Course Information for 22S:161 “Applied Multivariate Analysis”
Fall 2009

Instructor
Dale Zimmerman, 233 Schaeffer Hall, Office phone 5-0818, Home phone 351-0520, E-mail dale-zimmerman@uiowa.edu, Webpage http://www.stat.uiowa.edu/~dzimmer

Class Hours and Location
8:30 – 9:20 am MWF, 130 SH

Department Executive Officer
Professor Luke Tierney, 241 SH, Phone 335-0712, luke-tierney@uiowa.edu

Dr. Zimmerman’s Office Hours
1:30 pm – 3:00 pm Tuesday and Thursday, or by appointment

Textbook
The required textbook for this course is Applied Multivariate Statistical Analysis, 6th edition, by Richard A. Johnson and Dean W. Wichern. We will cover most of Chapters 1-8 and 11, and some of Chapter 12. Reading assignments from the text will be made at the beginning of most class meetings. Abridged lecture notes for the entire semester will be available for download and printing from Dr. Z’s webpage, during the period from August 24 to September 3, 2009.

Course Prerequisites
22S:152 (Applied Linear Regression) and 22S:158 (Experimental Design and Analysis), or equivalents; and facility with matrix algebra. Note that 22S:152 and 22S:158 use SAS extensively, so some familiarity with SAS is assumed.

Course Objective
To learn some of the basic methods of applied multivariate statistics: descriptive statistics, Hotelling’s $T^2$-test, multivariate regression and MANOVA, principal components, discrimination and classification, and clustering. In addition to learning the methods, it is our goal to learn when and why they are appropriate, what the underlying assumptions are, and how to implement the methods using SAS (primarily).

Not a Course Objective
To rigorously present the theory underlying statistical methods for multivariate analysis. We offer a more theoretical and advanced treatment of many of the same topics in 22S:256, Multivariate Analysis (taught spring semesters of even-numbered years). Nevertheless, students taking 22S:161 who do not have command of statistical theory at the level of 22S:120 may struggle.
Exams

- Two 90-minute midterm exams, given evenings (outside of class) in early October (covering Chapters 1–5) and mid-November (covering Chapters 6–8). Exact time and place TBA.

- Take-home final exam handed out in class on Friday, December 4 and due by noon, Monday, December 14. This final will cover material presented in class from Chapters 11 and 12, as well as data analyses possibly requiring methods presented throughout the entire course.

Calculators may be used for exams, and any necessary statistical tables will be provided. If an exam is missed, a make-up exam will be permitted only if the circumstances of missing the exam satisfy university policies.

Homework
Written homework assignments are an essential component of the course. However, due to the large enrollment and the lack of a papergrader assigned to the course, they will be self-graded in the following manner. Sometime after class on the day the assignment is due, solutions to the homework problems will be available from the course link on Dr. Z’s webpage. Students will use these solutions to grade their problems themselves, assign an overall percentage score to the homework, and then turn in their graded homework at the beginning of the next class period. Homework not turned in by the beginning of the next class period will receive zero credit.

Assignments will be given in class every 1-2 weeks. They will consist mostly of problems from the textbook. You may work on homework problems together, provided that no outright plagiarism occurs.

Computing
Substantial computing will be necessary to complete the homework assignments and the final project. We will primarily be using SAS but may also use a bit of S-Plus. Ample examples using these software packages will be presented in class.

Attendance
Attendance at lectures and participation in discussions are expected. Coming late to class, leaving early, or failing to attend class often will lower your grade.

Grading

- Homework and Attendance, 15%
- Midterm Exams, 60% (30% each)
- Take-home Exam, 25%
Administrative Home
The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall or see the CLAS Student Academic Handbook

http://www.clas.uiowa.edu/students/academic_handbook/index.shtml

Electronic Communication
University policy specifies that students are responsible for all official correspondences sent to their standard University of Iowa e-mail address (@uiowa.edu). Students should check this account frequently. (Operations Manual, III.15.2. Scroll down to k.11.)

Academic Fraud
Plagiarism and any other activities when students present work that is not their own are academic fraud. Academic fraud is a serious matter and is reported to the departmental DEO and to the Associate Dean for Undergraduate Programs and Curriculum. Instructors and DEOs decide on appropriate consequences at the departmental level while the Associate Dean enforces additional consequences at the collegiate level. See the CLAS Student Academic Handbook.

Making a Suggestion or a Complaint
Students with a suggestion or complaint should first visit the instructor, then the course supervisor, and then the departmental DEO. Complaints must be made within six months of the incident. See the CLAS Student Academic Handbook.

Accommodations for Students with Disabilities
A student seeking academic accommodations should first register with Student Disability Services and then meet privately with the course instructor to make particular arrangements. See http://www.uiowa.edu/~sds/ for more information.

Understanding Sexual Harassment
Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI Comprehensive Guide on Sexual Harassment at

http://www.uiowa.edu/~eod/policies/sexual-harassment-guide/index.html
for assistance, definitions, and the full University policy.

Reacting Safely to Severe Weather
In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Public Safety web site,

http://www.uiowa.edu/~pubsfty/intlinks.htm