

# **An Introduction to Quantitative Analysis for Geographers**

GEO 3162C/GEO 6160, Sections IQDL & IQUF

**Location and Time:** 100% Online

**Academic Term:** Spring 2023

**Instructor:** Yue Jing (PhD student)

**Contact:** [jingyue@ufl.edu](mailto:jingyue@ufl.edu) /Canvas Message

**Office Hours:** Tuesdays 1:30 pm - 3:00 pm; Thursdays 1:30 pm - 3:00 pm (or by appointment)

**Office Location:** TUR 1215 or via ZOOM (<https://ufl.zoom.us/j/6851436798>)

## **Course Description**

The course covers topics including data measurement, descriptive statistics, probability distributions, samples and populations, sampling, hypothesis testing, and inference. It is designed to ensure students gain a fundamental understanding of basic statistical procedures and scientific methods. It lays the foundations for intermediate and advanced topics such as multivariate methods, spatial statistics, and econometrics. Students will learn how to apply statistical concepts and techniques, use analytical software (JMP Pro and GeoDa) as well as gain a critical perspective on the data used in statistical analyses.

## **Course Pre-Requisites**

STA 2023 or instructor permission.

## **Course Objectives**

- 1) Provide students with a working knowledge of various statistical techniques used in geographic research and practice.
- 2) Understand the reason why we use statistics and how they are important to use informed decisions.
- 3) Become familiar with the different types of data you will encounter, and why it is important to understand which statistical tests to use.
- 4) Build awareness on the limitations of statistical analysis.
- 5) Be able to critically assess data that are used in statistical analyses and understand the concept of “garbage-in-garbage-out” as it relates to statistical analyses.
- 6) Use statistical software to apply statistical concepts and methods learned in class.

## **Required Textbooks (Mandatory to Purchase, will also be available in digital format via Course Reserves)**

Reid, H.M. (2014). Introduction to Statistics: Fundamental Concepts and Procedures of Data Analysis. SAGE Publications. ISBN – 9781452271965 (paperback).

## **Recommended Materials**

McGrew Jr, J. C., & Monroe, C. B. (2014). An Introduction to Statistical Problem Solving in Geography (3<sup>rd</sup> edition). Waveland Press. ISBN – 1478611197

## **Course Schedule**

<b>Dates</b>		<b>Topics</b>	<b>Assignments</b>
<b>Week 1</b>	1/9-1/13	Course Introduction and Syllabus --What is statistics and why do we use it?	Syllabus Quiz
<b>Week 2</b>	1/17-1/20	Process of Statistics, Sampling Design, and Probability Introduction	Homework 1
<b>Week 3</b>	1/23-1/27	Data Types, Data Visualization, and Measures of Central Tendency	Homework 2
<b>Week 4</b>	1/30-2/3	Normal Distribution and Z Scores	Quiz 1/Homework 3
<b>Week 5</b>	2/6-2/10	Characteristics of Geographic Data	Homework 4
<b>Week 6</b>	2/13-2/17	Introduction to Inferential Statistics and Chi-Square	Quiz 2
<b>Week 7</b>	2/20-2/24	Chi-Square (Continued)	Homework 5
<b>Week 8</b>	2/27-3/3	The One-Sample Z-Test and One-Sample T-Test	Quiz 3
<b>Week 9</b>	3/6-3/10	Midterm Exam	--
<b>Spring Break</b>			
<b>Week 10</b>	3/20-3/24	The Independent Samples T-Test and the Dependent Samples T-Test	Quiz 4
<b>Week 11</b>	3/27-3/31	Introduction to the F-Distribution and ANOVA (One-Way Between Subjects)	--
<b>Week 12</b>	4/3-4/7	The One-Way Within Subjects ANOVA	--
<b>Week 13</b>	4/10-4/14	The Two-Way Between Subjects ANOVA	Quiz 5/Homework 6
<b>Week 14</b>	4/17-4/21	The Phi Correlation, the Pearson R Correlation, the Point Biserial Correlation, and Introduction to Regression	Homework 7
<b>Week 15</b>	4/24-4/28	Simple Linear Regression and Multiple Linear Regression	
<b>Week 16</b>	5/1-5/5	Final Exam	--

## **Evaluation of Grades**

You will be graded based on your performance on seven homework, five quizzes, and two exams (midterm exam and final exam). The final grade will not be curved.

<b>Assignment</b>	<b>Percentage of Final Grade</b>	<b>Points</b>
Homework (7)	55%	275
Quizzes (5)	25%	125
Midterm Exam	10%	50
Final Exam	10%	50
Total	100%	500

### **Grading Policy**

Due dates for all assignments will be posted on Canvas. You should always refer to the online calendar on the class's Canvas page as that will contain the most up-to-date information on deadlines/due dates. All work must be submitted to the assignment's page on Canvas. All deadlines and due dates are in Eastern Standard Time (EST).

<b>Percent</b>	<b>Grade</b>	<b>Grade Points</b>
91.0 - 100.0	A	4.00
90.0 - 90.9	A-	3.67
87.0 - 89.9	B+	3.33
80.0 - 86.9	B	3.00
78.0 - 79.9	B-	2.67
75.0 - 77.9	C+	2.33
65.0 - 74.9	C	2.00
60.0 - 64.9	C-	1.67
57.0 - 59.9	D+	1.33
50.0 - 56.9	D	1.00
45.0 - 49.9	D-	0.67
00.0 - 44.9	E	0.00

More information on UF grading policy may be found at:

[Grades and Grading Policies\(https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/\)](https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/)

### **Homework (55%)**

Homework assignments will mainly take the form of labs. You will learn to analyze and interpret various kinds of datasets with statistical software (**JMP Pro** and **GeoDa**). Based on the experience of students previously, it is strongly recommended to download and install the software in the first two weeks. Detailed instructions for downloading and installing JMP Pro and GeoDa are posted on Canvas. This will help you to avoid any unnecessary delays or issues with installation or assignment submission, which could result in the loss of points. Late submissions resulting from an inability to install/download the software in a timely manner will not be given consideration.

Any work whose Turnitin score is **20%** or above will be considered to be plagiarized and will not be graded, hence, it is the student's responsibility to check the assignment's Turnitin score prior to submitting it. Due dates for all HWs are strictly implemented.

### **Quizzes (25%)**

Students' understanding of course material will be assessed periodically through open-book timed quizzes. Each quiz needs to be completed within a given time frame and allows **a single attempt**. Due dates for quizzes are strictly implemented.

### **Midterm Exam (10%)**

The midterm exam will cover the first half of the course and will be worth 10% of your final grade. You will have **a single attempt** to complete the open-book exam within a given time frame. Due date for the midterm exam is strictly implemented.

### **Final Exam (10%)**

The final exam will cover all the course materials and will be worth 10% of your final grade. You will have **a single attempt** to complete the open-book exam within a given time frame. **The final exam must be turned in during the available time.** There will be **NO** late final exams accepted, due to the timeline for grading and final grade submission to the University.

### **Plagiarism**

Turnitin plagiarism review will be turned on for all Homework assignments. This tool uses a database to compare students' work to online and print resources to ensure work student work is original. Please, only submit original work. Any work whose Turnitin score is 20% or above will be considered to be plagiarized and will not be graded, hence, it is the student's responsibility to check the assignment's Turnitin score prior to submitting it. Plagiarism is highly unethical and can result in various degrees of action being taken, including being dismissed from the University of Florida.

### **Class Attendance**

As this is a 100% online course, students are expected to be responsible for their own learning and for ensuring that coursework is completed in a timely manner. **Reading course announcements frequently and watching the module videos, in addition to studying the chapters in the textbook will assist you in meeting these expectations.** As this is an online course, attendance won't be a factor in grading, and students are expected to be self-motivated and have completed all required assignments.

### **Expectations & Class Demeanor**

Students are expected to be responsible for their own learning and for ensuring that coursework is completed in a timely manner as all deadlines will be strictly implemented. **Keeping track of all course announcements will assist you in meeting these expectations.** Students are expected to watch all lectures and read all required material. Students must behave in a professional manner that is also

respectful to the instructor and to fellow students. Specific assignments for this course include five quizzes, seven homework, a midterm exam, and a final exam.

### **Late Work and Make-Up Policy**

All due dates and times will be strictly implemented and must be met to avoid losing points, but I recognize that certain circumstances may prevent you from meeting a deadline, and in this case, please contact me in advance or as soon afterward as possible. Requests for exceptions must be submitted, sufficiently in advance, in writing via **Canvas email**, with full explanations and documentation attached. **The final exam must be turned in during the available time period with no exceptions.** There will be **NO** late final exams accepted, due to the timeline for grading and final grade submission to the University.

All deadlines and due dates are in **Eastern Standard Time (EST)** and will be strictly adhered to. 10% of the assignment grade will be deducted from an assignment for every day the assignment is late unless prior arrangements are made with the instructor due to an unforeseen circumstance or life event that will not allow the student to turn in the assignment on time. The 10% deduction will be applied at midnight for each 24-hour increment after the time the assignment is due. Here is an example of the late policy applied to a 50-point homework assignment. If the assignment is due at 11:59 pm on Monday, 10% of the homework assignment grade will be automatically deducted by Canvas as soon as the time is midnight (12 am) on Tuesday. Therefore, the maximum credit the student can receive for the assignment is 45 points, representing a loss of half a percent of the student's final grade. If the student fails to submit the assignment within the subsequent 24-hour period, the maximum amount the student can receive for the assignment will be 40 points. This process continues until reaching 0, after which the student cannot earn credit for the assignment.

### **Students Requiring Accommodations**

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center (<https://disability.ufl.edu/get-started/>, 352-392-8565). **Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation.** Students with disabilities should follow this procedure as early as possible in the semester.

### **Course Evaluation**

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via [ufl.bluera.com/ufl/](http://ufl.bluera.com/ufl/). Summaries of course evaluation results are available to students here (<https://gatorevals.ua.ufl.edu/public-results/>). Announcements will be made to inform students of the specific times when they are available to complete.

### **University Honesty Policy**

UF students are bound by The Honor Pledge which states, **“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code”**. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://sccr.dso.ufl.edu/process/student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

### **Counseling and Wellness Center**

Contact information for the Counseling and Wellness Center:

<https://counseling.ufl.edu/>, (352-392-1575; and the University Police Department: 352-392-1111 or 9-1-1 for emergencies.

*\*The instructor reserves the right to make changes to this syllabus.*