

**SYLLABUS FOR STATISTICS 100A - LECTURE 2  
SUMMER SESSION C 2015**

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Office hours: MW 15:00 - 18:00, TR 14:00 - 16:00

Lecture	Day	Class Time	Location
Lecture 2	MW	10:00 - 11:50	MS 4000A

Section	Day	Discussion Time	Location
2A	MW	12:30 - 13:20	WGYOUNG CS24
2B	MW	13:30 - 14:20	WGYOUNG CS24

**RESOURCES:**

Textbook (optional):

Sheldon Ross, *A First Course in Probability*, Seventh Edition, Prentice Hall 2006.

Probability and Statistics EBook: <http://wiki.stat.ucla.edu/socr/index.php/EBook>.

Software: R, Statistics Online Computational Resource (SOCR): <http://www.socr.ucla.edu>.

**COURSE TOPICS**

1. Combinatorial analysis (Chapter 1).
  - Basic principle of counting, permutations, combinations.
  - Multiple coefficients.
2. Probability (Chapter 2, Chapter 3).
  - Axioms of probability.
  - Sample space and events.
  - Conditional probability and independence.
  - Law of total probability, Bayes' rule.
3. Discrete random variables (Chapter 4).
  - Expected value.
  - Variance.
  - Bernoulli and Binomial, Poisson, geometric, negative binomial, hypergeometric random
4. Continuous random variables (Chapter 5).
  - Expected value, variance.
  - Uniform, normal, gamma, exponential, beta, Cauchy, Weibull, random variable.
  - Distribution of a function of a random variable.
5. Jointly distributed random variables (Chapter 6).
  - Joint distributions functions.
  - Independent random variables.
  - Sums of independent random variables.
  - Bivariate and multivariate normal distribution.
  - Order statistics.
6. Properties of expectation (Chapter 7).
  - Expectation of sums of random variables.
  - Covariance, variance of sums of random variables, correlation.
  - Moment generating functions.

7. Limit theorems (Chapter 8).

Chebyshev's inequality and the weak law of large numbers.

The Central Limit Theorem.

The strong law of large numbers.

8. Simulation (Chapter 10).

Simulating continuous random variables.

Simulating discrete random variables.

COURSE POLICIES:

Please remember to turn off cell phones. The use of laptop computers will not be permitted in class. You are expected to adhere to the honor code and code of conduct. If you have a disability that will require academic accommodation, please contact the UCLA Office for Students with Disabilities (OSD).

ACADEMIC INTEGRITY:

As a student and member of the University community, you are here to get an education and are, therefore, expected to demonstrate integrity in your academic endeavors. All students must uphold University of California Standards of Student Conduct as administered by the Office of the Dean of Students. Students are subject to disciplinary action for several types of misconduct, including but not limited to: cheating, multiple submissions, plagiarism, prohibited collaboration, facilitating academic dishonesty, or knowingly furnishing false information. You may have assignments or projects in which you work with a partner or with a group. For example, you are welcome, and even encouraged, to work with others to solve homework problems. Even though you are working together, the assignment you submit for a grade must be in your own words, unless you receive specific instructions to the contrary. For more information about academic integrity, please go to <http://www.deanofstudents.ucla.edu/>.

COURSE GRADES:

There will be one midterm exam, a final exam which is cumulative, and homework that will be assigned every week. Please staple your homework and write your name on them. Late homework will not be accepted and make-up exams will not be given. Being in class on time and fully participating is important for your understanding of the material and therefore for your success in the course. You are required to attend all the lectures. Attendance will be taken at random times during the course and it will count for 5% of your grade. The tentative dates for the exams are shown below.

The course grade will be based on the calculation:

$$\begin{aligned} \textit{Final score} &= 0.05 \times \textit{Attendance} + 0.15 \times \textit{Homework/Labs} \\ &+ 0.30 \times \textit{Midterm} + 0.50 \times \textit{Final} \end{aligned}$$

Communication:

Please keep a current e-mail address with my.UCLA.edu in order to receive class announcements and reminders.

IMPORTANT DATES:

First class: 03 August.

Last class: 09 September.

Holidays: Labor Day, 07 September.

EXAMS:

Midterm exam: Monday, 24 August.

Final exam: Wednesday, 09 September.

**Good Luck !!!**