

# MATH/STAT 414 Introduction to Probability

MWF 12:20 - 1:10 PM

265 Willard Bldg

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**Textbook:** *A First Course in Probability, Eighth Edition*, by Sheldon M. Ross

**Web:** <http://johnfricks.org/teaching/stat414fall2013/>

**Prerequisite:** Math 230 or Math 231

## Course Objective:

This is a first course in calculus-based probability designed for quantitative students. The goal of this course is to introduce the student to both the underlying mathematical foundations of probability at an undergraduate level and the application of probability to practical problems. This course will prepare students for further study in mathematical statistics or more advanced probability stochastic modeling. A student successfully completing this course should be able to manipulate basic probabilities and work with random variables including their associated densities, distributions, and expectations through the appropriate application of elementary combinatorics and differential/integral calculus. In addition, the student should be able to convert verbal descriptions of elementary probabilistic problems into a mathematical formulation and to properly interpret any subsequent mathematical result.

## Course Outline:

Counting (Chapter 1) .....	2 weeks
Basic Definitions and Properties of Probability (Chapters 2 & 3) .....	3 weeks
First Exam .....	October 11
Random Variables (Chapters 4, 5 & 6) .....	3 weeks
Expectation (Chapter 7) .....	3 weeks
Second Exam .....	November 22
Inequalities and Limit Theorems (Chapter 8) .....	2 weeks

## Grade Policy:

 Grades will be determined by the following components:

Quiz .....	20
Midterm 1 .....	25
Midterm 2 .....	25
Comprehensive Final .....	30

The final grades will be determined using the following intervals. If the grades are curved, a higher grade may be received, but you will not receive a lower grade than what is found below.

[93, 100] .....	A
[90, 93) .....	A-
[87, 90) .....	B+
[83, 87) .....	B
[80, 83) .....	B-
[77, 80) .....	C+
[70, 77) .....	C
[60, 70) .....	D
[0, 60) .....	F

**Quizzes:**

Quizzes will be administered during the last twenty minutes of class *without* prior notification. There will be ten quizzes worth ten points each throughout the semester. They will consist of two to three questions, possibly with sub-questions.

No make-up quizzes will be given, so you should be careful about missing quizzes, i.e. missing class. However, the two lowest quiz scores will be dropped. With this system, you may miss two quizzes with no serious adverse effect on your grade. Beyond two missed quizzes, this system will result in a loss of two points in your *overall* grade since the quizzes are worth twenty percent of the grade.

**Exam Policies:**

In the case of a University approved conflict, an arrangement will be made with the instructor. You must inform the instructor one week before the exam date. The comprehensive final exam will take place at the registrar-designated time and place during the week of December 16-20. Like the midterms, it will be closed-book and closed-notes. It will cover the entire semester and not merely the period after the second midterm. No rescheduled final exams will be allowed except for those mandated by the Penn State registrar because of conflicts. This means that you must attend the final exam and should under no circumstances make end-of-semester travel arrangements before knowing your final exam schedule.

**Integrity:**

All Penn State University and Eberly College of Science policies regarding academic integrity apply to this course. Those policies are available at: [www.science.psu.edu/academic/Integrity/index.html](http://www.science.psu.edu/academic/Integrity/index.html)

Please pay particular attention to the student conduct section from those policies:

All course work by students will be done on an individual basis unless an instructor clearly states that an alternative is acceptable. Any reference materials used in the preparation of an assignment, whether quoted or paraphrased, must be explicitly cited. In an examination setting, unless the instructor gives explicit prior instructions to the contrary, regardless of whether the examination is in-class or take-home, violations of academic integrity shall consist of any attempt to receive assistance from any person or papers or electronic devices, or of any attempt to give assistance, whether the student doing so has completed his or her own work or not. Other violations include, but are not limited to, any attempt to gain an unfair advantage in regard to an examination, such as tampering with a graded exam or claiming another's work to be one's own.

**Statement on Disability Services:**

Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic adjustments in this course, contact the Office for Disability Services (ODS) at 814-863-1807 (V/TTY). For further information regarding ODS, please visit the Office for Disability Services Web site at <http://equity.psu.edu/ods/>. In order to receive consideration for course accommodations, you must contact ODS and provide documentation (see the documentation guidelines at <http://equity.psu.edu/ods/guidelines/documentation-guidelines>). If the documentation supports the need for academic adjustments, ODS will provide a letter identifying appropriate academic adjustments. Please share this letter and discuss the adjustments with your instructor as early in the course as possible. You must contact ODS and request academic adjustment letters at the beginning of each semester.