

Math 103 (Intro to Probability & Statistics)—Spring 2004

- Instructor:** Rob Manning
Hilles 207C (up 1 flight from Hilles main entrance)
896-1210
rmanning@haverford.edu
- Office Hours:** MF 1-2 PM
T 1-3 PM, W 11:30-12:30, M 7-9 PM (at Math Question Center)
(or arrange another time with me)
- Discussion Sections:** M 3-4 PM
T 12-1 PM
(These are optional hours for you to work on practice problems related to the course material and get help on HW problems).
- Math Question Center:** Sun-Thu 7-9 PM, Hilles 011
(optional time to discuss homework problems with other students and get assistance from a faculty member or upperclass math major on duty).

Course Description: This course is an introduction to probability and statistics, with an emphasis on the *ideas* of statistics rather than memorizing formulas. Among our goals will be to develop the ability to reason intuitively about random events or statistical results, to be critical readers of statistical reporting in the media, and to design and implement simple statistical tests of our own.

Prerequisites: Math 103 has no prerequisites; indeed, students having taken Math 114 or placing at the 115/116/117 level or higher are encouraged to consider taking Math 116G/203H rather than Math 103, since that course will also cover probability and statistics, but at a level using introductory calculus.

Text: “Statistics (3rd ed)”, Freedman, Pisani, and Purves, (W.W. Norton, 1998)

Homework: Weekly problem sets most weeks. Solutions will be posted on Blackboard after HW is returned in class.

Late homework: You can leave late HW in the Math 103 box in the “waiting area” outside my office. If I retrieve it from the box before I grade that batch of HW, there will be no grade penalty (but I can not promise I will check the box between class time on the due date and the time when I begin grading). Thereafter, there will be a 20% grade penalty, up until the point when I return that HW in class. After then, that HW can not be turned in for a grade, although I will be happy to mark it for correctness.

Tests: There will be two in-class midterms on Feb. 18 and Mar. 31. There will be a self-scheduled final during the final exam period.

Project: There will be a short (e.g., 3-5 pages) project report due on the last day of classes (draft due on Fri. 4/23). Projects can be done in a group of two, and will allow you a chance to apply the statistical techniques of the course to a real-life problem either of your own devising or from the newspaper, media, etc.

Grades:	Homework : 15%
	Midterms: 20% each
	Project and Poster Presentation: 15%
	Final: 30%

Honor Code: For homework problems, discussion with other students in the class or with me is highly encouraged, e.g., in Math Question Center, my office, or elsewhere. Please indicate on your homework who your collaborators were. *Please see <http://www.haverford.edu/math/collaboration.html> for discussion of appropriate modes of collaboration on homework.* The short version is that the actual writing of the assignment should be done individually, without using detailed notes from your collaborative discussions, so that it represents your personal understanding of the problems. For the midterms and final, no collaboration is allowed. For the project, you may collaborate with your project partner (if you have one), but no other collaboration is allowed. You may ask me for clarification of the questions on tests, but I will not give suggestions about the actual solutions.

Disabilities: Students who think they may need accommodations in this course because of the impact of a disability are encouraged to meet with me privately early in the semester. Students should also contact Rick Webb, Coordinator, Office of Disability Services (rwebb@haverford.edu, 610-896-1290) to verify their eligibility for reasonable accommodations as soon as possible.

Web page: <http://www.haverford.edu/math/rmanning/math103.html>, but course materials (e.g., all handouts, HW assignments, and HW solutions) will be available through Blackboard rather than this Web page.

Anticipated Schedule:

1/19–1/23	Experimental design, Histograms (Ch. 1–3)
1/26–1/30	Average/standard deviation, normal curves (Ch. 4-5)
2/2–2/6	Normal curves (con't), measurement error (Ch. 5-6)
2/9–2/13	Correlation (Ch. 8-9)
2/16–2/20	Regression (Ch. 10-11)
	2/18: Midterm # 1 in class (on material 1/19–2/9)
2/23–2/27	Regression (con't) (Ch. 11-12)
3/1–3/5	Probability (Ch. 13-14)
3/8–3/12	SPRING BREAK
3/15–3/19	Law of Averages, Expected Value, Standard Error (Ch. 16-17)
3/22–3/26	Normal approximation for probability, sample surveys (Ch. 18-19)
3/29–4/2	Sampling: standard error and confidence intervals (Ch. 20-21)
	3/31: Midterm # 2 in class (on material 2/11–3/22)
4/5–4/9	Labor statistics example, accuracy of averages (Ch. 22-23)
4/12–4/16	Hypothesis tests (Ch. 26-27)
4/19–4/23	Chi-square test, meaning of significance (Ch. 28-29)
	4/23: Draft of project report due in class
4/26–4/30	Examples: measurement error, genetics (Ch. 24-25)
	4/30: Project poster session in class
	4/30: Project report due in class
	Final exam period: Final exam