

Elements of Statistics I
Fall 2019
MATH 130.04 (3 credits), Tu_Th, 10:50A-12:05P, Wickersham 219

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: 10:00A-10:50A (M-F), 10:00A-10:45A (Tu_Th), 02:00-02:50P (W), or by appointment

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Textbook: *Fundamentals of Statistics*, 5th edition, Michael Sullivan III, Pearson Publishing, Upper Saddle River, NJ (2018) ISBN: 978-1269318976.

The ISBN is for a bundle including a paper copy of the textbook and an access code for the [MyLab](#) website accompanying the textbook (which includes an online copy of the book). You will need the access code to complete the homework assignments. 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)
- Summarizing Data in Tables and Graphs (Chap. 2)
- Numerically Summarizing Data (Chap. 3)
- Probability (Chap. 5)
- Discrete Probability Distributions (Chap. 6)
- The Normal Probability Distribution (Chap. 7)
- Sampling Distributions (Chap. 8)
- Estimating the Value of a Parameter (Chap. 9)
- Hypothesis Tests Regarding a Parameter (Chap. 10)

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

- Inferences 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. There are no final exam exemptions.

Merely attending class will not earn you a passing grade. Regular class attendance (see [Class Attendance Policy](#)) includes being on time to class and actively engaging and participating in classroom activities. It does not include texting, listening to music, watching videos, 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 after nearly every class meeting. The homework will be completed on-line through the [MyLab](#) website. You should work all of these problems (if necessary, repeatedly until your solution is correct) and periodically review them 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. Graded assignments may also include computer assignments using the statistical software, *Minitab*. This software is available in the campus computer laboratories and on students' personal computers through the [vLab Virtual Desktop](#). 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 submit their own solutions to the homework assignments. Students must register with the [MyLab](#) website by September 6, 2019 at 05:00P using the access code which came with the purchased course materials. In addition to the access code, you will be asked for the following information:

Course Name: MATH 130 Elements of Statistics 1

Course ID: buchanan62433

If you have not purchased the access code, you may register with a valid credit card, or PayPal account, or you may still register with the [MyLab](#) website for free 14-day access. Once registered you will have 14 days to purchase and enter the access code. After 14 days your account will be locked (but nothing lost or deleted) until you enter the access code. There are no excuses for not registering with [MyLab](#).

For best results when using the [MyLab](#) website, please run any suggested web browser compatibility checks to ensure your browser settings do not conflict with the site. Based on past experience, 99% of technical difficulties with [MyLab](#) result from incorrect browser settings on a student's computer. Unfortunately I cannot provide troubleshooting and IT support for students using [MyLab](#). If you encounter problems please click on the "Help & Support" link

at the top of the [MyLab](#) login page. In the case of technical issues which cannot be solved before an assignment is due, you may use the campus computer labs to access [MyLab](#).

Tests: There will be three 75-minute in-class tests and a comprehensive final examination. The tests are tentatively scheduled for

- Tuesday, September 24, 2019
- Tuesday, October 22, 2019
- Thursday, November 21, 2019

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 Tuesday, December 10, 2019, from 08:00A–10:00A.

Grades: Course grade will be calculated as follows.

| | |
|----------|-----|
| Tests | 55% |
| Exam | 25% |
| Homework | 20% |

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 a variable number of points. All homework assignments will be weighted equally. 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 three 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

$$\begin{aligned}
 & \frac{87 + 78 + 70}{3} \cdot 0.55 + 71 \cdot 0.25 \\
 & \quad + \frac{32/40 + 38/50 + 50/60 + 20/40 + 27/50 + 40/40 + 23/40}{7} \cdot 20 \\
 & = 43.08 + 17.75 + 14.31 \\
 & = 75.14
 \end{aligned}$$

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 Friday, November 1, 2019 (signed withdrawal card must be presented to the Registrar's Office by 04:30P).

Inclement Weather Policy: If we should miss a class day due to a school [delay](#) or [cancellation](#), 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.

Title IX Reporting Responsibilities: Millersville University and its faculty are committed to assuring a safe and productive educational environment for all students. In order to meet this commitment and to comply with Title IX of the Education Amendments of 1972, 20 U.S.C. §1681, *et seq.*, and act in accordance with guidance from the Office for Civil Rights, the University requires faculty members to report incidents of sexual violence shared by students to the University's Title IX Coordinator. The only exceptions to the faculty member's reporting obligation are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. Faculty members are obligated to report sexual violence or any other abuse of a student who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred to the person designated in the University protection of minors policy.

Information regarding the reporting of sexual violence, and the resources that are available to victims of sexual violence, is available at <https://www.millersville.edu/titleix/index.php>.

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.

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