

**Math 171: Statistical Theory and Application in the Real World
Spring 2004 Syllabus**

Section 02 (Kozdron)

During the first two weeks we will primarily use the custom course packet. Note that this packet is a reprint of Chapters 4 and 5 of the textbook *Introductory Statistics*, by Sheldon Ross. There is a copy of this book on reserve in the Mathematics Library. Otherwise, “chapter” refers to the corresponding chapters in *The Basic Practice of Statistics*, by David S. Moore.

Week 1: January 26, 28, 30

- introduction to statistics
- probability, mutually exclusive events (packet 4.1, 4.2, 4.3, 4.4)
- independence, discrete probability distributions (packet 4.5, 5.1, 5.2)

Week 2: February 2, 4, 6

- mean and variance of a sum of random variables (packet 5.3, 5.4)
- binomial distribution (packet 5.5; chapter 10 pages 249–261)
- normal distributions (chapter 3)
- normal approximation to binomial (chapter 12 pages 312–314)

Week 3: February 9, 11, 13

- sample proportion (chapter 18 pages 469–472)
- law of large numbers (chapter 10 pages 251–253)
- central limit theorem (chapter 10 pages 258–261)

Week 4: February 16, 18, 20

- picturing distributions with graphs (chapter 1)
- describing distributions with numbers (chapter 2)
- scatterplots (chapter 4 pages 79–87)

Week 5: February 23, 25, 26*, 27

- review for first prelim
- correlation (chapter 4 pages 88–94)

Week 6: March 1, 3, 5

- regression (chapter 5)

Week 7: March 8, 10, 12

- producing data: sampling (chapter 7)
- producing data: experiments (chapter 8)

Week 8: March 15, 17, 19

- sampling distributions (chapter 10)
- confidence intervals (chapter 13)
- tests of significance (chapter 14 pages 340–344)

Week 9: March 22, 24, 26

- spring break

Week 10: March 29, 31, April 2

- tests of significance (chapter 14 pages 345–359)
- inference in practice (chapter 15)

Week 11: April 5, 7, 9

- inference about a population mean (chapter 16)
- two sample problems (chapter 17)

Week 12: April 12, 13*, 14, 16

- review for second prelim
- inference about a population proportion (chapter 18)
- comparing two proportions (chapter 19)

Week 13: April 19, 21, 23

- two categorical variables: the Chi-square test (chapter 20 pages 529–546)

Week 14: April 26, 28, 30

- inference for regression (chapter 21 pages 562–567)

Week 15: May 3, 5, 7

- inference for regression (chapter 21 pages 568–583)
- review for final exam

Exam Schedule

- Prelim #1: Thursday, February 26, 2004, 7:30-9:00 p.m. (Thurston Hall 203)
- Prelim #2: Tuesday, April 13, 2004, 7:30-9:00 p.m. (Malott Hall 251)
- Final Exam: Monday, May 17, 2004, 9:00-11:30 a.m.