

Department of Geography – University of Victoria
Geography 418 – Advanced Spatial Analysis

September 2014

Instructor

Dr. Trisalyn Nelson (trisalyn@uvic.ca)
Tel: 472-5620; Office: DTB A237
Office hours: Tuesday 2:30-3:30

Lectures

Tuesday and Wednesday 1:30 - 2:20pm
MAC D288

Teaching Assistant

Robin Kite (robinkite@gmail.com)

Lab

DTB A251 Thursday 2:30 – 5:30; 6:30 – 9:30
See Moodle

Learning Objectives

The goals of this course are for students to gain theoretical and applied experience in spatial statistics and advanced geographical analysis. Theoretical understanding will be emphasized through lectures and readings. Labs and a final project are designed to provide students with hands on experience applying theory to a range of data sets.

Textbook

O’Sullivan, D. and Unwin, D.J. 2003. Geographic Information Analysis. John Wiley & Sons, New Jersey.

O’Sullivan, D. and Unwin, D.J. 2010. Geographic Information Analysis, 2nd Edition. John Wiley & Sons, New Jersey.

Evaluation

Labs = 45%
Participation = 5%
Final Project = 50%

A+	A	A-	B+	B	B-	C+	C	D	F
90-100%	85-89%	80-84%	77-79%	73-76%	70-72%	65-69%	60-64%	50-59%	<49%

Undergraduate Grading**

<i>Passing Grades</i>	<i>Description</i>
A+ A A-	Exceptional, outstanding and excellent performance. Normally achieved by a minority of students. These grades indicate a student who is self-initiating, exceeds expectation and has an insightful grasp of the subject matter.
B+ B B-	Very good, good and solid performance. Normally achieved by the largest number of students. These grades indicate a good grasp of the subject matter or excellent grasp in one area balanced with satisfactory grasp in the other area.
C+ C	Satisfactory, or minimally satisfactory. These grades indicate a satisfactory performance and knowledge of the subject matter.
D	Marginal Performance. A student receiving this grade demonstrated a superficial grasp of the subject matter.
COM	Complete (pass). Used only for 0-unit courses and those credit courses designated by the Senate. Such courses are identified in the course listings.

** As per stated in the 2014-2015 Calendar

Late Policy

10% will be deducted for every day late. Exceptions will only be granted for medical reasons (requiring a written note from a medical practitioner stating your inability to attend class) or other extreme personal crises. Only the course instructor can grant exceptions. Please do not try and negotiate exceptions with your TA.

Lab Access Policy

Access to the Geomatics Laboratory is restricted for security purposes. You are required to purchase an entry card, which will enable you to gain access to that facility anytime that Cornett Building is open and classes are not in progress. The cost of a card is \$20.00. A \$15 refund will be issued at the end of the semester on the return of the card, if the card is returned by the last day of class.

If you lose your card a \$10 charge will be charged for a replacement. Cards will only be available for purchase during the 1st two weeks of semester at posted times. You will also be required at time of purchase to sign that you have read and will follow the Geomatics Teaching Laboratory's rules and guidelines for appropriate use.

Class Climate

UVic has made a conscientious effort to increase diversity in the student, staff and faculty member populations. To ensure that all class members feel welcomed and equally able to contribute to class discussions, we will all endeavour to be respectful in our language, our examples, and the manner in which we conduct our discussions and group work.

If you have any concerns about the climate of the class, please contact me.

Academic Standards

Plagiarism will be dealt with in accordance with university policy. Please review calendar for details. Be sure and reference all material you use. If you have any questions, please contact me.

Students with a Disability

If you have any type of disability, there are support systems, resources, and accommodation actions available to you. If you wish to access any of these supports, resources or accommodations, I encourage you to contact the Resource Centre for Students with a Disability (<http://www.stas.uvic.ca/osd/home.ihtml>) and I would be more than happy to work with you to ensure your success in this course. Please Note: You are under no obligation to disclose your disability.

Class Schedule – Subject to change

Date	Labs	Lecture	Title	Readings
03-Sep		1	Introduction	Chapter 2
09-Sep		2	Spatial pattern and process	Chapter 4
10-Sep		3	Point Pattern Analysis 1	Chapter 5
16-Sep	Lab1	4	Statistics Review	Appendix A
17-Sep	Lab1	5	No Class	Chapter 6
23-Sep	Lab1	6	Point Pattern Analysis 2 & librarian	Fortin, M. J., & Jacquez, G. M. (2000). Randomization tests and spatially auto-correlated data. <i>Bulletin of the Ecological Society of America</i> , 81(3), 201-205.
24-Sep	Lab1	7	Randomization	Boots, B. (2003). Developing local measures of spatial association for categorical data. <i>Journal of Geographical Systems</i> , 5(2), 139-160.
30-Sep	Lab2	8	Joint counts and Categorical Data	
01-Oct	Lab2	9	Quantitative spatial autocorrelation	Chapter 7, 8.1-8.4
07-Oct	Lab2	10	Spatial neighbourhoods	Chapter 2.3
08-Oct	Lab2	11	Hot spots	Nelson, T. A., & Boots, B. (2008). Detecting spatial hot spots in landscape ecology. <i>Ecography</i> , 31(5), 556-566.
14-Oct	Lab3	12	Geostatistics	Chapter 9
15-Oct	Lab3	13	Modelling Biodiversity	Fitterer, J. L., Nelson, T. A., Coops, N. C., & Wulder, M. A. (2012). Modelling the ecosystem indicators of British Columbia using Earth observation data and terrain indices. <i>Ecological Indicators</i> , 20, 151-162.
21-Oct	Lab3	14	Space-Time/Movement	

22-Oct	Lab3	15	MAUP	Jelinski, D. E., & Wu, J. (1996). The modifiable areal unit problem and implications for landscape ecology. <i>Landscape ecology</i> , 11(3), 129-140.
28-Oct		16	Trends	Nelson, T. A. (2012). Trends in spatial statistics. <i>The Professional Geographer</i> , 64(1), 83-94.
29-Oct		17	Project Prep	
04-Nov		18	Project Prep	
05-Nov		19	Project Prep	
11-Nov		20	Reading week	
12-Nov		21	Reading week	
18-Nov		22	Presentations	
19-Nov		23	Presentations	
25-Nov		24	Presentations	
26-Nov		25	Presentations	
02-Dec		26	Presentations	
03-Dec		27	Presentations	

418 Term Project

The goal of the term project is to provide students with an opportunity to apply advanced spatial analysis techniques (learned in the course) to a research question of their choice. In total, the term project is worth 50% of your mark.

Part 1 – Proposal

Mark weighting - 5% of overall mark
Length ~2 pages

The focus of the proposal is to ensure that you have identified a suitable research question, have obtained data, and are starting to read the pertinent literature. Please include:

- A short literature review that demonstrates why your question is important (1/2 page)
- A clear research question
- Suggest preliminary methods
- Identify potential issues
- Indicate source of data

Part 2 – Written Report

Mark weighting - 30% of overall mark
Length ~10 pages of text

Part 3 – Oral Presentation

Mark weighting - 15% of overall mark

Your final results will be presented to the class in a Pecha Kucha format presentation. Pecha Kucha format restrictions are that you present 20 slides, that are each displayed for 20 seconds. Minimal text and lots of graphics. Each Pecha Kucha presentation will be 6 minutes and 40 seconds in length. There will be 2 minutes for questions. Your PPT presentations should be set up to flip slides automatically.

In your presentation include:

Project context
Project Goal
Data and Study Area Description
Methods
Results and Discussion
Conclusions

Due Dates

Proposal: Oct 28th
Final Paper: November 26th
Presentation: TBD

Something Fun!

I challenge you to do something creative with spatial statistics. Play a song, write a poem, interpretive dance a concept, do an art project... Whatever your medium, show up to a class (between Sept 9th and Oct 28th) with creative spatial statistics entertainment and I will bump your lowest lab mark by 10%.