# Master Syllabus Department of Geography

## **GEOG 618: Quantitative Methods in Geography**

## **Course Description**

A introduction of quantitative techniques used in geographic research that focus on the solution of spatial problems. Topics will be covered in this course include, but are not limited to, descriptive statistics, data visualization, inferential statistics, point & area pattern analysis, correlation/regression analysis, and geostatistics. (3 credit hours).

Prerequisite: GEOG 250 or instructor permission

#### **Course Objectives**

The goal of his graduate level course is to introduce first-year graduate students to common quantitative methods in geographic research. Since this course is typically composed of students with interests in either "human" or "physical" geography, quantitative methods particular to both sub-disciplines of geography will be presented and discussed. The primary objective however, will be to familiarize students with the methods and limitations involved in the quantitative analysis of spatial data.

#### **Course Rationale**

This course is an essential component of any geography graduate student's core curriculum in that it introduces the fundamentals of quantitative methods and analysis limitations common to geographic research. This is of particular significance since all geography graduate students are required to complete an approved research thesis in order to meet their degree requirements, which mostly requires quantitative analysis of spatial data.

#### **Course Content and Format**

Students will be presented material in a lecture style format that will include multimedia presentations and case study discussions. The following shows an example of a potential outline of topics for this course, with time allotment for each topic at the discretion of the instructor:

Topic I	Geospatial data
Topic II	Descriptive spatial statistics
Topic III	Probability
Topic IV	Data sampling and estimation

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Topic V	Inferential statistics
Topic VI	Analysis of Variance (ANOVA)
Topic VII	Goodness-of-fit tests
Topic VIII	Correlation analysis
Topic IX	Regression analysis
Topic X	Geostatistics

## **Textbook Suggestions**

McGrew J. Chapman and Charles B. Monroe, 2000. *An Introduction to Statistical Problem Solving in Geography*, McGraw-Hill, 2<sup>nd</sup> ed. ISBN 0-697-22971-8.

## Methods for Evaluating Student Performance:

Forms of evaluation might include assignments, examinations, homework, and term project.

## **Evaluation of the Course**

Students use university (and departmental) online course evaluation forms to evaluate this course.