MATH 3339: Statistics for the Sciences
Course Outline

Prerequisites: Math 1432: Calculus II

Textbook: Applied Statistics for Engineers and Physical Scientists, 3rd Edition by Ledolter and Hogg, Prentice-Hall, 2010.
http://www.pearsonhighered.com/

The problems listed below are suggestions for the instructor. He or she will decide which problems to assign for homework.

Chapter 1: Collection and Analysis of Information (1½ weeks)

1.1 Introduction	Read
1.2 Measurements over Time	Read
1.3 Data Display and Summary	2, 3, 4, 9, 13, 14-17
1.4 Comparison of Samples	1, 2, 5, 6
1.5 Graphical Techniques	4, 5, 8, 11

Chapter 2: Probability Models and Discrete Distributions (2½ weeks)

2.1 Probability	2-5, 7-10
2.2 Conditional Probability	1, 2, 4, 5, 8-10, 12, 14, 15, 19
2.3 Random Variables	1, 3, 5-8
2.4 The Binomial Distributions	1-4, 6, 9, 11, 16
2.5 The Poisson Distributions	1, 3-5, 7, 9
2.6 Multivariate Distributions	1, 3, 7, 8, 10, 11
2.7 Estimation of Parameters	1, 2

Chapter 3: Continuous Probability Models (2 weeks)

3.1 Continuous Random Variables	2-7
3.2 The Normal Distributions	1-3, 5, 7, 10, 11, 14, 15
3.3 Other Useful Distributions	2, 4, 5, 8, 12
3.4 Simulation	3-5
3.5 Joint Continuous Distributions	1, 2
3.6 Fitting and Checking Models	3, 4, 10, 11

Chapter 4: Statistical Inference (3 weeks)

4.1 Sampling Distributions	1, 2, 4-6, 8, 9, 13
4.2 Confidence Intervals for Means	1-8
4.3 Inference with Small Samples	1-4, 6-9
4.4 Other Confidence Intervals	1-4, 7, 9
4.5 Tests for a Single Distribution	2-7, 11-13
4.6 Tests for Two Distributions	1, 3, 5-10
4.7 Chi-Square Tests	1-5, 7

Chapter 8: Regression Analysis (2½ weeks)

8.1 Simple Linear Regression	1-7
8.2 Inferences in Simple Regression	1-3, 5-7
8.3 Adequacy of the Fitted Model	1, 4, 6, 7
8.4 Multiple Linear Regression	2, 3, 7

Chapter 6: Experiments with One Factor (1½ weeks)

6.1 One-Factor Experiments	1, 3-7, 10
6.2 Other Inferences	1-3
6.3 Randomized Block Designs	1-3