

STAT 201: Elementary Statistics
Spring 2014, Sections 17 and 18
Pearson Course ID = **petkewich42262**

Class Meetings

Lectures: Tuesdays from 8:30-10:25AM in LeConte Room 210B
Labs: Section 17, Thursdays from 8:30-10:25 AM in LeConte Room 200A
Section 18, Thursdays from 8:30-10:25 AM in LeConte Room 205

Lecture Instructor Maureen Petkewich

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Office Hours: Tues/Thurs: 10:30-11:30AM and 1PM -3PM by appointment

Lab Instructors

Section 17: Roy Bower, rbower@email.sc.edu

Section 18: Chong Ma, chongm@email.sc.edu

Purpose To give students from throughout the university a non-calculus based introduction to the application of modern statistical methods including descriptive and inferential statistics. To show students that statistics is an important research tool.

Description Elementary Statistics (3 credit hours) (Prereq: MATH 111 OR 115 or STAT 110, or consent of department)
An introductory course in the fundamentals of modern statistical methods. Topics include descriptive statistics, probability, random sampling, simple linear regression, correlation, tests of hypotheses, and estimation.

Laboratory The class will meet in conventional classroom lecture sessions and also (in most weeks) in a 2-hour laboratory session. The development of these laboratory exercises was originally sponsored by the National Science Foundation. In each lab session, students will work in teams under the guidance of a lab instructor to collect data, using appropriate measurement technology, to shed light on a posed research question. They then immediately analyze their data using a computer and modern statistical software. For all lab sessions, students will complete a series of short answer questions about the lab activity and results; for one lab session, each student will write an extended formal report of the lab session.

Learning Outcomes Upon successful completion of this course, students should be able to:

- Recall basic statistical terms with the ability to express them in the correct context
- Employ appropriate methods for collecting data in a laboratory experiment
- Apply basic concepts of probability including properties of sampling distributions, the normal distribution and the binomial distribution
- Select and apply appropriate descriptive and inferential statistical methods for univariate and bivariate data
- Use statistical software to apply descriptive and inferential statistical analyses including numerical summaries, graphical displays, linear regression, hypothesis testing and confidence intervals
- Effectively explain findings from graphical displays, descriptive statistics and inferential statistical analyses
- Compose a technical report for a laboratory experiment explaining data collection methods, statistical methods, and interpretation of results

Textbook

Statistics: The Art and Science of Learning from Data (3rd ed.), by Agresti and Franklin, Pearson Education, Inc. The course management system that we will use in the course, My Lab and Mastering, contains this textbook as an e-book. An access code to My Lab and Mastering is **required**. (Pearson Course ID = **petkewich42262**)

Choose one of the two options below to obtain an access code:

1. Buy the hard copy custom edition of the textbook bundled with an access code to My Lab and Mastering (My Stat Lab) from a USC bookstore. Choose this option if you want a **hard copy** of the textbook.
2. Buy only the access code to My Lab and Mastering from **pearsonmylabandmastering.com**. An **e-book** is included in the online course management system.

Lab Book

Statistics Play-By-Play: Laboratory Experiments for Elementary Statistics (1st ed.), by Petkewich and Edwards, Kendall Hunt Publishing. (Available in the bookstore.)

Calculator Each student will need a scientific calculator. Cell phone calculators are not permitted for use on exams.

Course Management System, pearsonmylabandmastering.com (Pearson Course ID = **petkewich42262**) My Lab and Mastering is an online course management system which includes the e-book, homework, notes and announcements. My Lab and Mastering also includes access to StatCrunch.com, an online data analysis package that will be used with each lab and also with homework. Java 'statlets' (interactive applets) demonstrating statistical concepts are included as well. My Lab and Mastering will be demonstrated in class throughout the semester. See the last page of this syllabus for instructions on registering for My Lab and Mastering.

Attendance You are expected to attend all classes and to arrive on time. Attendance will be recorded for each class meeting (lectures and labs). If you miss a class, you are responsible for all material and announcements covered in class on that day.

Computer Facilities Homework requires the use of a computer with internet access. Computers are available for student use through Science and Math (MS) at the following campus locations: LeConte 124 and LeConte 303A. Check these locations for hours. An account will be set up for you. Account information will be available at the first lab meeting.

Statistics Tutoring Center The Statistics Tutoring Center offers free tutoring to all STAT 201 students. It is located in LeConte Room 215A and is staffed by STAT 201 lecture teachers and lab assistants. The open hours for the Statistics Tutoring Center will be announced early in the semester.

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

Student Disability Services If you qualify for accommodations because of a disability, please submit a letter from the Office of Student Disability Services prior to the first exam so that your needs may be addressed. The Office of Student Disability Services determines accommodations based on documented disabilities. You may contact them at 803-777-6142, LeConte 112A, or <http://www.sa.sc.edu/sds>.

Grading

Exams (About 11.67% or 70 points each) There will be 3 in-class exams. Make-up exams will be considered only in extreme circumstances and **documentation will be required**. Also, you must notify me **prior** to the exam or **the day of the exam** if you think your situation merits a make-up. Exam dates are on the schedule at the end of the syllabus. If you miss an exam for a valid reason but do not notify me of your situation in a timely manner (**prior to** or **the day of the exam**), then you will receive a zero on the exam. Individual work is required on exams.

Final Exam (20% or 120 points) A comprehensive final exam will be given according to the University's exam schedule. Individual work is required on the final exam. Make-up final exams will be considered only in extreme circumstances and **documentation will be required**. Also, you must notify me **prior** to the final exam or **the day of the final exam** if you think your situation merits a make-up. If you miss the final exam for a valid reason but do not notify me of your situation in a timely manner (**prior to** or **the day of the exam**), then you will receive a zero on the final exam. Individual work is required on exams. If the score on the final exam is higher than the score of the lowest regular exam, then it will be used to replace the regular exam score. Students may not exempt the final exam.

Class Activities (5% or 30 points) There will be several unannounced brief activities in class that count towards a class participation grade. You must be present in class to receive credit for these activities. If you miss an activity because you are late to class, then you will not receive credit for that activity. You may miss two class activities without penalty.

Homework (15% or 90 points) Homework testing the concepts taught in lecture will be posted in My Lab and Mastering throughout the semester. Students will submit their answers online and receive feedback on responses. A date and time for closing each assignment will be announced in class and appear on each assignment. Some written homework problems from the textbook (e-book) may also be assigned and collected. Expect 10 assignments worth 10 points each. The lowest homework grade will be dropped. Students may discuss the homework problems with each other but each student should submit their answers individually. A 30% penalty will be imposed on all late assignments and these will only be accepted up to 3 days after the due date. If you have technical difficulties with My Lab and Mastering, you must notify me 24 hours before the assignment is due to receive consideration for an extension.

Lab Quizzes (5% or 30 points) You will be given a short quiz at the beginning of nine of the eleven labs, all but the first and last. Questions about concepts previously covered in lecture that are related to the lab will be asked. Each quiz will be worth 5 points. The lowest three quiz grades will be dropped. **Students who arrive late to lab will not be permitted to take the quiz.** Individual work is required on the lab quizzes.

Short Answer Writing Assignments – SAWA (15% or 90 points) For all lab sessions, you will be required to complete a series of short answer questions to be collected. Each SAWA will be completed and turned in at the lab meeting. In the event that the lab runs long, the lab instructor may extend the assignment. The lowest SAWA grade will be dropped. If you miss a lab, then that is the lab that will be dropped. Students may work together in answering SAWA questions, but each student must turn in an assignment to receive credit.

Extended Writing Assignment – EWA (5% or 30 points) For Lab Session 8, an extended writing assignment (EWA) will be assigned. This is a detailed technical writing report that discusses the lab experiment, statistical methods, and results. Greater detail on this paper will be provided later. It is *very important* for you to attend this lab which is scheduled on March 27 and due on April 3. If you miss this lab for a valid reason but do not notify me of your situation in a timely manner (**prior to** or the **day of the lab**), then you will receive a zero on the EWA. A 25% penalty will be imposed on all late papers and these will only be accepted up to a week after the due date. Individual work is required on the EWA. Students may proof-read each other's papers, but **original writing is required from each student**.

Assignment Summary and Grading Scale

Assignment Summary	Points	Percent
Homework	90	15%
Class Activities	30	5%
SAWAs	90	15%
Quizzes	30	5%
EWA	30	5%
Exam1	70	11.67%
Exam2	70	11.67%
Exam3	70	11.67%
Final Exam	120	20%
Total	600	100%

Grading Scale	
A	540-600 points (90-100%)
B+	522-539 points (87%-89.9%)
B	480-521 points (80%-86.9%)
C+	462-479 points (77%-79.9%)
C	420-461 points (70%-76.9%)
D+	402-419 points (67%-69.9%)
D	360-401 points (60%-66.9%)
F	<360 points (<60%)

*Extra credit assignments will not be offered.

Daily Schedule for Spring 2014

Tuesdays		Thursdays	
Date	Material	Date	Material
1/14	1.1-1.2, 2.1-2.3	1/16	2.4-2.5, 3.1-3.2*
1/21	3.3-3.4*, 5.1-5.2	1/23	Lab 2
1/28	5.3-5.4	1/30	Lab 3
2/4	Exam I	2/6	Lab 4
2/11	6.1-6.2	2/13	Lab 5
2/18	6.2-6.3	2/20	Lab 6
2/25	7.1, Review	2/27	Exam II*
3/4	7.2-7.3, 8.1-8.2	3/6	Lab 1
3/11	Holiday	3/13	Holiday
3/18	9.1, 9.2	3/20	Lab 7
3/25	Review	3/27	Lab 8
4/1	EXAM III	4/3	8.3,9.3*
4/8	9.4-9.5*, 10.4	4/10	Lab 9
4/15	10.2-10.3*	4/17	Lab 10
4/22	10.1*, Review	4/24	Lab 11
4/29	Reading Day – No Class	5/1	Final Exam, 9:00 AM

*Note that on these Thursdays, the class will meet for lecture instead of lab. The lectures on these Thursdays will take place in LeConte, 210B. Schedule is subject to change. Sections 3.4, 9.5, 10.3 and 10.1 will be covered if time permits.

Timeline for lectures, labs and exams	Chapters	Time
Introduction, statistical terms and graphical displays LAB 2: Introduction to StatCrunch	AF 1	.5 week
Descriptive statistics LAB 3: Descriptive statistics and graphical displays	AF 2	2 weeks
Simple linear regression and correlation LAB 4: Simple linear regression and correlation	AF 3	1 week
EXAM I: Recall basic statistical terms with the ability to express them in the correct context, select appropriate descriptive statistical methods for univariate and bivariate data, effectively explain findings from graphical displays and descriptive statistics		
Basic probability: sample space, laws of probability, conditional probability, tree diagrams, and independence Lab 5: Probability	AF 5	1 week
Continuous random variables, normal distribution	AF 6	1 week
EXAM II: Apply basic concepts of probability including properties of the normal and binomial distributions		
Binomial Distribution Lab 6: Binomial Distribution	AF 6	1 week
Investigating methods of sampling Lab 1: Sampling	AF 1	.5 week
Sampling distribution of sample mean, central limit theorem Lab 7: Sampling distribution of a sample mean	AF 7	.67 week
Point and confidence interval estimation of population proportion	AF 8	.67 week
One sample hypothesis test for population proportion Lab 8: Inference for a population proportion	AF 9	1 week
EXAM III: Apply properties of sampling distributions to solve probability problems, select and apply appropriate inferential statistical methods for univariate data, effectively explain findings from inferential statistical analysis for univariate data		
Point and confidence interval estimation of mean, t distribution	AF 8	.67 week
One sample hypothesis tests for mean, errors in hypothesis testing Lab 9: Inference for a population mean	AF 9	1 week
Comparing two population means, dependent sample design Lab 10 Comparing two population means, dependent sample design	AF 10	1 week
Comparing two population means, independent sample design Lab 11: Comparing two population means, independent sample design	AF 10	1 week
Cumulative Final Exam: Material from exams I, II, and III, select appropriate descriptive and inferential statistical methods for comparing two populations means, effectively explain findings from inferential statistical analyses for comparing two populations		

Note: StatCrunch, an online data analysis package, will be used for all data analysis in labs.

* For one lab, students will compose a technical report explaining data collection methods, statistical methods, and interpretation of results

To register at pearsonmylabandmastering.com

1. On the MyLab and Mastering website (pearsonmylabandmastering.com), click **Student** under **Register**.
2. Enter the (**Course ID = petkewich42262**), and click **Continue**.
3. Sign in or create an account:
 - If you already have a Pearson account, enter your username and password. Click **Sign In**.
 - If you don't have an account, click **Create an account**. Add your account information (USC ZIP Code = 29208), and read and accept the license agreement. Click **Create Account**.
 - To retrieve your account information, click **Forgot your username and password**

Note: On the Sign In page, check that the course details are correct, If not, click **Enter a different course ID**.

4. To select an option to register for access to your course, do one of the following:
 - If you already bought your access code, either bundled with your textbook or as an access code kit sold individually, click **Access Code**. Next, enter your access code and click **Finish**.
 - To buy your course online, click **Use a Credit Card or PayPal**, and then **the** item you want. You can choose different items that correspond to the same textbook. For example, for some textbooks, you can choose to buy its eText. Next, enter your credit card or PayPal information, and review and submit your order.
 - If you're waiting for financial aid, click **Get temporary access without payment for 17 days**. Click Yes when a message appears asking if you are sure you want temporary access.

A Confirmation page appears where you can go to your course.

Sign in

Once you have entered your course ID and registered, you can sign in anytime:

1. On the MyLab and Mastering website, click **Sign in**.
2. Enter your username and password, and click **Sign in**.
3. Under **MyLab / Mastering New Design**, click your course title.

When your course appears, use the course menu to navigate.

For Customer Technical Support, call Toll Free **1-800-677-6337**, Monday through Friday 9 AM – 6 PM EST.