

# URP 6231: QUANTITATIVE DATA ANALYSIS FOR PLANNERS

Fall 2020

Class Number: 20737

<b>Instructor:</b>	Dr. Emre Tepe Assistant Professor	<b>Time:</b>	No designated meeting time
<b>Email:</b>	<a href="mailto:emretepe@ufl.edu">emretepe@ufl.edu</a>	<b>Place:</b>	Virtual
<b>Office:</b>	Architecture Building 444	<b>Delivery:</b>	Online (100 %) - asynchronous

**Teaching Assistant:** Kanglin Chen (Email: [kanglinchen@ufl.edu](mailto:kanglinchen@ufl.edu))

**Office hours:** Instructor and TA will offer office hours to answer students’ course-related questions and concerns over Zoom. Office hours will be regularly post on Canvas and students are expected to sign up for available time slots to schedule office hour meetings with the instructor or TA.

**Course materials:** All course materials including slides, class notes, assignment instructions, and course video records will be available on Canvas course page: <https://elearning.ufl.edu>. It’s highly recommended to check regularly the designated course page on Canvas for updates and new course materials.

**Textbook:** The following book will be used as the textbook for this class: Newbold, P., Carlson, W. L., Thorne, B. M., *Statistics for Business and Economics 8th Edition*, Pearson.

**Main references:** Quantitative analysis is a broad topic where you may find many different references. In addition to the textbook, you may consider to read the following references if you want to learn more about quantitative methods:

- Kutner M., Nachtsheim C., and Neter J., *Applied Linear Regression Models 4th Edition*, McGraw-Hill, Irwin, 2004.
- Klosterman, Richard E., *Community Analysis and Planning Techniques*, Roman and Littlefield Publishers. Savage: Maryland, 1990.
- Moore, D. S. and Notz, W. I., *Statistics Concept and Controversies 7th Edition*, W.H. Freeman and Company, New York, 2009.
- Meier, K. J., Brudney, J. L., Bohte, J., *Applied Statistics for Public and Nonprofit Administration 7th Edition*, Thomson Wadsworth, 2009.

**Software:** You will learn and use R software that is an open-source software. You don’t need to have a prior knowledge about the software.

**Course description:** This course is intended to provide students in the Urban and Regional Planning program with fundamental data analysis techniques and statistics skills required by the UF Urban and Regional Planning program for use in thesis and dissertation research and by the planning profession. The course provides analysis skills that allow planning students to achieve in the area of statistical analysis as required for the hypothesis testing, general planning, and within the areas of specialization offered by the department. In addition, the effort has been made to include examples and assignments that provide an opportunity to utilize statistical

analysis as a problem solving/analysis methodology for planning decision making. Finally, the course supports the department’s mission as a core course in the department’s curriculum.

**Prerequisite knowledge and skills:** Students taking this course do not need to have a prior knowledge about statistics and quantitative analysis, however a basic knowledge of algebra is necessary. Please contact the instructor as soon as possible to discuss appropriate strategies, if you think you don’t have enough prior knowledge about algebra.

**Purpose of this course:** Urban and rural areas are complex systems. Quantitative methods are required to analyze such systems. In recent years, we have been experiencing unprecedented amount of data generated about built environment. Therefore, working with data is part of our job and it is inevitable. This course is intended to provide students with an understanding of widely used quantitative analysis and statistical techniques in urban and regional planning.

**Course objectives:** By the end of this course, students will be able to:

- use basic probability in support of planning problem
- test hypotheses
- interpret and effectively report results of statistical analysis
- analyze statistical data
- use statistical skills required to complete thesis or dissertation research
- apply planning statistical analysis in support of planning problem
- develop critical thinking skills necessary to compete in the planning profession
- conduct population projections

**Instructional methods:** The course will have weekly a lecture presenting concepts, techniques and methods for quantitative and statistical analysis. A number of homework assignments will test student’s understanding of the lecture presentations.

**Important dates:**

Labor Day .....	September 7, 2020
Midterm Exam .....	TBD (October 18-24, 2020)
Veterans Day .....	November 11, 2020
Thanksgiving .....	November 25-28, 2020
End of Classes .....	December 9, 2020
Final Paper .....	December 9, 2020 (11:59 PM)
Final Exam .....	TBD (December 13-18, 2020)

**Note:** Midterm and Final exams’ schedules will be determined based on students’ availability within designated dates.

**Course modules:**

- █ Module # 0: Introduction

  - Introduction to Statistics
  - Introduction to R
  
- █ Module # 1: Describing Data (Graphical and Numerical)

  - Data Types
  - Descriptive Statistics
  - Data Visualization
  - Interpretation of Descriptive Statistics
  
- █ Module # 2: Probability and Probability Distribution

  - Random Experiment, Outcomes, and Events
  - Probability and Its Postulates
  - Probability Rules
  - Probability Distributions (Continuous and Discrete)
  
- █ Module # 3: Hypothesis Testing

  - Hypothesis Testing (One-Sample Case)
  - Hypothesis Testing (Two-Sample Case)
  - Hypothesis Testing (Multiple Sample Case)
  
- █ Module # 4: Regression

  - Correlations
  - Simple Linear Regression
  - Multiple Variables and Multiple Linear Regression
  - Non-Linear Regression
  
- █ Module # 5: Population Projections

  - Interpolation
  - Exterpolation
  - Review of Matrix Algebra
  - Population Projections with the Cohort-Component Technique

**Grade distribution:**

Assignments	40%
Midterm	20%
Final Paper	20%
Final Exam	20%

**Letter grade distribution:**

>= 93.00	A	73.00 - 77.99	C
90.00 - 92.99	A-	70.00 - 72.99	C-
88.00 - 89.99	B+	68.00 - 69.99	D+
83.00 - 87.99	B	58.00 - 67.99	D
80.00 - 82.99	B-	55.00 - 57.99	D-
78.00 - 79.99	C+	<= 55.99	E

**Assignments:** There will be total 5 assignments (for each module, except Module 0). Deadlines of these assignments will be posted on Canvas.

**Final Paper:** Students will be asked to conduct statistical analysis for given dataset and write brief reports to explain their results.

**Submissions:** Students must submit their assignments and final paper in pdf format via Canvas.

**Course policy:**

- In general, no late work will be accepted. However, feel free to contact me for emergency issues. During this difficulty time, please don't hesitate to contact the instructor about any unexpected circumstance that may affect your performance in the course.
- Computer problems that arise during submission will not be accepted as an excuse for late work.
- All work must be completed and submitted by the designated time in announced platform.

**Honesty policy:**

The university's honesty policy regarding cheating, plagiarism, etc. Suggested wording: 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](#) 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.

**Student evaluations:**

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at [this link](#). 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 [this link](#). Summaries of course evaluation results are available to students at [this link](#).

**Add/Drop policy:**

University policies on such matters as add/drop, incomplete, academic probation, termination of enrollment, reinstatement, and other expectations or procedures can be found in the [graduate student handbook](#) and at the [Dean of Students website](#).

**Special accommodations:**

Students requesting disability-related academic accommodations must first register with the [Disability Resource Center](#). The Disability Resource Center will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.