ECONOMICS 3818-040
Introduction to Statistics with Computer Applications
Spring 2019
TuTh, 2:00-3:15pm, HLMS 211

Instructor: Matthew Ridge Butner
       Office: Econ 401
       Office Hours: Wednesday 2:00 - 4:00pm
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"Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write."
          -Samuel S. Wilks (1950) misquoting H.G. Wells (1903)

Course Description:
       Statistical literacy is one of the most valuable skills you can learn. This course will give you the theoretical foundation to study and understand statistics with the ultimate goal to prepare you for econometrics. We will start talking about types of data, probability rules and distributions, and sampling methods before midterm one. Midterm two will focus on inference from a sample including sampling distributions, estimation, confidence intervals and hypothesis testing. Before the cumulative final we will briefly discuss additional hypothesis tests and the basics of regression analysis.

Course Website:
       Lecture slides, practice exam material, supplemental notes, and R exercises will be posted on the Desire to Learn course page. Data for computer applications will be hosted on my personal webpage. Homework will be completed through Sapling Learning.

Prerequisites:
       Econ 2010 & 2020 & (Econ 1088 or Math 1081 or Math 1300 or Math 1310 or Appm 1350)
       This course will use algebra (summation notation)

Course Components

Communication:

My colorado.edu email address is the best way to contact me. I will announce important dates, and course updates, through email. Be sure to check your email to stay up to date in the course.

Tentative timeline:
Subject to change at the instructor's discretion.
All chapter numbers refer to Moore et. al. eighth edition.

Week 1 – 1/14	Chapters 1, 2. Population v. sample, introduction to R.
Week 2 – 1/21	Chapters 12, 13. Probability problems.
Week 3 – 1/28	Chapter 14. Binomial Distribution.
Week 4 – 2/4	Chapter 3. Normal Distribution.
Week 5 – 2/11	Other distribution, Mathematical expectation.
Week 6 – 2/18	**Midterm 1**
Week 7 – 2/25	Chapter 15. Sampling Distributions. Properties of Estimators.
Week 7 – 2/25	Central Limit Theorem, Law of Large Numbers.
Week 8 – 3/4	Chapter 16. Confidence intervals.
Week 9 – 3/11	Chapters 17, 18. Test of significance, Inference in Practice.
Week 10 – 3/18	Handling data, **Midterm 2.**
Week N/A – 3/25	**Spring Break**
Week 11 – 4/1	Chapter 20, Inference about the mean.
Week 12 – 4/8	Chapter 21. Inference about two means.
Week 13 – 4/15	Chapters 22, 23. Proportions.
Week 14 – 4/22	Chapters 5, 26. Correlation and regression analysis.
Week 15 – 4/29	Chapter 26, review

Final –   TBD

Important dates:
Homework is due most Sundays!
Clicker questions every class period!
These dates are tentative!

1/14 – First day of class
1/24 – R exercise 1 due
2/5 – R exercise 2 due
2/12 – Midterm 1
3/5 – R exercise 3 due
3/21 – Midterm 2
3/25 – Fall Break Begins
3/20 – Fall Break Ends
4/4 – R exercise 4 due
4/18 – R data project due
4/30 – R exercise 5 due
?/? – Final exam