

MATH 411A PROBABILITY THEORY
FALL 2017 (Sept 20-Dec 1)
MTWF 10 - 10:50am in BOUILLON 110

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Office: Bouillon 107B
Office Hours: MTWThF 12pm – 12:50pm, and by appointment.

Text: Hogg, Tanis, and Zimmerman, Probability and Statistical Inference, 9th Edition. This quarter we will cover Chapters 1, 2, 3, and the first half of Chapter 4.

Course Goals: This course covers the basic concepts of probability theory and lay the foundation for mathematical statistics. Specifically, we will cover:

- The axiomatic approach to probability theory
- Basic ideas in combinatorics
- Conditional probability, independence, and Bayes' Theorem
- Discrete and continuous random variables and their distributions
- Families of discrete and continuous distribution
- Mathematical expectations of random variables
- Bivariate and multivariate distributions

Prerequisite: Math 273 or permission.

Course Assessment: Your overall grade will be determined by the following:

- Two in-class exams (40% total); tentative dates: Tuesdays, Oct 17 and Nov 14.
- Comprehensive final exam (25%); given Tuesday, Dec 5, from 8 - 10am.
- Homework (30%).
- Problem session write-ups (5%); see below for more information.

Required Materials: The textbook is required. A scientific or graphing calculator is also required. If you are planning to take Exam P (see below), here are some recommended calculators: TI-30Xa, TI-30X II (IIS solar or IIB battery), or TI-30XS MultiView (or XB).

Exam P: This course covers most of SOA Exam P material. Students are encouraged to take Exam P in March and enroll in MATH416A next quarter. For more information, see <https://www.soa.org/education/exam-req/edu-exam-p-detail.aspx>.

Homework: Weekly homework will be assigned in class. Due dates will be announced at the time of the assignment. Homework must be done neatly, stapled, and written on clean-edged paper. Your work should be clear, in a logical order, and provide sufficient explanation. Credit will not be given for late homework. A good guide is to think about whether another student in the class who didn't know how to do this particular problem could understand your solution. Collaboration on homework is permitted, but copying is not permitted. You must write up a problem on your own, even if you worked with others to figure it out. Credit will not be given to any party for work which is identical.

Problem Session write-ups: We will have approximately seven "problem sessions" throughout the quarter, where instead of covering new material in class you will be given several problems to work on. You are encouraged to work on these with others in the class. At the end of class, students will be assigned to write up solutions to the problems. You must write up at least TWO problems over the course of the quarter. Problems will be assigned first by taking volunteers among those who still have write-ups to complete and then, if there are no volunteers, choosing among that same group at random. When writing up a solution to a problem, remember that your fellow classmates are going to be reading it. Your solution must either be submitted to me electronically or in a form suitable for scanning. To receive credit, your correct solution is due by 10AM on the third business day after the problems are done in class (e.g. the write-ups from a Tuesday problem session day would be due by 10AM on Friday). *Credit will not be given until a solution is correct and reasonably well written.* You are strongly encouraged to discuss your solution with me before it is due. Late solutions will be docked one-half of one percentage point per business day. The submitted solutions will be posted on Canvas.

Exams: Any changes to the tentative exam schedule will be announced in advance. Make-up arrangements must be made at least 1 day prior to an exam unless you can document an unexpected circumstance beyond your control that prevented you from taking the exam.

Other Information: Central Washington University is committed to creating a learning environment that meets the needs of its diverse student body. If you anticipate or experience any barriers to learning, discuss your concerns with the instructor. Students with disabilities should contact Disability Services to discuss a range of options to removing barriers, including accommodations. Student Disability Services is located in Hogue 126. Call (509) 963-2214 or email ds@cwu.edu for more information.

I reserve the right to change the policies contained in this syllabus as dictated by developments during the quarter. Changes will be announced in class and on Canvas.