GEOG 3810 – QUANTITATIVE RESEARCH METHODS IN GEOGRAPHY

COURSE OUTLINE: WINTER 2016

DESCRIPTION

The primary objective of this course is to provide students with a broad foundation in statistical thought by introducing the rationale, methods and interpretation of statistical data in geographic research. Emphasis will be placed on applying statistical techniques (for both qualitative and quantitative data) in the fields of physical and social geography. These principles will be discussed in lectures, class discussions as well as computer laboratory assignments.

My goal for this course is to make sure every student receives an excellent final grade and each student lives up to his or her full potential.

GENERAL INFORMATION

Dr. John Iacozza Phone: (204) 474-8483 Office hours: Monday and Wednesday 9:15-10:15 am.

Office: 472 Wallace Building Email: John.lacozza@umanitoba.ca

Техтвоок

<u>REQUIRED</u>: McGrew Jr., J.C., A.J. Lembo Jr., and C.B. Monroe. 2014. *An Introduction to Statistical Problem Solving in Geography* (3rd edition), Waveland Press

COURSE WEBSITE

- The GEOG 3810 course site is available for registered students at: umanitoba.ca/umlearn.
- Your login name and password are the same as your UMnetID.
- Information posted on the UMLearn site includes course syllabus, assignment information, grades, dropboxes for assignments, and course announcements.

EVALUATION

Assignments:	40%	Final Project:	25%
April test (take home):	25%	Class participation/quizzes:	10%

TOPICS TO BE STUDIED:

- Overview of statistical data
- Describing and summarizing data
- Probability

- Hypothesis testing
- Correlation and regression
- Geostatistics

FINAL GRADE ALLOCATION

A+	90% or above	C+	65% - 69%
А	80% - 89%	С	60% - 64%
B+	75% - 79%	D	50% - 59%

B 70% - 74% F 49% or below

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STUDENT RESPONSIBILITIES

- A high level of student cooperation and participation, involving asking and answering questions during the lectures.
- Cell phones and portable music players must be turned off during lectures. Students are also required to remove earphones. NO TEXTING DURING CLASS.
- Students are required to attend all lectures and take notes. Students are expected to be punctual for classes. Not all material presented in the lectures is covered in the text. *If you miss a lecture, make arrangements to get notes from a fellow student, not from instructor!*
- The individual student is required to read the assigned chapters of the textbook *prior to class*. Not all the textbook will be covered in the lectures but may be covered in the test or exam.
- Students are required to complete the necessary assignments individually, unless otherwise stated.

COURSE POLICIES

<u>Academic Integrity</u>: Academic dishonesty (plagiarism, cheating) is a very serious matter in any academic institution and is dealt with severely at the University of Manitoba.

Plagiarism is copying another student's assignment or examination. While I strongly encourage collaboration, the assignments <u>must</u> be submitted individually, **using your own words**. If you quote other sources of information in an assignment, make sure to provide proper credit.

Cheating is the possession of an unauthorized material during the midterm or final exam, including crib notes, texts or dictionaries. Students must not be in possession of a cell phone, iPod, iPad or any other electronic device.

Commonly, the penalty for any form of academic dishonesty is a grade of zero on the assignment or final exam, or a final grade of F in the course. Please familiarize yourself with the University policy on academic dishonesty found on the following website:

http://www.umanitoba.ca/student/resource/student_advocacy/cheating_plagiarism_fraud.html.

<u>Questions/Concerns</u>: If you are having a problem and want to discuss something, please feel free to see me before/after class, during my office hours or make an appointment at a more convenient time. I can be reached through phone or email (preferred method). Responses will be given within 48 hours.

<u>Emails</u>: Ensure that the course name and number are included in the subject line for all emails. Please make sure emails are written in a professional manner, including complete sentences and do not use text language (I am not fluent in shorthand). Please address the email to John or Dr. Iacozza (not Buddy or any similar terms). Emails must be sent from University of Manitoba email accounts; emails from other accounts (such as gmail) will not be responded to. Emails will typically be responded to during regular office hours. You should not expect a response on weekends or in the evenings (i.e. after 4 pm).

<u>Audio/Video Recording</u>: Students are **NOT** permitted to either photograph, audio or video record the lectures in entirety or any parts.

<u>Voluntary Withdrawal Date</u>: The voluntary withdrawal date is the last date for withdrawing from this course without academic penalty. The voluntary withdrawal date for this course is March 18, 2016. Evaluative feedback will be provided prior to this date.

PROJECTS AND LAB ASSIGNMENTS

Laboratory assignments and the final project will focus on the practical application of the statistical methods discussed in class. Four assignments will be distributed through the term and will focus on a particular analytical technique. The final project is an opportunity to apply the concepts we have covered this year in research methods, from descriptive statistics through sampling design to inferential and spatial statistics. Thus the objective of this final project is to design a sampling strategy and use the statistical methods to analyze a geographical problem that is of interest to the student (see attached document)

Assignments must be submitted as a **SINGLE WORD DOCUMENT** and electronically through UMLearn (formally D2L). The course website is available for registered students at: umlearn.ca. Your login name and password are the same as your UMnetID. Documents **MUST** be labelled with the student name, student number and assignment number. Emailed assignments **WILL NOT** be accepted at any time for any reason and therefore will not be graded. If you are not familiar with this tool, please ask your instructor. Assignment grades will be posted on UMLearn.

Assignments must be handed in on time – by 1:00 pm on due date. Late assignments will be given a grade of 0 unless the student has obtained Instructor approval in advance of the deadline.

Reasons for granting an extension (assignment): a death in your immediate family, an illness in either yourself or in a dependent (requires written note from a doctor dated BEFORE the assignment is due), and required to travel for work. The Instructor will not accept a note dated AFTER the due date.

Reasons for not granting an extension: having another assignment or midterm due at a similar time/day, being away from the university for a personal reason (i.e. holiday or personal vacation), being too busy with other course work (i.e. having a midterm that same day or week), not attending the lectures due to personal or compassionate reasons (or other reasons), car broke down and could not submit assignment on time, computer is not working properly and you lost the assignment, or any other reason deemed inappropriate by the instructor. This is not an exhaustive list. Please don't ask for an extension if any of these or similar reasons apply. If you know that you will be away, you MUST submit the assignment before the due date.

TESTING

The April test will be a take-home test that will cover all material in this course. The test format will consist of an applied question. This question will be an individual scenario and the student will have to apply all the major components/topics discussed in the course (i.e. sampling, descriptive statistics, inferential analysis, etc.)

Quizzes may be given throughout the course to assess your understanding of the course material. These quizzes will not be part of your final grade.

SPECIAL NEEDS

Students with disability-related needs or are experiencing difficulty should discuss issues with a councillor in one of the following Student Affairs offices as soon as possible. You can also discuss any issues with your instructor, who can direct you to appropriate institutional resources.

- Student Accessibility Services: 155 University Center, 204-474-6213, 204-474-9790 (TTY)
- Learning Assistance Center: 201 Tier Building, 204-480-1481
- Student Counselling and Career Centre: 474 University Center, 204-474-8592

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LECTURE TOPIC		READING
Introduction	Introduction to Research Methods	pp. 3-20
	Statistical Data	pp. 21-35
Sampling	Sampling Methods	pp. 101-116
Descriptive	Describing and Summarizing Data	nn $30-61$
Statistics		pp. 53-61
Statistics	Data Representation	pp: 02-74
	Data Representation	
Probability	Basic Probability	pp. 77-92
	Normal Distribution	pp. 93-100
	Confidence Intervals and Estimation	pp. 117-138
Inferential	One Sample Testing	pp. 141-154
Hypothesis Testing	Two Sample Testing	pp. 155-173
	Three or More Sample Testing	pp. 174-186
	Categorical Difference Testing	pp. 187-201
	Inferential Spatial Statistics	pp. 205-235
Relationshin	Correlation	nn 239-251
Testing	Bogrossion	pp. 253-251
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Geostatistics	Geostatistics	
	Principal Component Analysis	

COURSE/READING SCHEDULE

TENTATIVE DATES (please note that the dates may change)

ASSIGNMENT	DATE	
Assignment #1	January 26, 2016	
Assignment #2	February 23, 2016	
Assignment #3	March 15, 2016	
Assignment #4	April 1, 2016*	
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TEST	DATE
Final Project	April 7, 2016
Take Home	April 14, 2016

*NOTE: THIS ASSIGNMENT IS DUE ON A FRIDAY