation, but only recently has the discipline become fully aware of the inherent properties of space and spatial processes, that affect the statistical properties of spatial data, rendering most of the traditional analytical tools inefficient, if not unreliable. The scope of the course is to provide students with the analytical tools to understand spatial phenomena and to stimulate their critical thinking about space and spatial processes. The most recent conceptual and computational developments will be considered, and diverse applications will be studied using state of the art software.

**Main topics that will be covered in the course:**

- Introduction to Spatial analysis;
- Spatial Processes;
- Point Pattern Analysis;
- Spatial Clustering;
- Spatial Autocorrelation;
- Spatial Interpolation Methods;
- Geostatistics;
- Spatial Regression Analysis;
- Conceptualization of Space;
- Dynamic Modelling.

**Evaluation:**

6 labs,	5% each;	30% of course grade.
2 review tests,	20% each;	40% of course grade.
Project:		
Project Proposal,	5%;	
Literature Review,	10%;	
Final Project,	15%;	30% of course grade.

Class Participation is not formally graded, but students are strongly encouraged to share their ideas, contributions, and questions in class.

Students are allowed to work in small groups (2 – 4) on the lab exercises, but lab exercises and final project must be completed individually by each student.

Lab exercises are due the week after the assignment (unless otherwise specified).

The final project should be viewed as an opportunity to perform an insightful spatial analysis on the research topic and data of every student’s MGIS (or thesis) project. If this is not possible, other datasets can be used, but **it is strongly recommended** that the topic and data are relevant to the student’s main research interests. It is my belief that only this choice will ensure:

- In-depth comprehension of the research question;
- Optimal choice of the most appropriate spatial analysis technique(s);
- Full appreciation of the potential and critical issues of the selected analytical tool(s).

A detailed guideline for the project completion will be provided in class.

Letter grades

96	-	A+		86 - 91.9	A-	76	-	B	66 - 70.9	C+	58	-	C-	50	-	D	
100%						80.9					61.9			53.9			
92	-	A		85.9 - 81	B+	71	-	B-	62 - 65.9	C	54	-	D+	< 50		F	
95.9				%		75.9					57.9						

**Late Policy:**

Lab assignments are due at the beginning of the lab sessions the week following the assignment and are to be handed in to the Teaching Assistant. There are no exceptions and those assignments handed in late will be subject to an immediate 10% penalty followed by a 10% reduction in grade for each day thereafter (weekend and holidays included). Medical related circumstances will require a note from a physician.

**Textbooks:**

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

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

Additional material will be suggested in class and made available in the collections room (ES 457) or on the Blackboard

Class notes will be posted on the Blackboard: <http://blackboard.ucalgary.ca/>

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\*subject to change before classes officially start.

### 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.

### Disability Resource Centre Accommodations

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.