

## STAT 215 A: Introduction to Mathematical Statistics, Fall 2009

**Instructor:** Dr. Coşkun Çetin (pronounced 'Joshkun Chetin')  
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**Lecture:** MW 1:30-2:45 pm, ALP 205

**Prerequisites:** STAT 115A-115B or equivalent; Math 134 is recommended.

**Textbook:** Statistical Inference, by G. Casella and R.L. Berger, Second Edition.

**Material Covered:** Most of the material covered will be from the chapters 1-5 of the textbook, concentrating on the probability measures, conditional probability, random variables, characteristic and moment-generating functions, properties of random samples, and modes of convergence. If time permits, some modern applications including simulation based computations will be introduced. The first two weeks will be spent on a review of basic concepts including the set theory, axiomatic foundations of probability, conditional probability and independence. Some additional handouts will also be provided for the related applications to supplement the textbook.

**Course Description:** This course is intended for students who have completed two semesters of undergraduate courses in probability and statistics (equivalent to STAT 115A-115B), and who wish to study graduate level probability concepts with some mathematical rigor. Students who successfully pass STAT 215A usually enroll in STAT 215B which is a continuation of this course and covers the statistics part (data reduction, point and interval estimation, hypothesis testing, asymptotic evaluations and an introduction to Monte Carlo Markov chain (MCMC) applications).

As part of this course, regular HW assignments will be given to encourage the students to think through concepts of the course. In this regard, students are also expected to use certain mathematical techniques (inequalities, induction, proof techniques, algebraic manipulations, etc.) to solve the related problems. Some of the assignments would require the use of a graphing calculator, Excel or a statistical software package such as MINITAB, SPlus, SPSS or Matlab depending on the background/interest of the students.

**Homeworks/Exams:** Most of the HW problems will be assigned from the textbook and will be graded. Some additional exercises will be assigned for practice purposes but will not be collected/graded. Two midterm exams will be given in addition to a cumulative final exam. One of the midterm exams will be given in class and the other will be a take-home test. The course announcements including HW assignments will also be posted on SacCT at <https://online.csus.edu>

### GRADE EVALUATION :

The final letter score is determined by your (overall curved) performance on HWs, midterm exams and a cumulative final exam as follows:

**HWs:** 20%. There will be about 6-7 extended HW assignments for grading and the best 5 of them will count towards your course grade. No make-ups for the missed HW will be given.

**Midterm Exams:** 25% each. The first test will be given in class and the second one will be a take-home exam covering both theoretical and applied concepts of the probability.

**Final Exam:** 30% . The final exam, which is compulsory, will be partially cumulative with an emphasis on the chapters 4 and 5.

## **DATES**

**Drops:** You may drop this course without penalty until Friday October 9, 2009 (September 11 via My Sac State). For procedural details, refer to the DROP POLICY document of the CSUS Math & Statistics department.

**Midterm Exams:** October 5, Monday (in class); take-home exam TBA

**FINAL Exam:** Monday, December 14, 12:45 pm-2:45 pm (in class)

## **Notes:**

*1. In principle, this syllabus is tentative and is subject to change. You are responsible for any such changes and class announcements.*

*2. The regular class attendance is crucial for a better understanding of the concepts but is not graded directly. It is your responsibility to contact the instructor or your classmates to catch up with the missed class(es).*

*3. If you have a specific disability that qualifies you for academic/exam accommodations, please contact Disability Services and provide documentation to SSWD, Lassen Hall 1008. Please discuss your accommodation needs with me early in the semester.*

*4. Academic honesty is expected at all times and in all the work you do in class or outside the classroom. Cheating or plagiarism in any work turned in for a grade will result in your getting grade zero in that work. Repeated plagiarism could result in your failing the course.*

*5. It is your responsibility to assure that you are qualified to enroll in this course, e.g. the prerequisites.*

*6. Some of the examples that will be used in lectures come directly from the textbook. So, you are expected to bring the book with you to each class meeting.*

## **7. FURLOUGH DISCLAIMER:**

*Due to the massive budget cuts in the State of California, faculty have been furloughed for 2 days per month. Some of these days may be instructional days, and, as the CSU administration and the faculty labor union said, "cuts of this magnitude will naturally have consequences for the quality of education." Some of these furlough days, listed below and underlined, will be taken when class would normally have met. Alternative assignments may be given to make up for the lost classes or a substitute professor would be arranged to cover for the class. The relevant information will be available on SacCT for each such week.*

*Furlough days (not confirmed yet): September 15, 21; October 22, 23; November 13, 30; December 19, 24 and the president- designated day (October 16-campus closed).*