STAT 3450 (20342)

Basic Statistics for Engineers

Spring 2019

Instructor: Laura Jones
E-Mail: jones.5810@osu.edu – Please note that in order to protect your privacy all email correspondence must be done through a valid OSU name.# account.
Office Hours: Tuesdays/Thursdays 6:20-7:30 PM in Cockins Hall (CH) 212B or by virtual appointment
Class Time/Location: Tu/Th 4:10-5:05 PM in Eighteenth Avenue (EA) 170
Course Website: carmen.osu.edu – On the site you will find announcements, the syllabus, notes, homework assignments, solutions, quizzes, and grades.

Extra Help: Cockins Hall 122 is a room dedicated to helping students with STAT courses. To view when it is open, please visit https://mslc.osu.edu/courses/stat/3xxx. The schedule is also typically posted outside the door. Hours begin Monday, January 14.

Prerequisites: MATH 1152, 1161.xx, 1172, 1181, or equivalent, or permission of the instructor. Not open to students with credit for 3460 or 3470.

General Education (GE) Requirement: This course satisfies the GE requirement in Data Analysis.

- **Goals**: Students develop skills in drawing conclusions and critically evaluating results based on data.

- **Expected Learning Outcomes:** Students understand basic concepts of statistics and probability, comprehend methods needed to analyze and critically evaluate statistical arguments, and recognize the importance of statistical ideas.

Course Description: STAT 3450 provides an introduction to probability and statistics targeted toward students studying mechanical engineering. Topics covered include probability, random variables, the normal and binomial distributions, confidence intervals for means, hypothesis tests for means, multifactor experiments and experiments with blocking.

Textbook: *Principles of Statistics for Engineers and Scientists*, 1st Edition, by William Navidi

The book is available on reserve in the 18th Avenue Library.

Topics: We will be covering all or parts of chapters 1, 3 – 7, 9, time permitting.

Learning Objectives: Upon successful completion of the class, students should be able to
  - ➢ understand basic concepts of statistics and probability
  - ➢ critically evaluate results based on data
  - ➢ effectively communicate statistical findings to others
  - ➢ recognize the importance of statistical ideas and how they can be applied in the real world

Graded Work: Your grade will be comprised of
  - ➢ 2 in-class exams (40%)
  - ➢ comprehensive final exam (25%)
  - ➢ homework assignments (15%)
  - ➢ quizzes (15%)
  - ➢ attendance/participation (5%)

Exams: Tentative exam dates are **Thursday, February 14** (in class) and **Tuesday, April 2** (in class). The cumulative final exam will be on **Monday, April 29, 6:00 - 7:45 p.m.**

Guidelines for exams:

1. For each midterm, you may bring one 8.5" x 11" sheet of paper (both sides) with whatever handwritten facts, formulas, or explanations you find helpful; for the final exam, you may bring two 8.5" x 11" sheets of paper.
2. The final exam will be cumulative, with a slight emphasis on those topics covered after the second midterm.
3. A basic calculator will be necessary for all exams (no cell phone calculators or PDAs).
4. **No make-up exams will be given unless extenuating circumstances exist.**

Homework Assignments: There will be approximately 8 homework assignments throughout the semester. Assignments along with due dates are subject to change. All changes will be announced in class.

Guidelines for homework:

1. You are encouraged to discuss problems with each other in general terms, but you must write your own homework solutions.
2. Homework must be submitted in hardcopy (NO e-mailed copies) on the document provided and will be collected at the start of class on the due date.
3. You must show your work for all homework problems; do NOT just write the final answer.
4. Late submissions will NOT be accepted since solutions will be posted promptly. I understand that illness and other unplanned emergencies can come up during the semester, and so I will drop your lowest homework score.
5. **A subset of assigned problems will be graded for accuracy and the rest for completion. Solutions to all problems will be posted on the website, so it is**

your responsibility to check the solutions and make sure you understand them.

Quizzes: Throughout the semester, you will be given 7 online quizzes worth 10 points each. Each quiz will be available on Carmen, and you will have one hour to complete it. You may use any materials you want, but you should complete them on your own. Answers will be provided after the due date has passed. Tentative due dates are 1/20, 2/3, 2/24, 3/10, 3/31, 4/14, and 4/21 at 11:59 pm. The lowest score will be dropped.

Attendance: Students who miss more than **three** classes will lose a percentage from attendance. Each additional absence will result in a loss of percentage until all 5% is gone. If you will be missing class for a legitimate reason, prior notice is needed, and only under these circumstances will late work be accepted. It is your responsibility to obtain all the content that you missed. Please contact a classmate to achieve this.

TopHat: Attendance will be taken through the use of TopHat. Students must register by going to tophat.com, clicking on signup in the upper right corner, selecting "sign up as a student," entering the join code 717745, and proceeding as directed. **Please be sure to register before the start of class on Tuesday, January 15.**

Bonus: The opportunity to earn bonus will potentially occur daily. Notify me of any mistakes I have made, and you will be awarded with one bonus point. Bonus points can be used on any exam but must be turned in at the conclusion of the exam time.

The grading scheme is as follows:

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

Academic Integrity: Collaboration is recommended, but in the end all work should be completed by you! Anyone who is caught cheating and/or plagiarizing is in violation of the University Code of Conduct and will be reported to the Committee on Academic Misconduct**.** It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall

report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct **http://studentlife.osu.edu/csc/**. Every student is entitled to appeal these academic sanctions.

Special Accommodations: The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability, please let me know immediately. You are also welcome to register with Student Life Disability Services to establish reasonable accommodations. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. (**SLDS contact information**: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.)

Diversity: The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

Mental Health: As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614-292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273-TALK or at suicidepreventionlifeline.org.

Cell Phone Policy: Cell phones are NOT to be used during class. Before class begins, please take the time to silence and put away all electronic devices. Following this policy will not only benefit yourself but also those around you. If cell phone use is an ongoing problem, students may be deducted points from their attendance/participation grade. If there is an emergency, please inform me ahead of time.

Tuesdays	Thursdays
January 8 Sections 1.1-1.3	January 10 Sections 1.3, 3.1
January 15 Sections 3.1, 3.2 Homework 1 Due	January 17 Sections 3.2, 3.3 Quiz 1 Due Sunday, 1/20
January 22 Section 3.3	January 24 Sections 3.3 and 3.4
January 29 Section 3.4 Homework 2 Due	January 31 Section 4.1 Quiz 2 Due Sunday, 2/3
February 5 Section 4.3	February 7 Sections 4.7 and 4.8
February 12 Section 4.8 Homework 3 Due	February 14 Midterm 1
February 19 Section 5.1	February 21 Section 5.1 Quiz 3 Due Sunday, 2/24
February 26 Section 5.2	February 28 Sections 5.2 and 5.4 Homework 4 Due
March 5 Section 6.1	March 7 Section 6.1 Quiz 4 Due Sunday, 3/10
March 12 Spring Break	March 14 Spring Break
March 19 Sections 6.2 and 6.4	March 21 Sections 6.6 and 6.7 Homework 5 Due
March 26 Section 7.1	March 28 Sections 7.3 and 7.4 Homework 6 Due Quiz 5 Due Sunday, 3/31
April 2 Midterm 2	April 4 Sections 7.3, 7.4, and 9.1
April 9 Sections 9.1 and 9.2	April 11 Sections 9.1 and 9.2 Homework 7 Due Quiz 6 Due Sunday, 4/14
April 16 Section 9.3	April 18 Review Homework 8 Due

	Quiz 7 Due Sunday, 4/21
April 23 Reading Day	Monday, April 29 Final Exam 6-7:45