15 STAT 7022-001 *(#701558)*
Linear Models and Multivariate Analysis II
Spring 2013

Mondays/Wednesdays/Fridays, 10:10 am – 11:05 am, Room 273, 60WCHARL

Instructor: ***Xia Wang***
http://homepages.uc.edu/~wang2x7
Department of Mathematical Sciences, French Hall West 4428E
(513) 556-3295 (6-3295 from on campus phones)
xia.wang@uc.edu

Office Hours: *M/W 2:20 pm-3:20 pm; F 11:20 am -12:20 pm*

Course Description: The course will cover topics in repeated measurements, generalized linear models, including models for binary data and counts data, multivariate statistics, including estimation, test of hypothesis such as Hotelling T-square and MANOVA, principal components, factor analysis and, depending on interest cluster analysis and discriminant analysis

Course Webpage: All course related information will be posted on UC Blackboard (http://blackboard.uc.edu), including course syllabus, reading assignments, lecture notes, handouts, homework assignments, SAS codes, announcements, etc. **Visit the Blackboard frequently!!!**

Textbook: *Generalized Linear Model*, P. McCullagh and J.A. Nelder (MN), 2nd edition, 1989.
Applied Multivariate Statistical Analysis, R. A. Johnson and D. W. Wichern (JW), 6th edition, 2007.

SAS Software is strongly recommended for this course. Schedule for the labs on campus can also be checked on http://labs.uc.edu/labHours.php.

Exam dates

Midterm 1 Monday **February 11,** in class

Midterm 2 Monday **March 11,** in class

Final Exam Wednesday **April 24**, 12:00 pm – 2:00 pm.

Homework due dates

HW#1 January 28	HW#5 March 25
HW#2 February 4	HW#6 April 8
HW#3 February 25	HW#7 April 15
HW#4 March 4	

Course project due date:

Friday **April 12**, before class

Tentative Schedule (as of December 24, 2012):

Week Beginning:	Topic	Reading Assignment
January 7	Repeated Measures	To be assigned
January 14	Introduction to Generalized Linear Regression Model	MN Chapter 1 1.1-1.2 Chapter 2 2.1-2.4
January 21 January 28	Binary Data	MN Chapter 4 4.1-4.6
February 4	Log-linear Models	MN Chapter 6 6.1-6.3
February 11	Introduction to Multivariate Analysis Midterm 1	JW Chapter 1 1.1-1.5 Chapter 2 (Review) Chapter 3 3.1-3.3; 3.4, 3.5-3.6
February 18	Multivariate Normal Distribution	JW Chapter 4 4.1-4.8
February 25 March 4	Inference about Means	JW Chapter 5 5.1-5.5 Chapter 6 6.1-6.6
March 11	Multivariate Linear Regression Models Midterm 2	JW Chapter 7 7.1-7.7
March 18	**Spring Break**	
March 25	Principle Components	JW Chapter 8 8.1-8.4
April 1 April 8	Factor Analysis	JW Chapter 9 9.1-9.6
April 15	Selected Topics	To be assigned
April 22	Final Exam Week Final Exam April 24 12:00 pm -2:00 pm	

Homework:

- Homework assignments will be due as specified in the above tentative schedule or as announced if there is any change (updates will be posted on UC Blackboard accordingly);
- Homework will be assigned one week before its due date;
- Prepare your homework with problems in order, on **one side** of standard 8½×11 sheets, stapled in the upper left-hand corner;
- Electronically handed-in homework is **not** accepted.
- Homework assignments must be handed in **at the beginning of the class** on the due date. Do not slide them under the instructor/grader's office door or drop them off in the instructor/grader's mailbox. THEY WILL NOT BE ACCEPTED;
- No late hand-in. If extenuating circumstances exist, you must speak directly to the instructor.

Examinations:

- There will be two Midterms during the semester (Midterms) and the final examination (Final Exam).
- The examination dates are as specified in the syllabus or as announced if there is any change (updates will be posted on UC Blackboard accordingly). **Exams will cover materials from the textbook, lectures and handouts**.
- Both the midterm and the final exam are **close-book**.
- A calculator (no cell phone calculators or PDAs) may be brought to exams.
- There will be NO SCHEDULED MAKE-UP examinations (including the Midterms and the Final Exam). When there are unavoidable circumstances, the student must contact the instructor before the examination date. DOCUMENTATION IS REQUIRED. For medical circumstances, the student must contact the instructor with a written medical excuse document signed by a qualified professional.

Course Project:

Read a statistical methodology paper related to a topic discussed in the course and write a review report. The report should include the description of the method, its key results, application and impacts.

Final Course Grade:

The upper limits for contributions to the final grade are HW (15%), course project (10%), Midterm 1 (15%), Midterm 2 (15%) and Final Exam (45%). The final grade will be converted to the traditional letter grade based on the following chart:

96-100:	A	87-89:	B+	77-79:	C+	<70:	F
90-95:	A-	83-86:	B	70-76:	C		
		80-82:	B-				

Students should keep all returned work until they have received their final grade. It is the student's responsibility to get the graded homework and the exams from the instructor.

Electronic Communication

Course announcements and materials are posted on Blackboard through the semester. Beyond class and office hours, the best way to contact the instructor is by email (xia.wang@uc.edu). Please note the course email correspondence must be done via UC email accounts. The instructor cannot send email to any other account (i.e. gmail, hotmail, yahoo, etc.)

Classroom Etiquette:

Our goal is to have a classroom atmosphere that allows the class to learn the material without distractions. The following behaviors will help us achieve this:

- ✓Please turn off your cell phones or set it to vibration before coming to class.
- ✓Please arrive in class on time.
- ✓Please do not disrupt others during class.
- ✓Please do not leave class early unless you have to. If you plan to leave early, sit near the door so as to disturb as few people as possible.

Academic Integrity Policy:

The University Rules, including the Student Code of Conduct, and other documented policies of the department, college, and university related to academic integrity will be enforced. Any violation of these regulations, including acts of plagiarism or cheating, will be dealt with on an individual basis according to the severity of the misconduct.

Special Needs Policy:

If you have any special needs related to your participation in this course, including identified visual impairment, hearing impairment, physical impairment, communication disorder, and/or specific learning disability that may influence your performance in this course, you should meet with the instructor to arrange for reasonable provisions to ensure an equitable opportunity to meet all the requirements of this course. At the discretion of the instructor, some accommodations may require prior approval by Disability Services.

(This syllabus is subject to changes.)