Geography 216: Introduction to Quantitative methods in Geography

Lectures:
General subjects to be covered in the lecture portion of the course. This list provides the student with an idea of how the course will develop, the amount of time spent may vary as this is a new course and the pace is not yet determined. The course will be run as cooperatively as possible.

I Basic Statistical Concepts in Geography
- 1 Introduction: The Context of Statistical Techniques
- 2 Geographic Data: Characteristics and Preparation

II Descriptive Problem Solving in Geography
- 3 Descriptive Statistics
- 4 Descriptive Spatial Statistics

III The Transition to Inferential Problem Solving
- 5 Probability
- 6 Basic Elements of Sampling
- 7 Estimation in Sampling

IV Inferential Problem Solving in Geography
- 8 Elements of Inferential Statistics
- 9 Two-Sample and Dependent-Sample Difference Tests
- 10 Three-or-More-Sample Difference Tests: Analysis of Variance Methods
- 11 Goodness-of-Fit and Categorical Difference Tests
- 12 Inferential Spatial Statistics

V Statistical Relationships between Variables
- 13 Correlation
- 14 Regression
- 15 Geographic Problem Solving in Practical Situations

Research Project:
Each student will create a research question, develop a hypothesis, collect secondary data, use methods and applications learned in class to analyze the data. Each student will submit a 3-4 page type written report (1,000 words) with additional pages in the form of appendices of all calculations and with a disc of the data used in the analysis.

It is expected that there will be time during the lab sessions for students to do some of the research and data analysis for the project. There will be 4 periods of lab time devoted to the project. That said students should be prepared to spent additional time in the lab and library to prepare the full report.

Lab Assignments:
There will be 5 lab assignments, 2 weeks each. Lab sessions will be weekly.
1. Descriptive Statistics
2. Probability
3. Sampling Distributions
4. Chi-Squares
5. Correlation & Regression

Exams:
There will be a midterm and a final exam given in this course. The final will be open book **and is cumulative**.

Required Textbook:
McGrew, J. Chapman and C. B. Monroe, *An Introduction to Statistical Problem solving in Geography, 2nd Edition.*

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Weekly Outline - Winter 2004

Camosun College (Revised January 18, 2004)

Week	Lab (Wed)	Lecture (Fri)	Other
1 Jan 7/9	No Lab - protocols and procedures Lecture / Course outlines Introduction to Geographic Data	Geographic Data - Types and measurements	Chapter 1
2 Jan 14/16	Intro to SPSS	Geographic Data	Chapter 2
3 Jan 21/23	Entering your own data set and developing descriptive statistics (unmarked), internet data searches	Descriptive Statistics	Chapter 3
4 Jan 28/30	Marked Lab 1: Descriptive statistics: Census data	Descriptive Spatial Statistics	Chapter 4
5 Feb 4/6	Project data week, looking for data and how to write a report.	Probability	Chapter 5
6 Feb 11/13	Marked Lab 2: Probability: PPT / location and rainfall	Reading Break	
7 Feb 18/20	Review Project data searches	Mid - Term Exam	
8 Feb 25/27	Go over mid-term. Sampling lab, (unmarked) (project hypothesis and data set due)	Sampling and estimation (a little)	Chapter 6 / 7
9 Mar 3/5	Project day - first data set on disk, descriptive statistics write-up	Introduction to Inferential statistics	Chapter 8
10 Mar 10/12	Marked Lab 3: Inferential Statistics	Sample tests and Goodness of Fit	Chapter 9-11
11 Mar 17/19	Project day - samples and maps	Inferential Spatial Statistics	Chapter 12
12 Mar 24/26	Project day	Regression and Correlation	Chapter 13/14
13 Mar 31 / Apr 2	Lab 4: Correlation and Regression	Project day	
14 Apr 7	Review Project due		