

**15 STAT 531-001 (#203322)**  
**Applied Statistical Inference**  
**Autumn 2011**

Mondays/Wednesdays, 3:00 pm – 4:15 pm, Room 140, 60 West Charlton

**Instructor:** *Xia Wang*  
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**Office Hours:** *Mondays 12:30 pm – 2:30 pm Wednesday 10:00 am -12:00 pm or by appointment*

**Course Description:** Quick review of probability distributions. Inferences about population means and variance.

- Introduction to Probability, Probability Rules, Conditional Probability, Independent Events, Bayes' Theorem
- Discrete Probability Distributions, Expectation and Distribution Parameters, Geometric, Binomial, Negative Binomial, Hypergeometric, and Poisson Distributions, Moment Generating Function
- Continuous Probability Distributions, Uniform Distribution, Exponential, Gamma and Chi-squared Distributions, Normal Distribution, Normal Probability Rule and Chebyshev's Inequality, Normal Approximation to Binomial Distribution, Weibull Distribution and Reliability, Transformation of Variables
- Point Estimation, the Method of Moments, Maximum Likelihood, Function of Random Variables, Interval Estimation and the Central Limit Theorem
- Interval Estimation of Variability, the Student t-Distribution, Hypothesis Testing and Significance Testing, Nonparametric Methods
- Inference on Proportions
- Comparing Two Means and Two Variances

**Bok area:** QR (Quantitative Reasoning)

**Prerequisites:** Calculus IV (15 MATH 264) and Linear Algebra II (15 MATH 352)

**Course Webpage:** Please access the course materials on UC Blackboard (<http://blackboard.uc.edu>).

**Text:** *Milton and Arnold, Introduction to Probability and Statistics, 4e*

### Exam dates

Monday **October 17**, 3:00 pm- 4:15 pm. **Midterm 1** covers Chapter 2, 3, 4 (through 4.4).

Monday **November 14**, 3:00 pm- 4:15 pm. **Midterm 2** covers Chapter 4(4.5 - 4.8), 7, 8 (8.1-8.5).

<b>Wednesday December 7 (4:00 pm -6:00 pm). Final Exam on Chapter 2, 3, 4, 7, 8, 9, 10</b>
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### Homework due dates

HW#1 due on <b>October 5</b>	HW#4 due on <b>November 9</b>
HW#2 due on <b>October 12</b>	HW#5 due on <b>November 30</b>
HW#3 due on <b>November 2</b>	

**Tentative Schedule (as of Sep. 21, 2011):**

<b>Week Beginning:</b>	<b>Reading Assignment</b>	<b>Assignment Due</b>
Sep. 19	Chapter 1, Chapter 2	
Sep. 26	Chapter 2	
Oct. 3	Chapter 3	HW#1 due on October 5
Oct. 10	Chapter 4 (4.1-4.6) <i>Exam review on Wednesday October 12.</i>	HW#2 due on October 12
<b>Oct. 17</b>	<b>Midterm 1 on Monday October 17, 3:00 pm- 4:15 pm. Midterm 1 covers Chapter 2, 3, 4 (through 4.4).</b>	
Oct. 24	Chapter 4(4.7-4.8), Chapter 7	
Oct. 31	Chapter 7	HW#3 due on November 2
Nov. 7	Chapter 8 <i>Exam review on Wednesday November 9.</i>	HW#4 due on November 9
<b>Nov. 14</b>	<b>Midterm 2 on Monday November 14, 3:00 pm- 4:15 pm. Midterm 2 covers Chapter 4(4.7, 4.8), 7, 8 (8.1-8.5).</b>	
Nov. 21	Chapter 9, Chapter 10	
Nov. 28	Chapter 10	HW#5 due on November 30
	<b>Final exam review on Wednesday November 30.</b>	
<b>Dec. 5</b>	<b>Final Exam : Wednesday December 7 4:00 pm -6:00 pm on Chapter 2, 3,4,7, 8, 9, 10</b>	

**Homework:**

- 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 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 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 2 midterm exams during the quarter (Midterm1 and Midterm 2) and the final examination (Final Exam).
- The exam dates for each exam are as specified in the above tentative schedule or as announced if there is any change (updates will be posted on the Blackboard accordingly). Exams will cover materials from textbook, lectures and handouts.
- All 3 examinations are close-book. You are allowed one sheet of notes with formulas only for each exam. There should be no worked out examples on the formula sheet.
- A calculator (no cell phone calculators or PDAs) may be brought to exams
- There will be **NO SCHEDULED MAKE-UP EXAMS.** When there are unavoidable circumstances, the student must contact the instructor before the exam 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 (10%), Exam 1 (25%), Exam 2 (25%) and Final Exam (40%).

The traditional letter grades will be used: 90% and up=A(+/-), 80-89%=B(+/-), 70-79%=C(+/-), 60-69%=D(+/-), and Below 60%=F.

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

### ***Electronic Communication***

Course announcements and materials are posted on Blackboard through the quarter. Beyond class and office hours, the best way to contact the instructor is by email (xia.wang@uc.edu).

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.)***