PSY710
Course Outline
Fall Term, 2006

1 Contact Information

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2 Course Information

Overview: This course covers statistical techniques that are commonly used in behavioural research, especially Psychology. The primary emphasis is on using linear models to analyze data that has been collected using balanced experimental designs. The course material is designed with the assumption that students have completed an undergraduate statistics course, but advanced backgrounds in statistics and mathematics are not necessary. The course consists of a lecture component (Tuesday, 2:30-4:30, PC-316) and a laboratory component (Wednesday, 12:30-2:30, PC-403).


Software: Laboratory exercises will use the free statistical computing environment, R, although SPSS may be used occasionally. No familiarity with R is assumed. Versions of R, which is a free, open-source version of S, have been written for Windows, OS X, and Linux. Students who want to install R on their own computers may obtain it at http://cran.r-project.org/.

The following documents, which can be obtained at http://cran.r-project.org/other-docs.html are recommended for people who are unfamiliar with R.

Grading: Grades will be based on three in-class exams administered in the statistical laboratory. Students will have access to R during the exams. Each exam constitutes 1/3 of the final grade.

Missed Exams: There are no makeup exams for Tests 1 or 2. If you miss either Test 1 or Test 2, and if you have a valid excuse, then the weight of each missed test will be divided among the remaining tests. For example, if you miss Test 1, then your final grade will be based on grades on Tests 2 and 3, with equal weight assigned to each test. If you miss Test 1 and Test 2, then your final grade will be based entirely on your grade on Test 3. All students must complete Test 3. If you miss Test 3, and if you have a valid excuse, then you must petition to re-take that test.

It is the student’s responsibility to notify the instructor of the reasons for missing a test in a timely fashion. Students who miss a test due to illness must submit a McMaster University Student Medical Certificate and a Missed Term Work form to the Associate Dean for Graduate Studies within five business days of the missed exam. Both forms are available at

http://www.science.mcmaster.ca/~associatedean/services/exemptions.html

which also contains a fuller description of the University’s policy regarding missed term work.

Academic Integrity: Students are responsible for demonstrating behaviour that is honest and ethical in their academic work, and are expected to be familiar with the University’s regulations regarding academic integrity (see section 6.1, Graduate Calendar 2006-07, pp. 14-15).

Statistical Laboratories: A computer-based lab will be held approximately every week. The purpose of the labs is to provide students with opportunities to work on statistical problems related to the lectures. At the beginning of each lab, students will be provided with materials that describe the purpose of the lab and outline the lab exercises. Students are expected to complete all of the lab exercises, although they will not be graded. Answers to the exercises will be posted on the web.

3 Schedule of Lectures

The following schedule is only approximate: Dates for lectures, but not tests, may be changed as we progress through the term. Unless stated otherwise, all readings refer to the course textbook.

- Week 1 (Sept. 12): Statistical inference
  Reading: Chapter 2 & Cohen (1994)

- Week 2 (Sept. 19): Testing hypotheses about group means in a one-way design
  Reading: Chapter 3

- Week 3 (Sept. 26): Planned and post-hoc comparisons
  Reading: Chapters 4 & 5
• Week 4 (Oct. 3): Analyses of trend
  Reading: Chapter 6 and Hale (1977)

• **Week 5: Term Test**
  Review: October 10
  Test: October 11

• Week 6 (Oct. 17): 2x2 factorial designs
  Reading: Chapter 7 (pp. 275-319)

• Week 7 (Oct. 24): 2x2 factorial designs
  Reading: Chapter 7 (pp. 320-343)

• Week 8 (Oct. 31): Higher-order factorial designs
  Reading: Chapter 8

• **Week 9: Term Test**
  Review: November 7
  Test: November 8

• Week 10 (Nov. 14): Designs with covariates
  Reading: Chapter 9

• Week 11 (Nov 21): One-way within-subject designs
  Reading: Chapter 11

• Week 12 (Nov 28): Higher-order within-subject designs
  Reading: Chapter 12

• **Week 13: Term Test**
  Review: December 5
  Test: December 6

**References**
