Name: _____

Elementary Statistics

Course Information and Syllabus

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Office hours I'll be on Canvas chat whenever I'm on my JCU computer.
You are also welcome to contact me by e-mail or by phone.

JCU Canvas site: https://canvas.jcu.edu/login

Meeting times and location

CRN#	COURSE	*DIV/REQ.	TITLE	INSTRUCTOR	CR.	TIME
25169	MT 122 51 Course Info	IV	ELEMENTARY STATISTICS	T. Short	3.0	-
			This is an online course.			
		Session: Summer 2		Start Date: JUN 15, 2015		End Date: JUL 16, 2015

Course description

Describing data by graphs and measures, sampling distributions, confidence intervals and tests of hypotheses for one and two means and proportions, Chi-square tests, correlation and regression. Use of appropriate statistical software.

Course materials

Our required textbook is *OpenIntro Statistics* (2nd ed.), 2012. The website for our textbook is: https://www.openintro.org/stat/textbook.php?stat_book=os. You may access an electronic copy of the textbook for free, or you may purchase a hard copy through Amazon for about $10. You are welcome to use either a hard copy or an electronic version of the book, whichever you prefer.

The textbook site contains a link through which you can download datasets. I believe that the direct link is:
https://www.openintro.org/download.php?file=os2_data&referrer=/stat/textbook/textbook_os2_data_sets.php.

We will also use a free online resource called StatKey, which is available at the following site: http://lock5stat.com/statkey/.

In addition, you may wish to use a scientific or graphing calculator.

Learning outcomes

I hope that you will encounter the following JCU Academic Learning Outcomes in this course:
+ Demonstrate an integrative knowledge of human and natural worlds
+ Apply creative and innovative thinking
+ Develop habits of critical analysis and aesthetic appreciation
+ Communicate skillfully in multiple forms of expression
+ Act competently in a global and diverse world
+ Employ leadership and collaborative skills

Primary objectives for students
+ Find and pose precise questions that can be appropriately analyzed by quantitative methods
+ Draw inference from data, specifically through tests of hypotheses and confidence intervals
+ Represent data visually through graphical displays and numerically using descriptive statistics
+ Think critically about quantitative statements, particularly interpretations and conclusions for basic statistical analyses
+ Recognize sources of error, including sampling error and measurement error
+ Encounter ethical arguments and consider the ethical use of data, particularly as these relate to conclusions that may generalize to larger populations and that might be interpreted as indicative of causal associations
+ Apply statistical methods in a variety of research contexts
+ Use appropriate statistical software for data analysis
+ Use spreadsheet software such as Excel to manage data

Secondary objectives for students
+ Practice writing statistical reports, including incorporating graphs and statistical output
+ Handle electronic documents, including formatting, delivery, and commenting

Academic honesty

Violations of the John Carroll University Academic Honesty policy (see http://sites.jcu.edu/undergraduatebulletin/home/2013-2015-bulletin/) will be penalized, with the penalty ranging from a grade of zero on a specific assignment, to written notification sent to the academic dean, and potentially to dismissal from the University.

In this course, you are permitted to use books, web resources, people (including the instructor, other students, and tutors), and any other resources you wish to help you to complete the out-of-class work assigned in this course. However, you must disclose any assistance you receive from these external sources. I will consider failure to disclose the resources you use and the assistance you receive as a violation of the JCU Academic Honesty policy.

Grading policies

Components of your grade may include required homework assignments, projects, optional assignments, quizzes, and a cumulative final examination. The cumulative final exam must be proctored and must be taken within a two-hour window between 5:00 PM on Wednesday, July 15 and 5:00 PM on Thursday, July 16. The final exam will be worth 100 points. Your grade will be computed by finding the percentage of points you earn in the course out of the number of points available to you in the course through required and optional work. The following table contains the minimum percentages required to guarantee particular grades:

Grade	Percentage	
A	93%	Outstanding scholarship
A-	90%	
B+	87%	
B	83%	Superior work
B-	80%	
C+	77%	
C	73%	Average
C-	70%	
D+	67%	
D	60%	Work of the lowest passing quality

Participation and late homework policies

If you miss a class meeting, please borrow, copy, and study notes recorded by another student in the class. Grades for assignments turned in late will be penalized, with increasing penalties as time passes beyond the due date and for repeated occurrences, unless a legitimate excuse is approved by the instructor. Make-up assignments and exams must be arranged on a case-by-case basis, and will be approved only with legitimate excuses. Class participation may impact borderline grade decisions at the end of the course.

Statement regarding disabilities

In accordance with federal law, if you have a documented disability (learning, psychological, sensory, physical, or medical) you may be eligible to request accommodations from the Office of Services for Students with Disabilities (SSD). Please contact SSD Director Allison West (awest@jcu.edu, 216-397-4967) or come to the office located in room 7A, in the Garden Level of the Administration Building. Please keep in mind that accommodations are not retroactive so it is best to register at the beginning of each semester. Only accommodations approved by SSD will be recognized in the classroom. Please contact SSD if you have further questions.

Statement on campus inclusiveness

John Carroll University is committed to fostering ethical and moral values that are consistent with Jesuit and Catholic traditions. Among the central values of the University are the inherent dignities of every individual as well as the right of each person to hold and to express his or her viewpoint. When these views conflict it is the obligation of members of the community to respect other perspectives.

The University welcomes students, faculty, staff, and visitors from diverse backgrounds and it works to ensure that they will find the University environment free of discriminatory conduct. It is unacceptable and a violation of University policy to harass, abuse, or discriminate against any person because of age, race, gender, ethnicity, sexual orientation, religion, or disability.

Furthermore, each member of the JCU community is expected to take an active role in fostering an appreciation for diversity and inclusion and sending the message that bias-related acts will not be tolerated. "Bias" is defined as intentional or unintentional actions targeting a person because of a real or perceived aspect of that person's identity, including (though not limited to) age, gender, religion, race, ethnicity, nationality, sexual orientation, gender identity, or (dis)ability. All bias incidents, including those occurring in the classroom, should be reported using the JCU Bias Reporting System at http://sites.jcu.edu/bias/.

Questions about the Bias Reporting System or bias incidents may be directed to Dr. Terry Mills, Assistant Provost for Diversity and Inclusion, at tmills@jcu.edu or 216-397-4455. For more information about University policies and community standards for appropriate conduct, please refer to the Dean of Students web page at http://sites.jcu.edu/deanofstudents. For more information about the University commitment to diversity and inclusion, please see http://sites.jcu.edu/diversity.

Course Syllabus

Dates	Textbook reference	StatKey function(s)
June 15	Sections 1.1 - 1.3: Data basics and Data collection	
June 16	Sections 1.4 & 1.5: Sampling and design	
June 17	Section 1.6: Examining numerical data	One Quantitative Variable
		One Quant & One Cat
June 18	Section 1.7: Considering categorical data	One Categorical Variable
		Two Categorical Variables
June 22	Section 2.1: Defining probability	
June 23	Sections 3.1 and 3.2: Normal distributions	Theoretical Distributions: Normal
June 24	Section 4.1: Variability in estimates	
June 25	Section 4.2: Confidence intervals	CI for Single Mean
June 29	Section 4.3: Hypothesis testing	Test for Single Mean
June 30	Section 4.4: The Central Limit Theorem	Sampling Distributions: Mean
July 1	Section 4.5: Inference for other estimators	
July 2	Sections 5.1 & 5.3: Paired data and t-distributions	Theoretical Distributions: t
July 6	Sections 5.2 & 5.4: Difference of two means	Difference in Means
July 7	Section 6.1: Inference for a single proportion	Single Proportion
July 8	Section 6.4: Testing for independence	Chi-squared Test for Association
July 9	Section 7.1: Line fitting, residuals, and correlation	Two Quantitative Variables
July 13	Sections 7.2 & 7.3: Least squares estimation & outliers	
July 14	Section 7.4: Inference for linear regression	Slope, Correlation
July 15	Review	
July 16	Final exam (to be proctored and completed by 5:00 PM)	

Please see the following document:
http://sites.jcu.edu/summer/summer-2013/summer-calendar/
for important dates throughout the summer sessions.