General Information
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Office hours: Monday 3:30-5:30 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, geometric, and statistical models to solve problems.
- Understand how to calculate formulae.
- Use technology to solve mathematical and statistical problems as well as to prepare graphs and charts.
- 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

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.

I will post additional readings on Blackboard.

Course Method
Students are expected to attend all class periods, submit homework assignments when due, complete all learning enhancers, finish an applied project, and take the midterm and final exams. Student success is enhanced by keeping up to date with all readings and homework assignments. Class attendance is also critical to the student being successful.

This class is designed to provide students with a number of tools that can be used for self-assessment. The homework is 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 are adequate to assist them in solving the problems before they take their midterm and final. These tools also assist the instructor in determining what material might need to be reviewed to clarify areas of confusion. The applied project provides an opportunity for the students to apply the course concepts to a real urban issue.

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. Cell phones are not permissible as a calculator for exams. The professor will not have extra calculators if you forget yours.

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 points off of your final grade. Students have found that the homework points can mean the difference between a passing grade in the class versus one that they prefer not to have. The assignments are on Blackboard in the “Homework” folder. Homework is due the class as specified in the Course Schedule. No homework will be accepted at the final. 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 6pm the Sunday after they are due. It is your responsibility to check your answers.
Course Requirements
Grades are based on the results of homework, learning enhancers, group projects, midterm, final, and class participation. The grade will consist of the following:

- **Applied Project**: 10%
- **Group Projects**: 15% (3% each for your 5 highest grades)
- **Homework**: 15%
- **Four Learning Enhancers**: 20% (5% each)
- **Midterm**: 15%
- **Final**: 25%

There are six 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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>94 – 100</td>
</tr>
<tr>
<td>B</td>
<td>83 – 86</td>
</tr>
<tr>
<td>C</td>
<td>70 – 76</td>
</tr>
<tr>
<td>A-</td>
<td>90 – 93</td>
</tr>
<tr>
<td>B+</td>
<td>87 – 89</td>
</tr>
<tr>
<td>C+</td>
<td>77 – 79</td>
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<tr>
<td>D</td>
<td>60 – 69</td>
</tr>
<tr>
<td>F</td>
<td>59 or less</td>
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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 I 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 I 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 Catalogue for more information on I and X 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

- Last day to drop for a full refund is August 28, 2015
- The deadline for adding a course is August 30, 2015
- The deadline for dropping a course is September 4, 2015
- The last day to withdraw from the course is October 30, 2015
- The final examination week is December 7-12, 2015

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 instructor may, with appropriate notice, change content and requirements at any time during the course. Attending class and checking your email and Blackboard regularly are the best ways to be informed of any changes.

Course Schedule at a Glance
- August 26 – Course introduction; Concepts, variables, and measurement; Introduction to urban datasets
- September 2 – Frequency tables; Data; Homework 1 due
- September 9 – Measures of central tendency; Group Project 1; Homework 2 due
- September 16 – Measures of central tendency; Measures of dispersion; Learning Enhancer 1
- September 23 – Measures of dispersion; Group Project 2; Homework 3 due
- September 30 – Probability and the normal curve; Group Project 3; Homework 4 due
- October 7 – Probability and the normal curve; Probability – from samples to statistics; Learning Enhancer 2
- October 14 – Probability – from samples to statistics; Group Project 4; Homework 5 due
- October 21 – Hypothesis testing; Midterm
- October 28 – Cross-tabulation and chi-square; Group Project 5; Homework 6 due
- November 4 – Cross-tabulation and Chi-Square; Measures of association for categorical variables; Learning Enhancer 3
- November 11 – No class, Veterans’ Day
- November 18 – Analysis of variance; Group Project 6; Homework 7 due; Homework 8 due
- November 25 – Analysis of variance; Correlation and regression; Applied project due
- December 2 – Correlation and regression; Learning Enhancer 4, Homework 9 due; Homework 10 due
- December 9 – Final Exam

Week 1, August 26
Course introduction
Concepts, variables, and measurement
Introduction to urban datasets
Read: Chapter 1
Homework Due: None

Week 2, September 2
Frequency tables
Data
Homework Due: Homework 1, chapter 1
Week 3, September 9
Measures of central tendency
Review for Learning Enhancer 1
Group Project 1 (covers chapters 1 and 2)
Read: Chapter 3
Homework Due: Homework 2, chapter 2

Week 4, September 16
Measures of central tendency
Measures of dispersion
Learning Enhancer 1 (covers chapters 1 & 2)
Read: Review Chapter 3, chapter 4
Homework Due: None

Week 5, September 23
Measures of dispersion
Statistics in Excel
Group Project 2 (covers chapter 3)
Read: Chapter 4
Homework Due: Homework 3, chapter 3

Week 6, September 30
Probability and the normal curve
Review for Learning Enhancer 2
Group Project 3 (covers chapter 4)
Read: Chapter 5
Homework Due: Homework 4, chapter 4

Week 7, October 7
Probability and the normal curve
Probability – from samples to statistics
Learning Enhancer 2 (covers chapters 3 & 4)
Read: Review chapter 5, chapter 6
Homework Due: None

Week 8, October 14
Probability – from samples to statistics
Review for Midterm
Group Project 4 (covers chapter 5)
Read: Chapter 6
Homework Due: Homework 5, chapter 5

Week 9, October 21
Hypothesis testing
Midterm (covers chapters 1 through 5)
Homework Due: None
Week 10, October 28
Cross-tabulation and chi-square
Review for Learning Enhancer 3
Group Project 5 (covers chapter 6)
Read: Chapter 7
Homework Due: Homework 6, chapter 6

Week 11, November 4
Cross-tabulation and chi-square
Measures of association for categorical variables
Applied project assignment distributed
Learning Enhancer 3 (covers chapters 5 & 6)
Read: Review chapter 7, chapter 8
Homework Due: None

Week 12, November 11
No class – Veterans’ Day

Week 13, November 18
Analysis of variance
Group Project 6 (covers chapters 7 & 8)
Read: Chapter 9
Homework Due: Homework 7, chapter 7; Homework 8, chapter 8

Week 14, November 25
Analysis of variance
Correlation and regression
Statistics in Excel
Review for Learning Enhancer 4
Applied project due
Read: Review chapter 9; chapter 10
Homework Due: None

Week 15, December 3
Correlation and regression
Final thoughts
Review for Final Exam
Learning Enhancer 4 (covers chapters 7, 8, & 9)
Read: Review chapter 10
Homework due: Homework 9, chapter 9; Homework 10, chapter 10

Final Exam, December 9, 6-8pm (Covers chapters 6-10)
Classroom Policies

Attendance
Attendance and punctuality are expected. You may miss two class without documentation without penalty. Subsequent absences will affect your grade at a rate of two percentage points per absence. Assignments that are due on days in which you are absent must be submitted prior to the start of class (e.g. 6pm on Wednesday). If you miss class or are late, please make sure you get notes from a classmate.

Tutoring
Tutoring is available. More information will be posted on Blackboard. Students are strongly encouraged to email the instructor 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.

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 assignments will be reduced by 5 percentage points for each day (6 pm to 6 pm) or part thereof it is late. For example, if an assignment is due at 6 pm on Wednesday, and you send it to me at 1pm on Thursday, your grade will be reduced by 5 percentage points. I will not accept assignments more than three days late.

Make-up Assignments
Make-up of exams (Learning Enhancers, Midterm, and Final) and Applied Project is at the discretion of the instructor and only with written documentation such as a doctor’s note. Except in absolute emergencies, you must inform me that you will be missing an exam or assignment prior to the deadline. There are no make-ups for group projects or homework.

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, or any other purpose is prohibited while class is in session. Please turn off or silence all cell phones during class time. Please do not record the lecture or class discussion without permission of the instructor.

I will often start the class with a short PowerPoint lecture. In those cases, 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 see me during my office hours. I will keep graded final exams for one semester. You may pick them up from my office at your convenience.

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.

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 he or she 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.

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.

Students may not work together on the learning enhancers, midterm, final, or applied project. They may collaborate on homework, but each student must submit a unique copy of the homework, and not a copy of the group’s work.

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.” Since all of your exams, applied project, and group projects affect your overall course grade, any instance of academic dishonesty in this class is considered a major infraction. Sanctions for major infractions include a grade of F in the course, and recommendations for suspension or expulsion from the University.

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.”

The penalties for plagiarism are found in the Student Handbook. Please note that the instructor may use plagiarism detection services, such as Turnitin (www.turnitin.com) in order to evaluate student work.