Information for students in Math 30530, Fall 2015

Instructor: Nancy Stanton 268 Hurley, 631-7436, stanton.1@nd.edu

Office hours: By appointment and Mondays 3:30–5 p.m. and Tuesdays 1-3 p.m.

Text: Grinstead and Snell, *Introduction to Probability*, second revised edition, available from the bookstore and the American Mathematical Society (the publisher) and also available online as a downloadable pdf

Web site: The course web site is http://www3.nd.edu/∼nancy/Math30530/info.html. A copy of this handout is on the web site.

Some things you will accomplish in the course:

- learn to solve the Monty Hall problem;

- learn to think probabilistically—likely a new experience;

- make friends with the basic objects and concepts of probability theory;

- learn to count;

- learn how many people must be in a room for the probability to be at least 1/2 that two of them have the same birthday;

- learn to model certain events probabilistically and then calculate their probabilities.

Syllabus: The course will cover most of chapters 1–10. We will discuss sample spaces, events, probability, combinatorial methods, and independence. Much of the course will be about random variables—discrete random variables and continuous random variables, followed by jointly distributed random variables—and expected value and variance. Finally, we will cover the Law of Large Numbers and the Central Limit Theorem.

Expectations: I expect you to read each section of the book before it is covered. Make a note of any questions you have. If you don't have any, I'll probably have some for you. On the course web site under Information you will find tips for reading the book. Bring the book to each class. Of course, to do well you **must** keep up with the homework and review frequently.

Getting Help: The best way to get help from me with course material or homework is to come to my office hours or to make an appointment to see me. You may also email me with questions. If you have a question about the homework that you would like me to discuss in class, please send me an email message by 8 a.m. the day of the class. At the start of class I will answer a few of these questions. If I can't get to your question, don't hesitate to follow up on it with me.

Homework: There will be weekly homework assignments, generally given on Wednesday due at the start of class the following Wednesday. The first two homework assignments are posted on the course web page. Assignment 0, your mathematical autobiography, is due

August 31. Assignment 1 is due September 2. Future assignments will be posted by the due date of the previous assignment. Each assignment will include reading and problems. Some of the assignments will require computer simulations. I will not accept unexcused late homework.

Computers: I will use the computer algebra system MATLAB for simulations and demonstrations and will post the MATLAB code. I strongly recommend that you use it and use the current version, which is available for download from OIT under Software Downloads. On the website for the book you can find Mathematica, Maple and True Basic versions of programs for the simulations (written for older versions of the software). Mathematica is available for download from OIT. Maple is available on all cluster computers. If you want your own copy of Maple, let me know and I will arrange for you to purchase the student version through the course adoption program, which will give you the discounted price (probably $75).

Exams and Quizzes: There will be two midterms, 10 quizzes and a final.

Exam 1: Wednesday, September 23
Exam 2: Wednesday, November 4
Final: Wednesday, December 16, 4:15-6:15 p.m.
Quizzes: in class on Wednesdays beginning September 2 except for the weeks of the midterms

Quizzes will usually cover material from the three previous classes. I will drop your lowest quiz score. More than half the points on exams will be from problems similar to lecture examples, text examples and homework problems.

Grading:

Homework 100 points (after scaling)
Quizzes 100 points (after scaling)
Midterms 200 points (100 points each)
Final 150 points

Absence from examinations and quizzes: If you are absent from an examination or quiz without an official excuse, you will receive a grade of zero for that examination or quiz. If you are officially excused, you will not be penalized. If you miss a test or quiz for any reason, send me an email message, call me or call the Mathematics Department as soon as possible.

Honor Code: Testing will be done under the Honor Code. On homework, you are allowed and encouraged to work together and discuss the problems. However, copying from ANY source or submitting work done by others as your own is a violation of the Honor Code.