

220:203 STATISTICS
Professor Peter D. Loeb
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Fall 2021
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TA: To be announced if available.

Required Text: **MODERN ELEMENTARY STATISTICS**, 12th ed., 2007, John E. Freund and Benjamin M. Perles, Pearson/Prentice Hall, ISBN: 0-13-187439-X

Pre-requisites: College Algebra.

Office Hours: Office hours will be conducted online via Webex. Every student should have a Rutgers version of Webex. You can check with the Office of Information Technology if you have problems acquiring this. You can connect to class office hours at: <https://rutgers.webex.com/meet/ploeb>. The times for office hours will be announced in class. I would like to adjust the times to be of greatest use to students given the online nature of office hours.

Tutoring: The Learning Center, located in Bradley Hall provides free tutoring for statistics and other subjects. (Phone number: 973-353-5608) Call The Learning Center should you wish to make use of their services and to make appointments.

This course will develop the basic concepts and tools of modern statistics with an emphasis on applications. Topics include measures of central tendency, variance, probability theory, discrete and continuous distributions, hypothesis testing, curve fitting, and correlation. Attendance is required. Our experience indicates that students who do not attend class regularly and who do not complete their assignments in a timely manner do poorly in the class. Please make sure you have a computer or other device so that you can attend online office hours.

There will be three exams, equally weighted – 2 “hourly exams” and a final. **No** make-up exams will be given unless absences are approved by the Dean of Academic Services. **Cheating** will not be tolerated and may result in disciplinary action. (See the Policy on Academic Integrity in the Student Handbook.) As noted above all students should have successfully completed College Algebra or placed out of it prior to taking this course.

Additional information and messages will be posted on Canvas and/or noted in class. In addition, students should do as many problems in the text as necessary for them to feel they have mastered the material. Answers to the odd-numbered problems are provided at the end of the text.

Exam Dates: Exams will be approximately equally distributed throughout the semester. The tentative dates for the exams are posted below.

Exam 1 will be on October 12, 2021 (**tentative**).

Exam 2 will be on November 11, 2021 (**tentative**).

The above dates for the exams may be changed slightly based on the course material covered. These possible changes will be announced in class! Make-up exams will only be given for acceptable reasons as determined by the Dean of Academic Services.

Final Exam: Tuesday, 12/21/21 between 11:45 and 2:45. The final exam date is determined by the University and any conflict must be addressed by the other instructor.

PRELIMINARY COURSE OUTLINE

<u>DATE</u>	<u>TOPICS</u>	<u>CHAPTERS</u>
Sept. 2	Introduction, Summarizing Data	1, 2.1, 2.3-2.5, 3.1-3.8
Sept. 9	Summarizing Data	3.1-3.8, 4.1-4.5
Sept. 14,21	Sample Spaces, Events, Probability	6.1, 5.1-5.4
Sept. 23,28	Rules of Probability	6.1-6.6
Sept. 30	Expectations, Probability Distributions	7.1, 8.1-8.4, 8.7-8.8
Oct. 5,7	Expectations, Probability Distributions	7.1, 8.1-8.4, 8.7-8.8
Oct. 12	Exam 1 (tentative)	
Oct. 14	The Normal Distribution	9.1-9.2, 9.4-9.5
Oct. 19	The Normal Distribution- Problems	9.1-9.2, 9.4-9.5
Oct. 21	The Normal Distribution Cont'd. Sampling and Sampling Distributions	9.1-9.2, 9.4-9.5 10
Oct. 26,28	Estimation	11
Nov. 2	Hypothesis Testing Regarding Means	12
Nov. 4	Hypothesis Testing of Means Cont'd.	12
Nov. 9	Hypothesis Testing of Means Cont'd	12
Nov. 11	Exam 2 (tentative)	

Nov. 16	Hypothesis Testing Regarding St. Dev.	13
Nov. 18,23,30	Hypothesis Testing Regarding Count Data	14.1-14.3
Dec. 2,7	Hypothesis Testing – Continued	14.1-14.3
Dec. 9	Regression Analysis	16.1-16.3
Dec. 9	Correlation	17.1-17.2
Dec. 21	Final Exam	

Homework:

Please select problems after each section completed in the text and do as many as needed to feel comfortable that you have mastered the material. Solutions to odd number problems are provided in the book. For those of you who would like a representative set of problems to be suggested – see below:

In what follows, the first number indicates the chapter and the number after the period provides the problem number. For example: 1.3 indicates chapter 1, problem 3. You need not do all the problems. Just do a representative number until you feel confident that you can do similar problems.

1.5, 2.27, 2.29, 2.33, 2.35,2.39, 2.40, 2.41, 2.53(a), 2.67, 3.1, 3.5, 3.8, 3.13, 3.19, 3.21, 3.25, 3.27, 3.30, 3.34, 3.39, 3.51, 3.53, 3.59, 3.60, 3.61, 3.66, to 3.73, 4.1, 4.3, 4.9, 4.18, 4.19, 4.21, 4.27, 4.32, 4.33, 4.37, 5.1, 5.2, 5.5, 5.6, 5.7, 5.8, 5.9, 5.15, 5.17, 5.19, 5.21, 5.23, 5.25, 5.27, 5.31, 5.33, 5.34, 5.41, 5.43, 5.45, 5.48, 5.49, 5.53, 5.55, 5.57, 5.59, 5.61

6.3, 6.13, 6.17, 6.21, 6.29, 6.33, 6.35, 6.42, 6.43, 6.47, 6.49, 6.51, 6.54, 6.55, 6.56, 6.57, 6.63

7.1, 7.3,

8.1, 8.5, 8.7, 8.11, 8.19, 8.21, 8.42,

9.1, 9.3, 9.5, 9.7, 9.9, 9.11, 9.13, 9.15, 9.17, 9.19, 9.25, 9.27, 9.31, 9.33, 9.37, 9.41, 9.43

10.1,

11.1, 11.4, 11.7, 11.9, 11.15 a, 11.23, 11.25, 11.37, 11.39, 11.41, 11.45, 11.51

12.1, 12.5, 12.21, 12.23, 12.25, 12.27, 12.28, 12.31, 12.36, 12.37, 12.38, 12.40, 12.45, 12.47

14.1, 14.3, 14.5

Select additional problems for the remaining chapters on your own.
