Elements of Statistics I
Fall 2012
MATH 130.03 (3 credits), M_W_F, 11:00A-11:50A, Wickersham 104

Prerequisites: Mathematics placement (MPT 130) or any 100-level mathematics course is the prerequisite for this course.[1]

Instructor: Dr. Buchanan

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Office Hours: 2:00P-2:50P (MTWTF) or by appointment

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Course URL: http://banach.millersville.edu/~BobBuchanan/math130/

Textbook: *Fundamentals of Statistics*, 3rd edition, Michael Sullivan, Prentice Hall Publishing, Upper Saddle River, NJ (2010) ISBN: 978–0321641878.

You will also need a basic scientific calculator such as the TI-30X IIS or a graphing calculator such as the TI-84 Plus.

Objectives: MATH 130 is an introductory probability and statistics course requiring no prior background in these topics. Students will need some skills with elementary algebra and a calculator. Throughout this course and semester the instructor plans:

- to introduce students to elementary probability and its applications,

- to introduce students to some basic methods of statistical analysis,

- to provide enough statistical training so that students can read research articles, communicate with statisticians, and interpret computer outputs involving means, standard errors, significance levels, confidence limits and other fundamental measures, and

- to introduce students to a statistical computing package (*Minitab*) and use this package to solve problems in probability and statistics.

Course Contents: The sections of the textbook to be covered this semester will include:

- Data Collection (Chap. 1)

- Organizing and Summarizing Data (Chap. 2)

- Numerically Summarizing Data (Chap. 3)

- Probability (Chap. 5)

- Discrete Probability Distributions (Chap. 6)

- Normal Probability Distribution (Chap. 7)

- Sampling Distributions (Chap. 8)

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[1]Credit will not be granted for both MATH 130 and MATH 235.

- Confidence Intervals (Chap. 9)

- Testing Claims Regarding a Parameter (Chap. 10)

- Inference on Two Samples (Chap. 11).

Attendance: Students are expected to attend all class meetings. If you must be absent from class on the day an assignment is due, you must complete and hand in the assignment prior to the absence. If you know you will be absent on the day of a test, you must notify me before the time the test is scheduled in order to schedule a make-up test. Students who miss a test should provide a valid excuse, otherwise you will not be allowed to make up the test. No final exam exemptions.

Merely attending class will not earn you a passing grade. Regular class attendance (see University Attendance Policy) includes being on time to class and actively engaging and participating in classroom activities. It does not include texting, listening to personal music players, browsing the internet, playing video games, checking email, *etc.* Students engaging in these types of activities may be asked to leave the classroom and/or be counted absent for the class meeting. Do not expect a warning or announcement before these sanctions.

Homework: Students are expected to do their homework and participate in class. Students should expect to spend a minimum of three hours outside of class on homework and review for every hour spent in class. Homework problems from the textbook will be assigned nearly every class meeting. You should work all of these problems neatly and keep them organized for use when studying for tests and the final examination since the test and exam problems will be similar in wording and difficulty to the exercises in the textbook. Periodically throughout the semester I will ask that you hand in some of the textbook problems for grading. You will have at least two days' notice of the homework problems to be handed in for grading. Graded assignments may also include computer assignments using the statistical software, *Minitab*. Homework will not be accepted late without a valid excuse. In no case will late homework be accepted after an assignment has been graded and returned to the class. Discussion between students on homework assignments is encouraged, but each student must keep their own separately written copy of the homework assignments. Written homework must be submitted on 8.5×11 inch standard, smooth-edged paper (no ragged spiral notebook paper). If more than one page is required for an assignment, multiple pages must be stapled together.

Tests: There will be three 50-minute in-class tests and a comprehensive final examination. The tests are tentatively scheduled for

- Wednesday, September 12, 2012

- Monday, October 15, 2012

- Friday, November 16, 2012

Missed tests must be made up as soon as possible, preferably within one week of the originally scheduled test date.

The comprehensive final examination is scheduled for Friday, December 14, 2012, from 8:00A–10:00A.

Grades: Course grade will be calculated as follows.

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\begin{array}{ll}
\text{Tests} & 60\% \\
\text{Exam} & 25\% \\
\text{Homework} & 15\%
\end{array}
$$

Tests and the final examination will be graded individually on a 100-point scale. Graded homework assignments may consist of a variable number of problems worth ten points each. I keep a record of students' test, homework, and exam scores. Students should also keep a record of graded assignments, tests, and other materials. As an example of the calculation of the numerical course grade, suppose a student's four test grades were 87, 78, and 70 (out of a maximum of 100 points on each test), the student's final examination grade was 71 (again, out of a maximum of 100). Suppose seven homework assignment were collected and the student's grades were 32/40, 38/50, 50/60, 20/40, 27/50, 40/40, and 23/40. This hypothetical student's numerical course grade would be calculated according to the formula

$$
\begin{aligned}
\frac{87 + 78 + 70}{3} &\cdot 0.60 + 71 \cdot 0.25 \\
&+ \frac{32/40 + 38/50 + 50/60 + 20/40 + 27/50 + 40/40 + 23/40}{7} \cdot 15 \\
=\ & 47 + 10.7 + 17.75 \\
=\ & 75.45
\end{aligned}
$$

I keep a record of students' test, homework, and exam scores. Students should also keep a record of graded assignments, tests, and other materials. The course letter grades will be calculated as follows. I will not "curve" course grades.

90-92	A−	93-100	A		
80-82	B−	83-86	B	87-89	B+
70-72	C−	73-76	C	77-79	C+
60-62	D−	63-66	D	67-69	D+
		0-59	F		

Course Repeat Policy An undergraduate student may not take an undergraduate course of record more than three times. A course of record is defined as a course in which a student receives a grade of A, B, C, D, (including + and −) F, U, Z or W. The academic department offering a course may drop a student from a course if the student attempts

to take a course more than three times.[2] If this is your fourth or greater attempt to complete this course, you may appeal this policy to the chair of the Department of Mathematics.

The last day to withdraw from a course (and receive the W grade) is November 2, 2012.

Inclement Weather Policy: If we should miss a class day due to a school closing because of weather, any activities planned for that missed day will take place the next time the class meets. For example, if a test is scheduled for a day that class is canceled on account of snow, the test will be given the next time the class meets.

Final Word: Mathematics is not a spectator sport. What you learn from this course and your final grade depend mainly on the amount of work you put forth. Daily contact with the material through homework assignments and review of notes taken during class is extremely important.

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[2]Memorandum to mathematics faculty from Dr. Charles G. Denlinger, Assistant Chair, Department of Mathematics, August 30, 2004.