Math 107
Spring/2004

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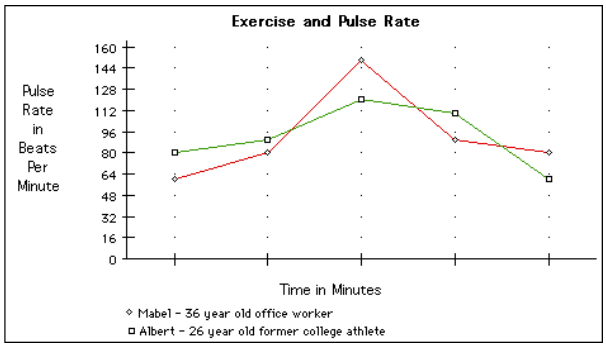

Some thoughts……

Statistics are the triumph of the quantitative method, and the quantitative method is the victory of sterility and death. Hillaire Belloc

The traditional mathematics professor of the popular legend is absentminded. He usually appears in public with a lost umbrella in each hand. He prefers to face the blackboard and to turn his back to the class. He writes a, he says b, he means c; but it should be d. George Polyá

There are three kinds of lies: lies, damned lies, and statistics. Benjamin Disraeli

The mathematical sciences particularly exhibit order, symmetry, and limitation; and these are the greatest forms of the beautiful. Aristotle

Statistics: the mathematical theory of ignorance. Morris Kline

Numbers are intellectual witnesses that belong only to mankind. Honore de Balzac

If your experiment needs statistics, you ought to have done a better experiment. Ernest Rutherford

To call in the statistician after the experiment is done may be no more than asking him to perform a postmortem examination: he may be able to say what the experiment died of. Ronald Aylmer Fisher

The mathematician is fascinated with the marvelous beauty of the forms he constructs, and in their beauty he finds everlasting truth. J. B. Shaw

Mathematics 107
Spring, 2004
Instructor: Mrs. Susan Riner
Office Location: 116C Seney Hall
Extension: 8316

Text: Elementary Statistics, 9th ed. Mario F. Triola with computer disc and formula sheet.

Materials: Calculator (TI-83) and Math 107 Notebook

Other Resources:
(1) The library has on reserve a set of videos and CDs with topics from the text and presented by Triola (the author) and others.
(2) Companion web site of the textbook: http://www.awlonline.com/triola

Course Content: Visual displays of data, measures of central tendency and of variability, classification of data, counting, probability, Chebyshev's Theorem, normal distribution, binomial distribution, Central Limit Theorem, hyper geometric distribution, Poisson distribution, Confidence Intervals, Hypothesis testing (means, proportions, variances), Simple linear Regression and correlation, Analysis of Variance (one way), Contingency Tables, nonparametric tests (Wilcoxon Rank-Sum and Kruskal-Wallis Tests). Emphasis is on inference.

Goals: At the end of this course students should be able to: categorize a data set; work various simple probability problems; understand the role of functions in statistics; describe major misuses of statistics, recognize several distributions and characterize them; analyze interval data for which statistical tests involving means, proportions, medians, rankings, and variances are the parameters; interpret relationships in bivariate data; know the difference between parametric and nonparametric statistics in relation to inherent assumptions of the general statistical model; recognize the limitations of statistics; understand the role of statistics in analyzing data and in inference; use a computer and/or a calculator to find measures of central tendency, measures of variability, basic test statistics; interpret statistical findings in relation to the situation from which the data was drawn, describe the experimental nature of mathematical statistics, draw inferences using the vocabulary of statistics. The goal is for students to begin to be good consumers of information.

Attendance: Class attendance and consistent preparation for class will determine the success or failure the student realizes in this course. Students are expected to attend all classes and are responsible for all material covered in class as well as any changes made in the schedule regarding homework, assignments, and other dates. An inordinate number of absences will be handled in accordance with school policies. Students are expected to take tests at the scheduled times. Conflicts, problems, or emergencies will be handled on an individual basis.

Classes: Class time will be used to enrich topics in statistics but will not be used to summarize information from the text. It is your responsibility to read the textbook. Basic problems and listings of the information for which you are responsible are included in the Math107 Notebook. You will need to stay current with the assignments in the notebook.
To do well in this course, the average student will need to study about 6-8 hours outside of class per week. Preparing experiments and studying for tests will take additional time.

Homework, labs, experiments, projects and quizzes: Check with your instructor.

Tests: Each test is worth 100 points and will be given at 2:15 on Fridays according to the attached schedule. There is no provision for making up tests. Emergencies will be handled on an individual basis.

Final Exam: A cumulative final exam will be given at the time scheduled by the Registrar. You may use formula sheets that are provided and your calculator for appropriate portions of tests, experiments, and the final exam.

Tutors: Student tutors are scheduled for a limited amount of time per week, in the Gregory Study room. If you have difficulty with homework problems, you may want to discuss these problems with tutors. A listing of tutors for mathematics courses may be found posted outside the mathematics offices after the first week of classes.

Grading: Grades will be determined by student performance based on the following point system:

4 tests @ 100 each	400
Projects/Experiments	100
Labs/Homework/Quizzes	100
Final Exam	200
	800

In general, the following scale will be used to assign letter grades:

A:	720 – 800	points
B:	640 – 719	points
C:	560 – 639	points
D:	480 – 559	points
F:	Below 480 points	

Grades of A-, B+, B-, C+, C-, D+ may be assigned for sums of points near the above cutoffs in total points.

HONOR CODE: THE HONOR CODE OF OXFORD COLLEGE APPLIES TO ALL WORK SUBMITTED FOR CREDIT POINTS TOWARD YOUR GRADE. ALL SUCH WORK WILL BE PLEDGED TO BE YOURS AND YOURS ALONE OR THAT YOUR CONTRIBUTIONS ON ANY EXPERIMENT ARE HONESTLY STATED. YOU PLEDGE THAT WITH YOUR SIGNATURE.

Proposed Calendar

Section I

1/15 (TH) Introduction to Statistics	Section 1-1, 1-2 and 1-3
1/20 (T) Descriptive Statistics	Section 1-4, 2-1, 2-2, and 2-3
1/22 (TH) Descriptive Statistics	Section 2-4, 2-5, and 2-6
Math107 Notebook	Notes: Descriptive Statistics
1/27 (T) Laws of Probability	Section 3-1, 3-2, 3-3
1/29 (TH) Laws of Probability	Section 3-4, and 3-5
2/3 (T) Counting	Section 3-7
Math107 Notebook	Notes: Counting/ Probability

2/5 (TH) Review for Test 1

Test 1 at 2:15 on Friday, February 6 in assigned rooms.
(Chapters 1, 2 and 3)

Section II

2/10 (T) Probability Distributions	Section 4-1 and 4-2
2/12 (TH) Binomial and Poisson Distributions	Section 4-3, 4-4, and 4-5
2/17 (T) Normal Distribution	Section 5-1, 5-2, 5-3, and 5-4
2/19 (TH) Central Limit Theorem, Normal Approximation to the Binomial Distribution	Section 5-5 and 5-6
Math107 Notebook	Notes: Prob. Distributions
2/24 (T) Confidence Intervals – Proportion, Mean	Section 6-1, 6-2, 6-3, and 6-4

2/26 (TH) Review for Test 2

Test 2 at 2:15 on Friday, February 27 in assigned rooms.
(Chapter 4, 5, and 6)

Section III

3/2 (T) Introduction to Hypothesis Testing	Section 7-1, 7-2
3/4 (TH) Hypothesis Testing - Proportions	Section 7-3

SPRING BREAK 3/8 - 3/12

3/16 (T) Hypothesis Testing - Means	Section 7-4, 7-5
3/18 (TH) Hypothesis Testing – Standard Deviation	Section 7-6
Math107 Notebook	Notes for Inference 1
3/23 (T) Inferences from Two Samples - Proportions	Sections 8-1, 8-2
3/25 (TH) Inferences from Two Samples - Means	Section 8-3, 8-4
3/30 (T) Inference from Two Samples - Variation	Section 8-5
Math107 Notebook	Notes for Inference 2

4/1 (TH) Review for Test 3

Test 3 at 2:15 on Friday, April 2 in assigned rooms
(Chapters 7 and 8)

Section IV

4/6 (T) Correlation and Regression	Section 9-1, 9-2
4/8 (TH) Regression	Section 9-3, 9-4
4/13 (T) Multinomial Experiments/ Contingency Tables	Section 10-1, 10-2 and 10-3
4/15 (TH) Analysis of Variance (ANOVA)	Section 11-1, 11-2
Math107 Notebook	Notes: More Parametric Models

4/20 (T) Nonparametric Statistics: Wilcoxon Rank-SumTest, Kruskal-Wallis Test
Section 12-3, 12-4 and 12-5
Math107 Notebook Brief History of Mathematics

4/22 (TH) Review for Test 4

Test 4 at 2:15 on Friday, April 23 in assigned rooms.
(Chapters 9, 10, 11, and 12)

4/27 (T) Last Class Day	Test 4 Returned