

STAT 3470.02: Introduction to Probability and Statistics for Engineers

Summer 2022 Course Syllabus

Instructor: Olivia Cleymaet

Email: cleymaet.2@buckeyemail.osu.edu

Lectures: Posted on Carmen every Tuesday

Office Hours: Monday 11:00-12:00, Thursday 2:00-3:00 over Zoom (via this link), or by appointment

Email Correspondence: Please begin subject with “STAT 3470.” In order to protect your privacy, all email correspondence must be conducted using a valid OSU name.# email account. Any email from a non-OSU account will be ignored. I will attempt to answer emails within 48 hours; however, due to the large volume of emails this may not always be possible. Please consider whether the question has already been answered in the syllabus, the notes, a Carmen announcement, or the textbook before sending an email.

Course Description: This 3 credit hour course is an introduction to probability and statistics for engineers. Topics covered include probability, Bayes Theorem, discrete and continuous random variables, probability distributions, expected values, sampling distributions, point estimation, confidence intervals, hypothesis testing, and least squares regression models.

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

Expected Learning Outcomes: Upon successful completion of this course, 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 Prerequisites: Math 1152, 1161.xx, 1172, 1181H, or equiv, or permission of instructor. Not open to students with credit for 3440, 3450, 3450.01, 3450.02, 3460, 3470, or 3470.01.

Course Textbook and WebAssign: The required textbook for this course is *Probability and Statistics for Engineering and the Sciences*, (9th edition) by Jay L. Devore, and will be provided through [CarmenBooks](#). This course will utilize the WebAssign resources associated with the textbook for homework assignments. A link to the host website for WebAssign is accessible from the course website in [Carmen](#).

Grading Policy: Final course grades will be determined according to the following weights:

- **Homework** (30%) Homework will be assigned via WebAssign throughout the semester, at least one week in advance of the due date. Deadlines for completing the assignments will be shown in Webassign. It is the students' responsibility to check Carmen and WebAssign regularly and be aware of deadlines; late homework will not be accepted. Homework assignments will be equally weighted.
- **Exams** (70%) There will be two midterm exams, the first covering probability theory and random variables and the second covering estimation and hypothesis testing, and a final exam, which will be comprehensive. Your highest exam score of the three will be weighted at 30%, and the other two at 20% each.

A letter grade will be assigned based on the following rubric: A: 93-100, A-: 90-92.9, B+: 87-89.9, B: 83-86.9, B-: 80-82.9, C+: 77-79.9, C: 73-76.9, C-: 70-72.9, D+: 67-69.9, D: 63-66.9, D-: 60-62.9, E: below 60.

Homework will be administered via WebAssign, with assignments due every 1-2 weeks.

Exams: There will be three scheduled exams which will cover material from lectures, homeworks, and assigned readings. Weeks of exams are included in the tentative schedule available here and in Carmen. Each exam will be available for a 48-hour period. Further details will be announced via Carmen.

Course Website: Important announcements, course materials, homework assignments, supplemental references, and other information will be posted on [Carmen](#). This will be the primary means of delivering course materials and announcements throughout the course. Video lectures will be posted on the course website, and discussion boards are available for course content questions.

Academic Misconduct

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute Academic Misconduct.

The Ohio State University's Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: Any activity that tends to compromise the academic integrity of the University, or subvert the educational process. Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an excuse for academic misconduct, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Disability Services: The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. 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.

Mental Health Statement: 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 <https://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 <https://suicidepreventionlifeline.org>.

Note: This syllabus is a guide for the course and is subject to change with advance notice.

Plan for STAT 3470 - Summer 2022

subject to change

Week	Topics Covered	Textbook Sections
1	Course Introduction and Overview Probability Spaces	2.1, 2.2, 2.3
2	Probability Rules and Counting (continued) Conditional Probability and Independence	2.3, 2.4, 2.5
3	EDA and Random Variables Discrete Distributions	1.x, 3.1, 3.2, 3.3
4	Discrete Distributions (continued) Continuous Random Variables	3.4, 3.6, 4.1, 4.2
5	Continuous Distributions Random Vectors	4.3, 4.4, 5.1
6	Covariance and Independence Sampling Distributions and CLT Exam 1	5.2, 5.3, 5.4, 5.5
7	Introduction to Estimation Methods of Point Estimation	6.1, 6.2
8	Confidence Intervals	7.x
9	Hypothesis Testing	8.x
10	Confidence Intervals and Hypothesis Testing (continued) Statistical Methodology and Ethics in Practice Exam 2	TBD
11	Linear Regression	12.x
12	Transformations Multiple Regression Final Exam	13.x