ACMS 30530-01: Introduction to Probability, Fall 2020

Class website: http://www.nd.edu/~jhauenst/acms30530
9:10 – 10:00 am MWF in Hesburgh Library 107

Instructor: Jonathan Hauenstein (152C Hurley Hall, hauenstein@nd.edu)

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Books: *Mathematical Statistics with Applications,* 7th edition, Wackerly, Mendenhall, and Scheaffer, 2008.
Homework through WebAssign: http://webassign.net

Description: An introduction to the theory of probability, with applications to the physical sciences and engineering. Topics include discrete and continuous random variables, conditional probability and independent events, generating functions, special discrete and continuous random variables, laws of large numbers, and the central limit theorem. The course emphasizes computations with the standard distributions of probability theory and classical applications of them.

Topics: As time permits, this course will cover the following:

1. Basic Probability: counting, conditional probability, Bayes' Rule (Chapter 2)
2. Discrete Random Variables (Chapter 3)
3. Continuous Random Variables (Chapter 4)
4. Multivariate Distributions (Chapter 5)
5. Functions on Random Variables (Chapter 6)
6. Sampling Distributions and the Central Limit Theorem (Chapter 7)

Software: This course will use software to perform computations related to probability and statistics. In class demonstrations will mainly use MATLAB (available for free to students from http://oit.nd.edu).