

**Department of Mathematics
Pomona College**

Math 151. Probability Fall 2016

Course Outline

Time and Place: TR 8:10 am – 9:25 am Millikan 1021

Instructor: Dr. Adolfo J. Rumbos

Office: Andrew 2287

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Office Hours: MWF 10:05 am-10:50 am, TR 10:00 am – 11:00am,
or by appointment

Text: *Probability and Statistics*,
by Morris H. DeGroot and Mark J. Schervish, Adison Wesley

Course Website: <http://pages.pomona.edu/~ajr04747/>

Prerequisites: Multivariable Calculus or Vector Calculus, and Linear Algebra.

Course Description. This course is an introduction to the theory and applications of Probability; special attention will be given to applications relevant to statistical inference. A solid knowledge of multivariable calculus and linear algebra will be assumed. The course topics are listed in the attached tentative schedule of lectures and examinations.

Assigned Readings and Problems. Readings and problem sets will be assigned and collected on weekly basis. Students are strongly encouraged to work on every assigned problem. **Late homework assignments will not be graded.**

Grading Policy. Grades will be based on the homework, three 50-minute examinations, plus a comprehensive final examination. The overall score will be computed as follows:

homework	20%
three 50-minute exams	50%
final examination	30%

Final Examination.

Time: Monday, December 12, 2016 7:00 pm – 9:00 pm.
Place: Millikan 1021

Math 151. Probability**Fall 2016****Tentative Schedule of Lectures and Examinations**

Date	Topic
T Aug. 30	Introduction: A problem from statistical inference
R Sep. 1	Sample Spaces and σ -fields
T Sep. 6	Probability function
R Sep. 8	Independent events
T Sep. 13	Conditional probability
R Sep. 15	Continuous and discrete random variables
T Sep. 20	Cumulative distribution function (cdf)
R Sep. 22	Probability mass function (pmf) and probability density function (pdf)
T Sep. 27	Review
R Sep. 29	Exam 1
T Oct. 4	Expectation of a random variable
R Oct. 6	Expectation of a function of a random variable
T Oct. 11	Moments, variance and moment generation function
R Oct. 13	Joint distribution functions
T Oct. 18	<i>Fall Recess</i>
R Oct. 20	Marginal distributions and independent random variables
T Oct. 25	Independent random variables (continued)
R Oct. 27	The Poisson Distribution
T Nov. 1	Review
R Nov. 3	Exam 2
T Nov. 8	Limiting distributions and the mgf convergence theorem
R Nov. 10	Convergence in distribution and convergence in Probability
T Nov. 15	The Central Limit Theorem
R Nov. 17	Applications of the Central Limit Theorem
T Nov. 22	Random samples and Sampling distributions
R Nov. 24	<i>Thanksgiving Recess</i>
T Nov. 29	Review
R Dec. 1	Exam 3
T Dec. 6	Review