

STAT 110: Introduction to Statistical Reasoning

Spring 2015

Section 002: Location Callcott 011

Meeting Times MWF 9:40 – 10:30

Instructor:

Name: Dr. David Hitchcock
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Office Hours: Mon & Wed 10:50-11:50 a.m., Tue & Thu 1:30-2:30 p.m., or by appointment.

Instructional Assistants:

Name: TBA
Office: TBA
Hours and Contact Info: TBA

Description: Introduction to Statistical Reasoning (3 credit hours) – A course in statistical literacy. Topics include data sources and sampling, concepts of experimental design, graphical and numerical data description, measuring association for continuous and categorical variables, introduction to probability and statistical inference, and use of appropriate software.

Purpose: To provide an integrated introduction to the basic statistical concepts encountered in mainstream and scientific media

Learning Outcomes: By the end of the term, successful students should be able to do the following:

1. Critically evaluate claims based on statistical reasoning from survey and experimental results and understand the basic principles of statistical design of experiments.
2. Understand, interpret, and evaluate statistical reasoning from data using basic statistical terms, descriptive statistics, and charts and graphs, including using appropriate software.
3. Understand, describe, and utilize simple principles of probability, including the normal curve, and their application to social and physical phenomena.
4. Obtain and interpret confidence intervals in simple settings and understand their relationship to sample size and variability.
5. Understand the concept of hypothesis testing and that statistical significance does not always imply importance.
6. Recognize and evaluate the relationship between two variables through linear regression and correlation and be able to explain why correlation does not imply causation.

Course Materials

Textbook: *Statistics: Concepts and Controversies* (8th Edition) by David S. Moore and William I. Notz, W.H. Freeman and Company, 2010 (ISBN: 1-4641-2566-X) Note: There is no need for the EESEE access card so if your book is not packaged with one, do not worry about it.

An ebook is available rather than the hard copy if you wish. If you are not sure you want to purchase this, use the **free trial for the e-book**, please visit <http://ebooks.bfwpub.com/scc8e>, click "REGISTER an activation code" near the middle of the screen.

Use the temporary Access Code **98p-mwf-h24kuma2** (expires February 2).

iClicker2: The iClicker2 electronic response system will be used in class daily (ISBN: 1429280476). *Note: a standard iClicker remote or REEF app will work in place of the iClicker2.*

Calculator and Computer: Each student will need a scientific calculator and access to the internet to complete homework assignments and print off notes and readings. Computers are available throughout campus, including in the Statistics department tutoring center (located in LeConte 215A – hours posted to the course web page soon). Statistical software or applets will be demonstrated in class throughout the semester for implementing the methods covered.

Cell Phones & Laptops: Please turn cell phone sound off during class. Cell phones that ring during class are considered disruptive behavior. Devices such as smartphones may only be used in class for answering clicker questions.

Also, do not have laptop computers open during class. Tablets (e.g., i-pads) may be used only for note-taking or other STAT 110 class activities, only if flat on the desk like a traditional notebook. Students may not use tablets to look at web pages, play games, etc.

Need Help? This course is a part of the Student Success Center (SSC) Success Connect program, a partnership between the SSC and USC faculty who want to assist you on your path to success. This course has been identified as critical to the success of undergraduate students and your instructor may communicate with the SSC regarding student progress in the course throughout the semester. As a result, you should expect to be contacted by Student Success Center staff regarding resources and opportunities that may help you. These services are *free* and available to all students enrolled in this course. Any information shared by your instructor is completely confidential and subject to FERPA regulations. If you are contacted regarding a

referral, please follow up with both the instructor and the Student Success Center. Of course, you do not have to wait for a referral to take advantage of this program. At any time you may call 777-1000 to learn more about available resources for this course or go online to www.sc.edu/success to schedule an appointment with an Academic Coach.

Stat Tutoring Center: There is a statistics tutoring center staffed with graduate students located in LeConte room 215A. Hours for this center will be announced and posted soon. Check the course web page for details.

Accommodations: Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, contact the Office of Student Disability Services: 777-6142, TDD 777-6744, email sasds@mailbox.sc.edu, or stop by LeConte College Room 112A. All accommodations must be approved through the Office of Student Disability Services.

Attendance: All students are expected to attend all classes. It is assumed that any information given out during class has been delivered to all students. See university policy on attendance.

Grade:

Homework and Class Participation (16% semester grade): Homework covering the concepts taught in the class will be posted in Blackboard regularly throughout the semester. Students will submit their answers online in Blackboard. A date and time for closing each assignment will be announced in class and appear on each assignment. *No late assignments will be accepted.* You may discuss homework orally with other students, but each student must submit his/her assignment independently. In addition to my office hours, assistance on coursework is also available in the Statistics Tutoring Room in 215A LeConte.

We will also be using the REEF “clicker system” to record responses during class. Each student will receive points for each correctly answered question, which will be added to homework points. iClicker points will be stored in the REEF system.

iClicker points will combine with those received for homework to account for 16% of your semester grade in the following way (with a max of 100%):

$$\text{homework \& class participation score} = \frac{\text{earned homework points} + \text{earned iClicker points}}{\text{possible homework points}} \times 100$$

Exams (84% semester grade): Dates for the three in-class exams are February 11, March 20, and April 22. All work on the exams must be independent. Missed exams will be assigned a score of “0” (see “Final Exam” below).

Optional Final Exam (replaces lowest semester exam grade): Date and time of the comprehensive final exam is Wednesday, April 29, at 9:00 a.m. All work on the final exam must be independent.

The score on the final exam will also replace your lowest semester exam score, if it is higher than the lowest semester exam score. Note that the optional final exam can help or possibly hurt your grade.

Semester Grade Your semester grade will be calculated by $0.16*(\text{HW Grade}) + 0.84*(\text{Average exam grade})$. The following grading scheme applies:

Grading Scale:

A	≥ 90%	C	≥ 70%
B+	≥ 87%	D+	≥ 67%
B	≥ 80%	D	≥ 60%
C+	≥ 77%	F	< 60%

Honor Code: See the *Carolinian Creed* in the *Carolina Community: Student Handbook & Policy Guide*.

*Note, the schedule and syllabus is subject to change. Changes will be announced during class and will be equivalent or to the benefit of the student. Coverage of Chapter 7 and 9 is woven throughout the semester through discussion and examples.