STA 221S PRACTICE OF STATISTICS II – January, 1996

	Day Lectures	Evening Lectures
Time:	TRF 3:10–4:00 p.m.	Tues. 7:10–10:00 p.m.
Room:	ES 1050	LM 159
Instructor:	Neil Montgomery	Nathan Taback
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Phone:	978-3452 (Statistics Department – leave a message)	
Office hours:	TBA	TBA

Statistics is the science of using data to answer questions and make decisions. It has applications in almost all fields of study including agriculture, anthropology, biology, business, economics, education, law, medicine, political science, pharmacology, psychology, and sociology. This course builds on the foundation to the study of Applied Statistics that was begun in STA 220. In particular, we will focus on techniques for the analysis of categorical data, the methods of Linear Regression and Analysis of Variance, and some non-parametric alternatives.

Textbook

The required text is "An Introduction to Statistical Methods and Data Analysis" by R.L. Ott. An accompanying student solutions manual is also available. In addition, Chapters 8, 9, and 10 of "Introduction to the Practice of Statistics" by Moore and McCabe and its accompanying MINITAB Guide may be useful references.

Evaluation

The grading scheme is the following:

Tutorial Grade 10%	Midterm Test 30%	Final Exam 60%

The tutorial grade will be based on quizzes, in-tutorial assignments, and participation. A quiz or in-tutorial assignment will take place in each tutorial except the first.

The midterm test will be held on Thursday, February 13 from 6:10–8:00 p.m. Students with a conflict may, after submitting proof of the conflict to their lecturer, write the test from 4:10–6:00 p.m. on the same day. A one-sided $8\frac{1}{2} \times 11$ aid sheet will be permitted. If the midterm test is missed for a valid reason, appropriate documentation must be submitted to your lecturer or the Statistics department office within one week of the test. The test's weight will be shifted to the final exam. If proper documentation is not received, a mark of zero will be assigned.

The final exam will be multiple choice. More information will be given about it's format in lecture. A two-sided $8\frac{1}{2} \times 11$ aid sheet will be permitted.

Computing

Analyzing data using statistical software is an essential component of this course. Students will be provided with an account on the CQUEST system. We will be using MINITAB software, which is also available in a student version for home computers.

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Tutorials

There are weekly one hour tutorials associated with this course. Tutorials will begin the second week of classes. The location of each tutorial will be posted outside the Statistics Aid Centre during the first week of classes. In each tutorial, practice problems will be assigned. At the next tutorial there will either be a short quiz or an in-class assignments (completed and handed in during that tutorial) based on these practice problems.

Statistics Aid Centre

Each tutor will be available during scheduled times in the Statistics Aid Centre, SS 2133. A schedule will be posted outside the centre.

TENTATIVE SCHEDULE

(Text references to Ott are given in brackets. M&M indicates references to Moore and McCabe.)

Week 1: 01/06-01/10 Analyzing categorical data: Review of confidence intervals and hypothesis tests, Chi-square goodness-of-fit test, Chi-square test of independence (8.1, 8.2, 8.3, 8.7, M&M Ch. 8)

Week 2: 01/13-01/17 Simple linear regression and correlation (9.1, 9.2, 9.4, 9.5, M&M Ch.2, 9.1)

Week 3: 01/20-01/24 Inference for simple linear regression (10.1, 10.2, 10.4, 10.5, M&M 9.1)

Week 4: 01/27-01/31 Testing lack of fit (10.6), Inference for multiple linear regression (9.6, 11.1, 11.2, 11.3, 11.4, 11.5, M&M 9.2)

Week 5: 02/03-02/07 Inference for multiple linear regression continued (11.6), Variable selection (Ch. 12)

Week 6: 02/10-02/14 Introduction to Analysis of Variance (13.1, 13.2, 13.3, 13.4, M&M 10.1) **Midterm test is on Thursday, February 13**

Week 7: 03/24-03/28 Test for equality of variances (13.5), Non-parametric approach (13.6)

Week 8: 03/03-03/07 Multiple comparison procedures (Fisher's and Tukey's procedures) (14.1, 14.2, 14.3, 14.4, 14.5)

Week 9: 03/10-03/14 Scheffé's procedure (14.9), Experimental design: completely randomized design, randomized block design (15.1, 15.2, 15.3)

Week 10: 03/17-03/21 Factorial experiments (15.5, M&M 10.2), Blocking (15.6), Multiple comparisons (15.7)

Week 11: 03/24-03/28 Generalized linear model (15.8), Repeated measures in one factor experiments (18.1, 18.2)

Week 12: 03/31-04/04 Analysis of covariance (19.1, 19.2, 19.3)

Week 13: 04/07-04/11 Other topics as time permits: Wilcoxon tests (6.3, 6.6), Unbalanced designs (16.1, 16.2), Random effects (Ch. 17)

Final exam