

# ECON 262: Principles of Statistics II

## Spring 2019

### Course Information

#### Professor Information:

**Professor:** Dr. Katherine Lacy

**Office:** AB 318G

**Phone:** 775-682-9370

**Email:** katherinelacy@unr.edu

**Office Hours:** Monday 10 AM – 12 PM

If you would like to stop by outside of these hours send me an email to confirm I will be in my office.

#### Email:

Please include the course and section number when sending me an email so I know exactly which class you are referring to.

I will read and respond to course-related emails in a timely fashion (within a few hours) between the hours of 9 AM and 5 PM, Monday – Friday. However, I hold the right to not respond to emails I perceive as unprofessional. Please read this blog for guidelines about writing professional emails: <http://mleddy.blogspot.com/2005/01/how-to-e-mail-professor.html>

**I will not discuss grades via email. You must come to my office if you would like to discuss any grade you receive in this course.**

#### Professor Commitment:

You can expect me to be courteous, punctual, organized, and prepared for class activities; to answer questions clearly and in a non-negative fashion; to be available during office hours or to notify you beforehand if I am unable to keep them; and to grade uniformly and consistently according to the written guidelines. I enjoy teaching economics and statistics courses and I look forward to working with you this semester.

#### Student Commitment:

I expect you to be courteous, punctual and prepared for class activities; ask questions regarding material being discussed and be prepared to enter class discussion; be respectful of others' opinions; observe classroom etiquette - be on time, turn off your cell phone, do not chat with your neighbor about non-class related activities, do not text or accept phone calls during class, do not dip or consume other tobacco products, etc. **I hold the right to ask you to leave class if you do not follow classroom etiquette.**

#### Course Description:

**Monday, Wednesday, and Friday at 8 AM to 8:50 AM in SEM 326**

The class is designed to familiarize students with techniques used to analyze data and gain insight into specific questions about populations. Most often, data is collected, tested and analyzed because it has managerial and/or research implications. The material in this course will be “applied”; that is, you will learn how to apply the appropriate statistical techniques to data with the intention of improving your decision-making ability.

## Course Pre-requisites:

ECON 261 and IS 101

## Required texts, course materials:

*Business Statistics: Communicating with Numbers* by Jaggia and Kelly

The textbook and a subscription to the McGraw-Hill Connect system are **required** for this course.

Connect student registration address –

<https://connect.mheducation.com/paamweb/index.html#/registration?accessUrl=k-lacy-fall-2018>

You are **required** to bring your computer to every class. You will answer questions on Canvas every class period, which can be completed on the Canvas app or website.

Handouts and other reading assignments may be used to supplement the text and will generally be available via the course WebCampus site.

## WebCampus:

There is a class web site available through the University WebCampus. To access the class page through WebCampus, go to <https://wcl.unr.edu/>. Course related material will be posted on the web site so you should check this site regularly.

## Student Learning Outcomes:

Upon completion of this course students will be able to:

1. Students will be able to apply the methodology of basic hypothesis testing and understand how the process is used in business decision making.
2. Students will be able to correctly identify and apply appropriate statistical tests for quantitative and qualitative single and two population parameters.
3. Students will be able to use and interpret correlation and develop simple and multiple regression models to address a variety of business examples.
4. Students will be able to develop and interpret output provided by statistical software for the statistical procedures covered in the course and be able to adequately verbalize the statistical conclusions provided by the software output.

## Team-Based Learning and Lecture:

This class will incorporate elements of team-based learning and will use a variety of both individual and team assignments to help you learn the course material. Some of the content is covered individually with readings and short problems completed outside of class. Class time will include lecture, which will build upon outside reading and application activities completed in teams during class.

## Teams:

Teams will be assigned the first day of class and will remain together the entire semester. You are to sit with your team during each lecture and take attendance on your team folder. Relevant course handouts can be found in the team folder. Additionally, you will take quizzes and complete applications with your team throughout the semester. After completing the homework assignment on your own, you will take a quiz, as a team, with the exact same questions you saw on the homework.

On quiz day, at least one team member will need to bring their computer to class.

### Attendance:

You are expected to attend every class and will be graded on attendance. No make-ups will be provided for a missed homework assignment, quiz, or exam

Because some absences are unavoidable I will drop the lowest two attendance scores, the lowest HW grade, and the lowest quiz grade at the end of the semester.

If your final exam score is higher than either of the previous exams, your final exam score will replace the lowest exam score. For example, if you receive a 50 on exam 1, a 75 on exam 2, and a 90 on the final, your grades at the end of the course would be 90 on exam 1, 75 on exam 2, and 90 on the final. If you receive an 80 on exam 1, a 60 on exam 2, and a 75 on the final, your grades at the end of the course will be 80 on exam 1, 75 on exam 2, and 75 on the final. If you receive an 80 on exam 1, a 90 on exam 2, and decide not to take the final, your grades at the end of the course will be 80 on exam 1, 90 on exam 2 and ZERO on the final (you are required to take the final. Your exam grades do NOT replace your final).

### Calculators:

Phones may NOT be used as calculators on quizzes and exams. Please see Dr. Lacy if you have any questions.

### Quizzes:

There will be frequent team quizzes throughout the semester. Missed quizzes may not be made up. I will drop your lowest quiz grade when determining your final grade at the end of the semester.

You will work with your team to answer the questions from the previous homework assignment. Please bring your notes from completing your homework with you to class, which you can use during the team quiz.

### Homework:

Graded homework through Connect will be assigned on a regular schedule and due **Saturday at 11:59 PM**. You will be notified in class when changes are made to the schedule. Late homework will not be accepted.

Additional written problem sets may be assigned throughout the semester. Your problem set answers should be presented in a professional manner. Illegible answers will result in a zero on the problem set.

### Applications:

You and your team will use the foundational knowledge acquired from outside reading and class lecture to complete team application exercises. These exercises will require your team to make decisions that may be reported publicly and subject to cross-team discussion/critique.

Applications can be pre-announced or unannounced in-class team activities. You must be present to receive the points for the exercise. Grades will be determined based on effort and accuracy.

### Team Contributions:

Periodically you will be asked to evaluate your team members by rating each members' performance. These ratings will be completed through WebCampus and distributed to team members anonymously. The scores from all team members will be averaged to form your total score. These ratings will be included in your final grade under peer evaluation. If you fail to complete your peer evaluations, you will receive a zero regardless of how your teammates scored you. I will drop your lowest peer evaluation score at the end of the semester.

### Calculators:

Phones may NOT be used as calculators or at any time during class or an exam. Graphing calculators will not be allowed during quizzes and exams. Please see Dr. Lacy if you have any questions.

### Computer Software:

Minitab is the software of choice in this class. Excel can also be used but does not have the capabilities needed for some of the covered techniques. There are many statistical software packages available and you may use another package if you are comfortable with that package (Stata, SAS, R). Please check with me if using different software, so that the applications may be assessed. Enrolled students will be given access to Minitab in the COB labs

### Case Study Reports:

Throughout the semester you will complete three case study reports. Your reports are to be typed (1 inch margins, Times New Roman 12 pt font) and include a description of the data and question being addressed, descriptive data analysis, test analysis (methods), results and conclusion. These reports will be due before the start of Exam 1, Exam 2, and on prep day at 8 AM. Do NOT wait until the day before the exam to start your report.

### Exams:

There will be two in-class exams and a cumulative final in this course. Each exam will have take-home problems that will require the use of the computer for calculations. The exams are temporarily scheduled for **Wednesday, February 27<sup>th</sup>** and **Wednesday, April 3<sup>rd</sup>**. The exam dates are subject to change depending on the progress made in class. The final exam, which WILL be cumulative is scheduled for **Thursday, May 9<sup>th</sup> at 9:50 – 11:50 AM**. All exams are in the same classroom as regular class. Seating on exam days will be randomly assigned. There will be no make-up exams for missed exams (see the attendance section for my exam grading policy).

### Grading Criteria, Scale, and Standards:

Scores in seven major performance areas will determine your grade:

<b>Homework</b>	<b>10%</b>
<b>Quizzes</b>	<b>10%</b>
<b>Applications</b>	<b>5%</b>
<b>Peer Evaluation</b>	<b>10%</b>
<b>Case Study Reports</b>	<b>15%</b>
<b>In-class Exams</b>	<b>30%</b>
<b>Final Exam</b>	<b>20%</b>

Course letter grades will be assigned on a straight scale. There will not be any curving of the final grade.

A	93 – 100
A-	90 – 92.9
B+	87 – 89.9
B	84 – 86.9
B-	80 – 83.9
C+	77 – 79.9

C	74 – 76.9
C-	70 – 73.9
D+	67 – 69.9
D	64 – 66.9
D-	60 – 63.9
F	< 60

**I will not discuss grades via email. You must come to my office if you would like to discuss any grade you receive in this course**

## Course Calendar or Topics Outline:

Week	Topics	Reading	Homework is Due on Saturday at 11:59 PM
1	Introduction to Hypothesis Testing	Chapter 9.1	
2	Hypothesis Testing	Chapter 9.2-9.3	HW 1 Due 2/2
3	Hypothesis Testing, Cont.	Chapter 9.3-9.4	HW 2 Due 2/9
4	Statistical Inference	Chapter 10.1-10.2	HW 3 Due 2/16
5	Statistical Inference, Cont.	Chapter 10.2-10.3	HW 4 Due 2/23
6	<b>Exam 1 – Wednesday, February 27</b>		CSR 1 Due 2/27 at 8 AM
7	Chi-Square Tests	Chapter 12.1-12.3	HW 5 Due 3/9
8	One-way ANOVA	Chapter 13.1-13.2	HW 6 Due 3/23
<b>Have a great spring break</b>			
9	Two-way ANOVA	Chapter 13.3-13.4	HW 7 Due 3/30
10	<b>Exam 2 – Wednesday, April 3</b>		CSR 2 Due 4/3 at 8 AM
11	Linear Regression	Chapter 14.1-14.2	HW 8 Due 4/13
12	Multiple Regression	Chapter 14.2-14.3	HW 9 Due 4/20
13	Regression Tests	Chapter 15.1-15.3	HW 10 Due 4/27
14	Common Violations	Chapter 15.4	HW 11 Due 5/4
15	Final Exam Review		CSR 3 Due 5/8 at 8 AM
<b>Final Exam – Thursday, May 9 at 9:50 AM – 11:50 AM</b>			

## University Policies

### Statement on Academic Dishonesty:

"The University Academic Standards Policy defines academic dishonesty, and mandates specific sanctions for violations. See the University Academic Standards policy: [UAM 6,502](#)."

### Statement of Disability Services:

"Any student with a disability needing academic adjustments or accommodations is requested to speak with me or the [Disability Resource Center](#) (Pennington Achievement Center Suite 230) as soon as possible to arrange for appropriate accommodations."

**This course may leverage 3<sup>rd</sup> party web/multimedia content, if you experience any issues accessing this content, please notify your instructor.**

### Statement for Academic Success Services:

"Your student fees cover usage of the [Math Center](#) (775) 784-4433, [Tutoring Center](#) (775) 784-6801, and [University Writing Center](#) (775) 784-6030. These centers support your classroom learning; it is your responsibility to take advantage of their services. Keep in mind that seeking help outside of class is the sign of a responsible and successful student."

### Statement on Audio and Video Recording:

"Surreptitious or covert video-taping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written permission of the instructor. In order to accommodate students with disabilities, some students may have been given permission to record class lectures and discussions. Therefore, students should understand that their comments during class may be recorded."

**The University of Nevada, Reno is committed to providing a safe learning and work environment for all. If you believe you have experienced discrimination, sexual harassment, sexual assault, domestic/dating violence, or stalking, whether on or off campus, or need information related to immigration concerns, please contact the University's Equal Opportunity & Title IX office at 775-784-1547. Resources and interim measures are available to assist you. For more information, please visit the [Equal Opportunity and Title IX](#) page.**

<b>January</b>						
<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20 Read Chapter 9.1	21	22	23 First Day of Class – Introduction	24	25 Introduction to Hypothesis Testing	26
27 Read Chapter 9.2 – 9.3	28 Hypothesis Testing	29	30 Hypothesis Testing	31	2/1 Hypothesis Testing	2/2 HW 1 Due at 11:59 PM

<b>February</b>						
<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>
					1 Hypothesis Testing	2 HW 1 Due at 11:59 PM
3 Read Chapter 9.4	4 HW Quiz & Hypothesis Testing	5	6 Hypothesis Testing	7	8 Hypothesis Testing	9 HW 2 Due at 11:59 PM
10 Read Chapter 10.1 – 10.2	11 HW Quiz & Inference	12	13 Inference	14	15 Inference	16 HW 3 Due at 11:59 PM
17 Read Chapter 10.3	18 No Classes	19	20 HW Quiz & Inference	21	22 Inference	23 HW 4 Due at 11:59 PM
24 Study for Exam 1 Work on CSR	25 HW Quiz & Review	26	27 <b>CSR 1 DUE 8 AM Exam 1</b>	28	3/1 Introduction to Chi-Square	3/2



<b>March</b>						
<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>
					1 Introduction to Chi-Square	2
3 Read Chapter 12.1 – 12.2	4 Goodness-of-fit Tests	5	6 Goodness-of-fit and Independence Tests	7	8 Test for Independence	9 HW 5 Due at 11:59 PM
10 Read Chapter 13.1 – 13.2	11 HW Quiz & One – Way ANOVA	12	13 One – Way ANOVA	14	15 One – Way ANOVA	16 HW 6 Due (3/23) at 11:59 PM
<b>Have a great Spring Break!</b>						
24 Read Chapter 13.3 – 13.4	25 HW Quiz & Two – Way ANOVA	26	27 Two – Way ANOVA	28	29 Two – Way ANOVA	30 HW 7 Due at 11:59 PM

<b>April</b>						
<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>
3/31 Study for Exam 2 Work on CSR	1 HW Quiz & Review	2	3 CSR 2 DUE 8 AM <b>Exam 2</b>	4	5 Introduction to Regression	6
7 Read Chapter 14.1 – 14.2	8 Linear Regression	9	10 Linear Regression	11	12 Linear Regression	13 HW 8 Due at 11:59 PM
14 Read Chapter 14.3 – 15.1	15 HW Quiz & Multiple Regression	16	17 Multiple Regression	18	19 Multiple Regression	20 HW 9 Due at 11:59 PM
21 Read Chapter 15.1 – 15.3	22 HW Quiz & Regression Tests	23	24 Regression Tests	<b>25</b>	26 Regression Tests	27 HW 10 Due at 11:59 PM
28 Read Chapter 15.4	29 HW Quiz & Common Violations	30	5/1 Common Violations	5/2	5/3 Common Violations	5/4 HW 11 Due at 11:59 PM

<b>May</b>						
<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>
Read Chapter 15.4	HW Quiz & Common Violations		1  Common Violations	2	3  Common Violations	4  HW 11 Due at 11:59 PM
5  Study for Final Work on CSR	6  Review	7	8  CSR 3 Due Prep Day No Classes	9  <b>Final Exam 9:50 – 11:50</b>	10	11
12	13	14	15	16	17	18
19	20  Grades Due Check My Nevada for final grade	21	22	23	24	25
26	27	28	29	30	31	