MATH 361 - Probability and Mathematical Statistics
Loyola Marymount University
Fall 2023

Instructor: Dr. Le Wang
Email: le.wang@lmu.edu
Office: University Hall 2754
Phone: 310-338-5116
Office hours:
Monday 1 - 3 p.m. (in person)
Tuesday and Thursday 11:35 a.m. - 12:05 p.m. (in person)
Wednesday 11 a.m. - noon (Zoom: 894 6132 4773, Passcode MATH361), or by appointment

Meeting Times and Location
MATH 361 - 01: 9:55 - 11:35 a.m. on TR in University Hall 2727
MATH 361 - 02: 1:45 - 3:25 p.m. on TR in University Hall 2727

Course Topics: Sample space, basic probability rules, discrete and continuous probability distributions, important families of distributions, multivariate probability distributions, functions of random variables, sampling distributions and the Central Limit Theorem, point and interval estimation, and hypothesis testing. The prerequisites are MATH 132 and MATH 181 (or CMSI 1010 or ENGR 160)

Learning Outcomes: Upon completion of this course, students are expected to be able to

* compute probability using basic counting techniques
* work with discrete and continuous random variables
* understand and compute expectation and variance
* understand multivariate, marginal, and conditional probability distributions
* find the probability distribution of a function of random variables
* understand sampling distributions and the Central Limit Theorem
* apply different estimation procedures
* derive hypothesis testing procedures

Textbook: *Mathematical Statistics with Applications, 7th edition, by Wackerly, Mendenhall, and Scheaffer (ISBN 978-0-495-11081-1).*

Computing: We will use the computing software R for simulation studies in this course. R is available on www.r-project.org and its integrated development environment Rstudio is available on https://www.rstudio.com.

Grading: Course grade will be assigned as follows

35% Homework
25% Midterm Exam
35% Final Exam
5% Participation

Letter grades will be assigned at the end of the semester: A for 93 or above, A- for 90-92, B+ for 87-89, B for 83-86, B- for 80-82, C+ for 77-79, C for 73-76, C- for 70-72, D for 60-69, F for less than 60.

Homework: Homework will be assigned as material is covered. You will submit your work in person at the beginning of class. A lateness penalty (i.e., 25% reduction per 24 hours after the deadline) will be assessed for homework assignments that are turned in after the due date. You are encouraged to work with other students in solving the homework problems. However, you must submit your own solution, and it is to your advantage to make sure that you can do all of the problems on your own.

Participation: Participation will be evaluated based on attendance and contribution to in-class discussions and activities.

Tentative Exams Schedule:
Midterm: Oct 19 (in class)
Final: Dec 14, 8 - 10 a.m. for MATH 361 - 01 and 11 a.m. - 1 p.m. for MATH 361 - 02

Other Important Dates:
Aug 28 (M) - Classes begin
Sep 4 (M) - Labor day (no classes)
Oct 13 (F) - Autumn day (no classes)
Nov 22 - 24 (W-F) - Thanksgiving holidays (no classes)
Dec 8 (F) - Last day of classes

Work Load Expectations: This course is an upper division statistics course that satisfies major and minor requirements in the Math Department. As such, there are expectations on the nature and level of your effort. With 200 in-class minutes per week, the typical work load out of class is 400 minutes per week. This time should be spent on reading the textbook, reviewing lectures, working on practice problems and projects, and preparing homework submissions.

How to Do Well: Attend every class meeting and be an active participant. Begin doing the homework as soon as we cover the relevant material in class. Take advantage of my office hours, and ask questions as soon as you have them. Since the later material builds on the earlier material, waiting to ask questions may not be a good strategy.

Absence: A good grade in statistics is achieved through regular attendance. Any material covered in lecture may be included as questions on examinations. If you miss a class, it is your responsibility to find out what material was covered.

Communication: I will communicate with the class and individual students using campus email, so it is essential that you regularly check your lion.lmu.edu email account or the preferred email address to which you forward.

Special Accommodations: Students with special needs who require reasonable modifications, special assistance, or accommodations in this course should promptly direct their request to the Disability Support Services (DSS) Office at http://www.lmu.edu/dss.

Academic Honesty: Academic dishonesty will be treated as an extremely serious matter with severe consequences that can range from receiving no credit for assignments/tests, failing the class, to expulsion. It is never permissible to turn in any work that has not been authored by the student, such as work that has been copied from another student or copied from a source (including Internet) without properly acknowledging the source. It is your responsibility to make sure that your work meets the standard set forth in the "Academic Honesty Policy" (see http://academics.lmu.edu/honesty.)

Respect for all: In this course, we will work together to develop a learning environment that is inclusive and respectful. Diversity in our class may be reflected by differences in race/ethnicity, culture, age, religion, sexual orientation, gender identity and expression, socioeconomic background, and other social identities and life experiences. An inclusive and diverse learning environment encourages and appreciates the expressions of different ideas, opinions, and beliefs as opportunities for intellectual and personal enrichment. Developing this environment requires the thoughtful consideration of others' communication.

Expectations for Classroom Behavior: As an LMU Lion, by the Lion's Code, you are pledged to join the discourse of the academy with honesty of voice and integrity of scholarship and to show respect for staff, professors, and other students. Please turn off and put out of sight all electronic devices (other than those and when allowed) during class time. The interruptions and/or distractions they cause disrupt class and interfere with the learning process.

Tentative Nature of the Syllabus: If necessary, this syllabus and its contents are subject to revision; students are responsible for any changes or modifications announced or distributed in class or posted on Brightspace.