

Math 106.03 — Elements of Statistics
Syllabus and Course Procedures — Fall 2011

Instructor Brian D. Jones
Office 303 Rutherford B. Hayes Hall
Phone 5386
e-mail jonesbd@kenyon.edu
Office Hrs

Mon 9-10
Tue 9-11
Wed 2-3
Fri 12-1

Required Text Peck and Devore, *Statistics: The Exploration and Analysis of Data*, 7th edition, Brooks/Cole (2012).

Course Material The following is a roughly ordered section list. Some sections may be omitted or added, and some sections may not require written homework.

Chapters 1, 3, 4
Sections 5.1, 5.2, 5.3, 5.4, 5.6
Sections 2.1, 2.2, 2.3, 2.4, 2.6
Sections 6.1, 6.2, 6.3
Appendix A
Sections 7.1, 7.2, 7.3, 7.4
Sections 8.1, 8.2, 8.3
Sections 9.1, 9.2, 9.3, 9.4
Sections 10.1, 10.2, 10.3, 10.4, 10.5, 10.6
Sections 11.1, 11.2, 11.3, 11.4
Sections 12.1, 12.2, 12.3
Sections 13.1, 13.2, 13.3, 13.4, 13.6
Sections 15.1, 15.2

Your Course Grade Your course grade will be determined as a weighted average as follows:

Homework*	18%	
Short Quizzes*	12%	
Class Participation and Activities	6%	
Design and Analysis Project	12%	
Midterm Exam 1	16%	Wednesday, October 5
Midterm Exam 2	16%	Wednesday, November 16
Final Exam	20%	Friday, December 16, 8:30-11:30 a.m.

Grading scale is *approximately* : A (90-100), B (80-90), C (70-80), D (60-70), F (below 60)

* I will delete your lowest quiz and homework scores before calculating your final course average.

Homework Homework problems will usually be assigned and collected twice per week. In addition to homework exercises from the text, in-class and out-of-class computer lab work may occasionally involve written exercises. Homework solutions should be legible and presented in a logical fashion, with problem number clearly indicated. You do not need to type your work, but please write neatly. I (and/or the grader) may give no credit to messy homework consisting of scratch work here and there, a few doodles, and a circled final answer. Besides the usual symbolic language of mathematics and statistics, good homework solutions should be accompanied by explanations and ideas written in complete English sentences.

Homework assignments are to be handed in at the beginning of the class period at which they are due unless I specify otherwise. No credit will be given to unexcused late papers. Do not leave your homework back at your dorm room! If you have a conflict with a due date because you are a student-athlete, tell me as far in advance as possible. If you have an excused illness, send me an e-mail as soon as possible. A student assistant will grade your homework and return it as quickly as possible. For simplicity, I will weight all homework assignments equally. I will delete your lowest homework score before calculating your final course average.

One of my favorite axioms is *Homework is where most of the learning happens in a course*, and I agree whole-heartedly. The payback from hours of hard work on home assignments will be a deeper understanding of statistics, high homework scores, and ultimately the likelihood of a high grade in the course.

Late Policy Homework assignments must be turned in to me at the beginning of the class period on the assigned due date, unless I specify otherwise. No credit will be given to unexcused late papers. If you have an illness or athletic schedule conflict, let me know as soon as possible.

Short Quizzes I've noticed over the past few semesters that students need extra practice solving problems in an exam setting. In-class quizzes are intended to provide such practice and give students feedback on how well they know the most important core topics of this course. If a student has a weakness in a particular area, better to find out on a quiz rather than an exam. There will be approximately four in-class quizzes. The in-class quiz will usually be about 15 minutes long and will consist of an exam-like problem or two on core course topics. I will delete your lowest quiz score before calculating your final course average.

Class Participation and Activities It is important that all students be engaged in class discussions, group work, and activities. Therefore, this component of your grade is based on attendance, participation in class discussions and in-class lab activities, good teamwork in group activities, your presentation of problems to small groups or the class, and scores on in-class problems which I occasionally collect.

Design and Analysis Project For the design and analysis project, you will work in pairs. You and your partner will design an experiment, collect the appropriate data, analyze the data, and write a formal report presenting your project from design to conclusions.

Approximately five weeks into the semester, you will be required to submit research hypotheses, an experimental design, and sampling plan. I will meet with each pair of students to approve their proposal — I say *approve* not to be dictatorial, but to assure the scope of your project is not too small and not too big. Approximately three to four weeks before the end of the semester, I will meet with each pair of students informally to discuss their progress so far and analysis plan.

Your final formal report should be of professional quality — typed, having a cover sheet, introduction, body, and results and conclusions. It should be well-written with good use of both technical and non-technical language, and displaying appropriate graphics. The grade on your report will be weighted, giving 70% weight to mathematical and statistical correctness, and 30% to presentation.

Exams There will be two midterm exams and one comprehensive final exam. The tentative dates for these exams are:

Midterm Exam 1 — Wednesday, October 5

Midterm Exam 2 — Wednesday, November 16

Final Exam — Friday, December 16, 8:30-11:30 a.m.

Software There will be a considerable amount of work done with the aid of the software package Minitab. All that you need to know about Minitab will be covered in class. Embrace Minitab from the outset, even if you are timid with software packages. I assure you Minitab is very easy to learn and use, and its ease is matched with the power to do many of the basic statistical analyses. Minitab is also a fast and friendly program for running simulations, which are instrumental in demonstrating the underlying statistical principles of probability and analysis.

Fast and powerful statistical software is a somewhat bittersweet pill. With today's powerful software, we can perform a plethora of analyses quickly and generate a ream of output, whether or not these analysis procedures are appropriate for the given data setting, and whether or not key validating assumptions are met. Knowledge and discipline must match the awesome computational power and speed of modern software!

Academic Honesty Any work you submit for credit in this course must result directly from your own understanding, thoughts, and ideas. Presenting the work of others as your own is strictly prohibited.

Disabilities If you have any disability and therefore may have need for some type of accommodation(s) in order to participate fully in this class, please feel free to discuss your concerns in private with Erin Salva, Coordinator of Disability Services, by calling her office at phone number 5453, or by sending her an email at salvae@kenyon.edu.