

Syllabus – Fall 2017
UST 404: Urban Data Analysis

Cleveland State University
Levin College of Urban Affairs
Wednesday 6:00-9:50 pm, UR 108
4 credits

General Information

Megan Hatch, Ph.D.
Assistant Professor
Levin College of Urban Affairs
Office: UR 316
Phone: 216.687.5597
Email: m.e.hatch at csuohio dot edu
Office hours: Monday 4:00-5:30 pm, or by appointment, UR 316

Course Description

This course is a four-credit course designed to introduce the student to the basic principles, techniques, and logic of data analysis. It will also familiarize the student with statistical reasoning. This course focuses on core statistical concepts and techniques used in many fields.

Learning Objectives

This course focuses on knowledge and skill development in the statistical area. The course is designed to meet the following learning objectives:

Knowledge

- Understand mathematical models, graphs, tables, and schematics and how to interpret and draw inferences from them.
- Recognize and interpret mathematical information when presented symbolically, visually, numerically, or verbally.
- Understand alternatives that can be used in mathematical or statistical analysis and how to achieve optimal results.
- Recognize the limits of mathematical and statistical models and be able to explain how those limits affect everyday decision making.
- Understand how mathematical and statistical information can assist in analysis, syntheses, and evaluation of complex urban problems.

Skills

- Use arithmetic, algebraic, and statistical models to solve problems.
- Understand how to calculate formulae.
- Develop the means used to estimate and check answers to mathematical problems.
- Represent mathematical information in a symbolic, visual, or verbal manner that has clarity of result.

General Education Statement

This course fulfills a Quantitative Literacy General Education requirement.

Course Text

Bowen, C.C. (2016). *Straightforward statistics*. Thousand Oaks, CA: Sage.

You will not need an access code for the textbook, so feel free to buy a used version or rent the book if that is your preference. In addition, a copy of the textbook is available on 2-hour reserve in the library.

Course Method

Students are expected to attend all class periods, submit homework assignments when due, complete all learning enhancers, and take the midterm and final exams. Student success is heightened by keeping up to date with all readings and homework assignments. Class attendance is also critical to successful completion of the course.

This course is designed to provide students with a number of tools that can be used for self-assessment. The *homework* are a means to assist students in determining what out of the lectures they might not have understood, as well as to provide additional practice in some of the calculations and interpretations. The *group projects* provide students the means to work as a group in solving questions that build on the homework and also reflect what will appear on the learning enhancers, midterm, and final. The *learning enhancers* allow the student to determine if their notes and preparation are adequate to assist them in solving the problems before they take their *midterm* and *final*. These tools also assist the professor in determining what material might need to be reviewed to clarify areas of confusion.

Students may use two 8.5x11 sheets of paper (back and front counts as two sheets) of notes during each exam, including the learning enhancers. Students may also use a calculator. At a minimum, your calculator should be able to perform basic mathematical operations, exponents, and square roots. *Cell phones are not permissible as a calculator for exams.* The professor will not have extra calculators.

A special note on homework: *You ignore homework at your peril.* If you choose not to submit your homework, you will lose a total of 15 percentage points off your final grade. Students have found the homework points can mean the difference between a passing grade in the class versus one they prefer not to have. The assignments are on Blackboard in the “Homework” folder. Homework is due at the beginning of class, as specified in the Course Schedule. Homework is graded on a check plus (5 points), check (4 points), check minus (3 points) scale, as discussed in class. Please be neat and show all your work. You will not receive credit for answers that I cannot read or that are ambiguous. I will not provide a lot of feedback on your homework, but answer sheets will be posted on Blackboard in the Homework folder at 6 pm the Saturday after they are due. It is your responsibility to check your answers.

Course Requirements

Grades are based on the results of class attendance, homework, group projects, learning enhancers, midterm, and final exam. The grade will consist of the following:

<i>Assignment</i>	<i>Percent of grade (weight)</i>
Attendance	5%
Homework	15%
Group Projects	20% (5% each for your four highest grades)
Two Learning Enhancers	20% (10% each)
Midterm Exam	20%
Final Exam	20%

There are five group projects. Each student's lowest group project score will be dropped. There are no opportunities to make up group projects. If you miss a group project, it will count as a 0. However, one 0 or your lowest group project score will not count towards your final grade.

Grading Scale

A: 94 – 100	B: 83 – 86	C: 70 – 76
A-: 90 – 93	B-: 80 – 82	D: 60 – 69
B+: 87 – 89	C+: 77 – 79	F: 59 or less

The professor will only give incomplete "I" grades to students if the student and professor have arranged it before grades are due. Students will only receive an incomplete if they have documentation proving they are unable to complete the course through no fault of their own and they are generally passing the class (C grade or higher). Students receiving an incomplete will sign a contract with the professor detailing what they must do to complete the class and the day by which they will complete it. If the student does not complete the class by the date in the contract, the grade will become an F. According to the Registrar's Office, the last day to complete a course is the last day of classes of the next term. Please refer to the CSU Registrar's Office for more information on incomplete grades. Grades will only be changed after they are submitted to the Registrar in cases of clerical error.

There are no extra credit assignments. Your grade will be based on the credit you earn for each assignment.

University Deadlines

- The deadline for adding a course is September 3, 2017
- The deadline for dropping a course is September 8, 2017
- The last day to withdraw from the course is November 3, 2017

Please check the CSU Academic Calendar to confirm all dates.

Course Schedule

This syllabus is intended as a guide to the course for the student. Sound educational practice requires flexibility and the professor may, with appropriate notice, change content and requirements at any time during the course. Attending class and checking your *CSU email* and *Blackboard* regularly are the best ways to be informed of any changes.

Course Schedule at a Glance

<i>Class</i>	<i>Date</i>	<i>Chapter covered</i>	<i>HW due</i>	<i>Exam</i>	<i>Group project</i>
1	8/30	1			
2	9/6	1, 2, 3			
3	9/13	3	1, 2		
4	9/20	3, 4	3		1 (Ch. 1-3)
5	9/27	5	4	LE 1 (Ch. 1-3)	
6	10/4	5, 6	5		2 (Ch. 4 & 5)
7	10/11			Midterm (Ch. 1-5)	
8	10/18	7	6		
9	10/25	8	7		
10	11/1	11	8		3 (Ch. 6-8)
11	11/8	11, 12	11		4 (Ch. 11 & 12)
12	11/15	13	12	LE 2 (Ch. 6-8, 11)	
13	11/22	Review session			
14	11/29	13, 14	13		
15	12/6	14, Review	14		5 (Ch. 13 & 14)
16	12/13			Final (Ch. 6-8, 11-14)	

Class 1, August 30

Course introduction

Samples, variables, and measurement

Read: Chapter 1 (pp. 1-12)

Homework Due: None

Class 2, September 6

Variables, order of operations

Frequency tables, graphs, data distributions

Measures of central tendency

Read: Chapter 1 (pp. 14-17, skip example 1.1), chapter 2 (pp. 27-37, 42-46), chapter 3 (pp. 57-63)

Homework Due: None

Class 3, September 13

Measures of central tendency

Measures of variability

Read: Chapter 3 (pp. 57-66, 69-85)

Homework Due: Chapter 1, chapter 2

Class 4, September 20

Measures of variability

Z-scores

Review for Learning Enhancer 1

Group Project 1 (covers chapters 1-3)

Read: Chapter 3 (pp. 73-85), chapter 4 (skip examples 4.5 and 4.8)

Homework Due: Chapter 3

Class 5, September 27

Probability

Learning Enhancer 1 (covers chapters 1-3)

Read: Chapter 5 (pp. 125-133, 136-143, 147-159)

Homework Due: Chapter 4

Class 6, October 4

Probability

Sampling error and the Central Limit Theorem

Review for Midterm

Group Project 2 (covers chapters 4 & 5)

Read: Review chapter 5, chapter 6

Homework Due: Chapter 5

Class 7, October 11

Midterm (covers chapters 1-5)

Homework Due: None

Class 8, October 18

Hypothesis testing

Read: Chapter 7

Homework Due: Chapter 6

Class 9, October 25

One-sample t test

Read: Chapter 8

Homework Due: Chapter 7

Class 10, November 1

Correlation

Group Project 3 (covers chapters 6-8)

Read: Chapter 11 (pp. 328-354, skip correlation with Z-scores)

Homework Due: Chapter 8

Class 11, November 8

Correlation

Regression

Review for Learning Enhancer 2

Group Project 4 (covers chapters 11 & 12)

Read: Review chapter 11, chapter 12 (pp. 384-388)

Homework Due: Chapter 11

Class 12, November 15

ANOVA

Learning Enhancer 2 (covers chapters 6-8, 11)

Read: Chapter 13 (pp. 422-437, skip FWER)

Homework Due: Chapter 12

Class 13, November 22

Optional Review Session — Happy Thanksgiving!

Class 14, November 29

ANOVA

Chi-square tests

Read: Review chapter 13, chapter 14

Homework Due: Chapter 13

Class 15, December 6

Chi-square tests

Review for Final Exam

Group Project 5 (covers chapters 13 & 14)

Read: Review chapter 14

Homework due: Chapter 14

Class 16, December 13

Final Exam (covers chapters 6-8, 11-14)

Classroom Policies

Attendance

Attendance and punctuality are expected. You may miss two classes without documentation without penalty. A third absence will yield a 80 on your attendance grade, four absences will yield a 50, and five or more absences will yield a 0. Arriving late and/or leaving class early twice counts as an absence. This is an intensive course and missing class will likely hurt your ability to comprehend the material. Assignments that are due on days in which you are absent must be submitted prior to the start of class (e.g. 6 pm on Wednesday). If you miss class or are late, please make sure you get notes from a classmate.

Late Assignments

Assignments must be turned in on the date they are due unless you made prior arrangements with me. Unless otherwise noted in this syllabus, all assignments are due by the beginning of class. Late homework assignments will be reduced by one grade (e.g. check plus to a check) if it is one or two days late and two grades (e.g. check plus to a check minus) if it is three days late. Penalties will apply to each day or part thereof, starting when the assignment is due. For example, if you turn in a homework assignment due at 6pm on Wednesday at 1 pm on Thursday, your grade will be reduced for a check plus to a check. I will not accept assignments more than three days late.

Make-up Assignments

Make-up of exams (learning enhancers, midterm, and final) is at the discretion of the professor and only with written documentation such as a doctor's note. Typically, make-up assignments will only be given in extraordinary circumstances, which are situations that could not have been reasonably anticipated. Except in absolute emergencies, you must inform me that you will be missing an exam *prior to the deadline*. There are no make-ups for group projects or homework.

Tutoring

Tutoring is available. More information on the tutor will be available on Blackboard. The tutoring sessions are open to all UST 404 and 504 students. You are required to email the tutor 24 hours in advance if you plan to attend a tutoring session. If no one responds, the session will be canceled. If you confirmed but are later unable to attend a session, you must email the tutor, or if it is within a few hours of the session, call 216.702.8300.

Extra Help

Students are strongly encouraged to email the professor or visit office hours with questions or problems they may be having. This class is cumulative; therefore, if you do not understand an early concept, later topics will be more difficult. *It is always better to seek out extra help as early as possible.*

Technology in the Classroom

When using technology, please be respectful of your classmates and the active and participatory nature of the class. Laptops and tablets are permitted for note-taking only. The use of these devices for email, Facebook, Twitter, Instagram, or any other purpose is prohibited while class is in session.

Please turn off or silence all cell phones during class. *If you are using your phone during class time, I reserve the right to ask you to leave class, and you will get a 0 for attendance and any assignments that day.* If you need to take a call, send a text, or check your email during class time, please leave the classroom or wait until break to do so.

Please do not record the lecture or class discussion without permission of the professor.

I will post the PowerPoint presentations on Blackboard, sometimes in a slightly modified format, at 10 am the day after class. PowerPoint slides will not be posted prior to class because they contain answers to practice problems. The slides only serve as a *guide* for the lecture—they are not sufficient for mastering the concepts. In order to earn a high grade in this class, you will need to learn the material by carefully reading the texts, actively participating in class, and thoughtfully completing the assignments.

Email Policy

While I read my email almost every day, I do not check it constantly. Therefore, please allow one *business day* for me to respond to your emails. If you email me an assignment, I will always send you a short confirmation email. Do not consider the assignment submitted until you receive that confirmation.

I do not give out grades over email. If you want a grade on a particular assignment or a mid-semester evaluation, please check your grades on Blackboard or see me during my office hours.

If I need to contact you, I will do so via *Blackboard* and your *CSU email*. Please make sure you check that account frequently for any updates.

University Policies

Cancellation of Class Due to Weather

Class will not be cancelled due to weather unless the university is closed. Check the CSU website for the most up-to-date information.

Safety Escort

The CSU Policy Department offers a free escort service for students, faculty, and staff to and from their cars. To request an escort, call 216.687.2020. For more information, visit <http://www.csuohio.edu/welcome/safety-services>.

Students with Special Needs

It is the policy of Cleveland State University that “Educational access is the provision of classroom accommodations, auxiliary aids and services to ensure equal educational opportunity for all students regardless of their disability.” Any student who feels they may need an accommodation based on the impact of a disability should contact the Office of Disability Services at 216.687.2015. The office is located in MC 147. Accommodations need to be requested in advance and will not be granted retroactively.

CARE Team

If you need additional services, please contact the CARE team and Care Manager. The purpose of these programs are to provide holistic support to members of the CSU community, to connect students with resources on and off-campus, and to increase collaboration between campus partners. They work with students to develop action plans to address their individual needs. The Care Manager can help navigate policies and procedures on campus, connect with support systems, and determine what resources might be most helpful. You can contact the Care Manager, Emily Grady at e.a.grady@csuohio.edu or 216.687.2048. The CARE website is: <https://www.csuohio.edu/care/care>.

Test Taking/Academic Challenges

The CSU counseling center provides academic counseling for students. They run workshops throughout the semester to assist you in maximizing your note taking skills, test taking skills, assisting with text anxiety reduction, and time management. Information on these services, as well as a schedule, can be found at: <http://www.csuohio.edu/counselingcenter/academic-skills-development-workshops-0>.

The tutoring center also offers workshops on improving academic success as well as tutoring for some specific course content. Information on the tutoring center can be found at: <http://www.csuohio.edu/tutoring/tutoring>.

Academic Conduct

Please note that students are subject to all CSU student policies and academic regulations, including (but not limited to) The Code of Student Conduct and the Policy on Academic Misconduct, which can be found online at: <http://www.csuohio.edu/compliance/student-code-conduct>.

Except when permitted for group projects, *students may not work together on assignments*, although discussion of course topics and readings is always encouraged.

Your Code of Student Conduct states that: “Major infractions comprise those instances of cheating, plagiarism, and/or tampering which affect the overall course grade, such as a major/comprehensive exam, term paper or project, final grade evaluation, or academic standing and status.” Although at times graded separately, the assignments in this course are interrelated. A breach of academic integrity in one assignment may infect the entire course, and be considered a major infraction, which will lead to a failing grade. It also can lead to additional punishments by the university, up to and including expulsion with a permanent notation on your transcript.

The CSU Student Handbook defines plagiarism as: “Stealing and/or using the ideas or writings of another in a paper or report and claiming them as your own. This includes but is not limited to the use, by paraphrase or direct quotation, of the work of another person without full and clear acknowledgment.” When in doubt, ask the professor, writing center, or librarian for clarification.