STAT 6021-001 (502870)
Mathematical Statistics I
Fall 2015

Mondays/Wednesdays/Fridays, 9:05 am – 10:00 am, Room 325, BRAUNSTN

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: ***Mondays/Wednesdays*** *12:00 pm – 1:00 pm or by Appointment*

Course Description: The purpose of these courses is to understand the theory of statistical inference using techniques, definitions, and concepts that are statistical and that are natural extensions and consequences of the statistical concepts. Specific topics include in probability and distributions, multivariate distributions, some special statistical distributions, and some elementary statistical inferences.

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

Textbook: *Introduction to Mathematical Statistics*, 7e, by Hogg, McKean & Craig

Exam dates

Midterm 1
Monday September 28, in class

Midterm 2
Monday October 19**,** in class

Final Exam
Monday December 7, 8:00 am – 10:00 am

Homework due dates

HW#1 Friday September 4	HW#5 Friday October 30
HW#2 Friday September 11	HW#6 Friday November 6
HW#3 Friday September 18	HW#7 Friday November 20
HW#4 Friday October 9	HW#8 Wednesday December

Tentative Schedule (as of August 22, 2015):

Week Beginning:	Topic	Reading Assignment
August 24	Introduction; Set Theory; Probability Set Function	Ch1: 1.1 – 1.3
August 31	Conditional Probability and Independence; Random Variables; Discrete Random Variables	Ch1: 1.4 – 1.6
September 7	Continuous Random Variables *Labor Day: September 7 No Class*	Ch1: 1.7
September 14	Expectation; Special Inequalities	Ch1: 1.8-1.10
September 21	Distribution of Two Random Variables; Transformation *Review for Midterm 1: September 25*	Ch2: 2.1-2.2
September 28	Conditional Distributions and Expectations; Correlation Coefficient *Midterm 1: September 28*	Ch2: 2.3 – 2.4
October 5	Independent Random Variables; Extension to Several Random Variables	Ch2: 2.5 – 2.6
October 12	Transformations for Several Random Variables; Linear Combinations of Random Variables *Review for Midterm 2: October 14* *Reading Day: October 16 No Class*	Ch2: 2.7 – 2.8
October 19	Binomial Distribution; Poisson Distribution *Midterm 2: October 19*	Ch3: 3.1 – 3.2
October 26	Γ, χ^2, and β Distributions; Normal Distribution *Last Day to Withdraw: October 30*	Ch3: 3.3 – 3.4
November 2	Normal Distribution (continued); Multivariate Normal Distribution	Ch3: 3.4 – 3.5
November 9	t- and F- Distribution; Mixture Distribution *Veterans Day: November 11, No Class*	Ch3: 3.6 – 3.7
November 16	Sampling; Confidence Intervals	Ch4: 4.1 – 4.3
November 23	Order Statistics *Thanksgiving Day: November 26, No Class*	Ch4: 4.4
November 30	Hypothesis Testing; Additional Topics *Review for Final Exam: December 4*	Ch4: 4.5 – 4.7; 4.8- 4.9 (optional)
December 7	Final Exam Week *Final Exam December 7 8:00 am – 10:00 am*	

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. Please note that your solutions need to be presented in **a clear, readable format** with sufficient details. NO CREDIT will be given to solutions lack of details or hard to read.
- Electronically handed-in homework will **not** be 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 Final Exam is cumulative. The chapters to be covered in Midterm 1 and Midterm 2 will be announced before the examination date.
- 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**.
- All three examinations (Midterms and Final Exam) are **close-book**.
- A calculator may be brought to exams (no cell phone calculators or PDAs).
- 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.

Final Course Grade:

The upper limits for contributions to the final grade are HW (20%), ***in-class practice problems*** (10%), Midterm 1 (20%), Midterm 2 (20%), and Final Exam (30%). 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+	67-69:	D+	<60:	F
90-95:	A-	83-86:	B	73-76:	C	63-66:	D		
		80-82:	B-	70-72:	C-	60-62:	D-		

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.

Communication

- ✓ Course announcements and materials are posted on Blackboard through the semester.
- ✓ Make good use of the instructor's office hours. As you may have seen in our tentative schedule, we are going to cover each chapter in approximately 4 weeks and usually one to two sections per lecture. **It is thus extremely importance for you to ask the instructor's help as soon as possible if you have difficulty in the course materials covered.**
- ✓ 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.)