

An Introduction to Quantitative Analysis for Geographers GEO 3162C/GEO 6160, Sections QAUL & QAUF

Location and Time: 100% Online

Term: Spring 2022

Instructor: Akhil R Kshirsagar (Ph.D. Candidate, M.B.B.S., M.P.H.&T.M.)
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Office Hours: Via Zoom every Wednesday and Thursday from 11:00 am – 12:30 pm or by appointment.

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) as well as gain a critical perspective on the data used in statistical analyses.

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 Textbook (Mandatory to Purchase, but a physical copy will also be available at Library West via *Course Reserves*; Textbook can be checked out for a maximum of 3 days at a time)

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

****Remember that it is recommended that you use Mozilla Firefox to access the *Course Reserves* tab in Canvas.**

Course Schedule

Week 1: *COURSE INTRODUCTION AND SYLLABUS*

Week 2: *WHAT IS STATISTICS, WHY DO WE USE IT/STATISTICAL THINKING*

Week 3: *PROCESS OF STATISTICS, SAMPLING DESIGN, AND PROBABILITY INTRODUCTION*

Week 4: *DATA TYPES, DATA VISUALIZATION, AND MEASURES OF CENTRAL TENDENCY*

Week 5: *NORMAL DISTRIBUTION AND Z-SCORES*

Week 6: *INTRODUCTION TO INFERENCE STATISTICS AND CHI-SQUARE*

Week 7: *CHI-SQUARE (CONTINUED)*

Week 8: *THE ONE-SAMPLE Z-TEST AND ONE-SAMPLE T-TEST*

Week 9: *THE INDEPENDENT SAMPLES T-TEST AND THE DEPENDENT SAMPLES T-TEST*

SPRING BREAK (3/5 – 3/13)

Week 10: *INTRODUCTION TO THE F-DISTRIBUTION AND ANOVA (ANALYSIS OF VARIANCE; ONE-WAY BETWEEN SUBJECTS)*

Week 11: *THE ONE-WAY WITHIN-SUBJECTS ANOVA*

Week 12: *THE TWO-WAY BETWEEN SUBJECTS ANOVA*

Week 13: *THE PHI CORRELATION, THE PEARSON R CORRELATION, THE POINT BISERIAL CORRELATION, AND INTRODUCTION TO REGRESSION*

Week 14: *INTRODUCTION TO REGRESSION, SIMPLE LINEAR REGRESSION, AND MULTIPLE LINEAR REGRESSION*

Week 15: *HW #6 SUBMISSION AND READING DAYS*

END OF CLASS

Evaluation of Grades

Assignment	Total Points	Percent of Grade
Final Exam	90	13%
Quizzes (6)	120	17%
Individual Class Project	140	20%
Homework (6)	350	50%
Total	700	100%

Grading

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)**.

Points	Percent	Grade	GPA
651 - 700	93.0-100.0	A	4.00
630 - 650	90.0 - 92.9	A-	3.67
609 - 629	87.0 - 89.9	B+	3.33
581 - 608	83.0 - 86.9	B	3.00
560 - 580	80.0 - 82.9	B-	2.67
539 - 559	77.0 - 79.9	C+	2.33
511 - 538	73.0 - 76.9	C	2.00
490 - 510	70.0 - 72.9	C-	1.67
469 - 489	67.0 - 69.9	D+	1.33
441 - 468	63.0 - 66.9	D	1.00
420 - 440	60.0 - 62.9	D-	0.67
0 - 419	00.0 - 59.9	E (Fail)	0.00

More information on grades and grading policies is here:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Quizzes (17%)

Students' understanding of course material will be assessed periodically through multiple-choice timed quizzes. Each quiz will be for **25 minutes** and is worth **20 points** and a **single attempt**. There are **6** total quizzes, all of which will be proctored using **Honorlock**. Due dates for Quizzes are strictly implemented.

Individual Class Project (20%)

This assignment is an individual assignment and will involve each student recording **quantitative** data about their personal life for **30 days**, followed by an analysis and write-up of the results. Detailed instructions are provided in course materials.

Homework (50%)

Homework assignments will take the form of reflecting on important conceptual and practical issues within statistics through reflection papers, as well as analyzing and interpreting small datasets with the statistical software **JMP Pro**. Homework assignments are each worth **50/60 points** and there are **6** homework assignments.

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.

Homework Assignments 3-6 will require the use of the JMP PRO software – please follow the instructions below to install it.

****Based on the experience of students previously, it is highly recommended that you download and install this software well in advance of when HW #3 becomes available, preferably at the start of the semester. 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.**

Steps to Install the JMP Pro Software:

VPN Installation: Make sure that each of you has this installed **prior** to downloading the JMP PRO software.

1. **VPN Installation** (laptop or desktop): Make sure that you have the VPN Service first downloaded onto your computer. The VPN service provides secure remote access to the University of Florida network and makes it appear as if your computer were physically attached to the campus network. By using the Gatorlink VPN client, you may access resources on the UF network that are not typically available over an internet path. It supports a wide range of operating systems (OS), including Windows, Mac, Linux, Apple IOS, and Android. This VPN service/client can be downloaded [here](#). After downloading it, use [this](#) link to configure and set it up, and then sign in to it using your **Gatorlink Username and Password**. You will need to be signed into this to complete the next step of downloading the JMP Pro software.
2. **Downloading JMP Pro**: Use this link and then select “**SAS JMP Installation files for License Period 2021-2022**”. On the next page, review and follow the instructions for installing the JMP Pro software, based on whether your system is Windows or Mac OS. In case your JMP Pro License needs renewal during the semester, please use [this](#) link to renew it.

If you are having any difficulty installing these, please contact helpdesk@ufl.edu or me well in advance, and not a night before the assignment is due.

Final Exam (13%)

There will be a final exam with **14** questions which will be a mix of **Multiple Choice, True/False, and Matching**. It is worth **90 points** and you will have a **single attempt** and **2 hours** to complete it. The Final exam will cover all the course materials and will be worth 13% of your final grade. The exam grade **will not be curved**.

As per the University’s recommendation, there will be 2 available versions of the final exam (proctored by *ProctorU* and *Honorlock*, respectively), but with identical questions. You may take either version of the exam – the other version may be used **only if** you run into any kind of trouble with the version that you began the 1st attempt with. You may begin the exam using the next version only after informing and receiving my approval first.

Please use the **ProctorU & Honorlock** tabs in Canvas for the most up-to-date information regarding these services, especially if you have not used them

before. Students are responsible for educating themselves about the use of ProctorU/Honorlock softwares if they have not used them prior to this. Whereas Honorlock works only on Google Chrome (requires a Google Chrome extension), ProctorU works with Google Chrome or Mozilla Firefox through their respective extensions.

You will be allowed to carry a maximum of **5 blank pages** (standard-size 8.5 x 11 paper of 2 sides each) as rough work as several of the questions will require you to solve by hand to reach the answers that will be provided in the form of multiple-choice, T/F, or matching options.

In addition, you will also be allowed to carry **1-page** (standard-size 8.5 x 11 paper, either typed or handwritten) with **written/typed formulae** only. This needs to be prepared in advance of the exam and carried to it.

There will be no additional opportunity to re-take the exam if you miss taking it during the period it is available unless you have some extenuating circumstances, or you have received prior permission.

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 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 **six quizzes, six homework, an individual class project, and a final exam.**

You can expect me to respond to Canvas emails within 1 business day (Monday-Friday). I may respond sooner, including on the weekends, but it is not guaranteed. I am available to meet with you during office hours or by appointment only. The zoom link (and the passcode) for weekly office hours are provided on the course homepage and must be used for attending office hours or an appointment.

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 (**11:59 pm**) 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 requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. 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 encouraged to provide feedback on the quality of instruction and/or their suggestions for improving this course by completing online evaluations at <https://evaluations.ufl.edu> or via the **GatorEvals** tab in Canvas. Evaluations are typically available **twice** in the semester – mid-semester, and then during the last two or three weeks of the semester. 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://www.dso.ufl.edu/sccr/process/student-conducthonor-code/>) specifies the 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.

Counseling and Wellness Center

Contact information for the Counseling and Wellness Center:

<http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Covid-19 Information on Precautions, Testing, and Vaccination

Student and employee testing for COVID-19 has been transferred to the Student Health Care Center. Visit [UFHealth.org/covid-19-test/locations](https://ufhealth.org/covid-19-test/locations) for a list of additional testing locations.

According to experts at UF Health, your best protection against the omicron variant is to get your booster shot and wear a mask, preferably an N95 or KN95 if available, in indoor public settings. Masks and other supplies are available to faculty and staff through each unit's HR liaison for use in connection with assigned duties or can be purchased for personal use at Office Depot through the [UF GatorPerks program](#). Disposable masks will continue to be available in locations across campus, including in classrooms, for anyone who may need one; however, campus community members are encouraged to purchase their own KN95 masks. If you haven't yet been vaccinated or received a booster, please visit [ONE.UF](#) to make an appointment or visit UF Health's webpage for a list of [community vaccination sites](#).

Key Links:

COVID-19 Community Testing Locations: <https://ufhealth.org/covid-19-test/locations>

UF Gator Perks Program: <https://benefits.hr.ufl.edu/gatorperks/discount-program/shopping/>

UF COVID-19 Vaccine Scheduling Information: <https://one.uf.edu/>

UF Health Vaccination

Information: <https://coronavirus.ufhealth.org/vaccinations-2/vaccine-availability/>