SYLLABUS FOR STAT 4158, SPRING 2013
Instructor: Somak Chatterjee
Office: 2140 Pennsylvania Ave. NW, Room B-04
Office Hours: Mondays and Wednesdays 2.30pm - 3.30pm, or by appointment
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Grader: Shu Luo (email: luoshu@gwmail.gwu.edu)

Class Schedule: Mondays and Wednesdays 12.45pm - 2.00pm
Classroom: 2020 K St. Room 24


COURSE DESCRIPTION: This is a continuation of STAT 4157. This course will cover topics such as sampling distribution, methods of estimation, properties of point estimators, confidence intervals, testing of hypothesis and some basic applications of the central limit theorem.

COURSE PREREQUISITES: MATH 1232 or equivalent (and preferably STAT 1053 and STAT 4157 or equivalent).

LEARNING OUTCOMES: The purpose of this course is to build upon the ideas that were introduced in STAT 4157. As a result of completing this course, students will be able to understand the reasons and the theory behind point estimation and confidence intervals, use likelihood estimation and derive sampling distributions, perform test of hypothesis and apply central limit theorem for large samples.

TOPICS TO BE COVERED: The following schedule will give you an approximate idea and depending on time and scope, any detail can be altered without prior notice.

01/14/2013 - 02/13/2013 Tentative date for First Midterm is 02/18/2013
Ch-7 Sampling distributions, central limit theorem, normal approximation to binomial distribution
Ch-8 Biased and unbiased estimators, small sample and large sample confidence intervals
Ch-9 Consistency, sufficiency

02/20/2013 - 04/01/2013 Tentative date for Second Midterm is 04/03/2013
Ch-9 Relative efficiency, minimum variance unbiased estimators and their properties, methods of estimation such as method of moments and method of maximum likelihood
Ch-10 Basic concepts and explanations related to testing of hypothesis

04/08/2013 - 04/29/2013
Ch-10 Type I and Type II Errors, Power of a test, Common tests of hypotheses, p-values, likelihood ratio test (if time permits)
GRADING AND HOMEWORK:

1. **Exams**: There will be **TWO** 75 minute midterms (weight: 20% each) and **ONE** cumulative 2 hour final exam (weight: 30%). In accordance with university policy, the final exam will be given during the final exam period and not on the last week of the semester.

2. **Homework**: There will be **ABOUT FIVE** graded homework assignments (weight: 15%).

3. **Quizzes**: There will be **ABOUT FOUR** announced or pop quizzes(weight: 15%).

   Any one having a final raw score which is less than 50% of the highest score in the class will not receive a passing grade.

CLASS POLICIES:

1. Attendance is expected.

2. Cell phones should not be used in the classroom.

3. Make-up exams/quizzes will be given ONLY for legitimate, documented reasons. Under no circumstances will make-ups be given to accommodate travel arrangements that conflict with scheduled course activities. If you must miss an exam, then it is your responsibility to contact me directly, in person, and in advance of the scheduled exam to make alternate arrangements.

4. Late homework **WILL NOT BE ACCEPTED**.

5. In writing up homework, it is not sufficient to give only the answer to a problem; you must show reasonably detailed justifications/calculations.

6. Discussion of homework with fellow students is allowed, but students are expected to work alone while writing up the solutions. No credit will be given to either party for work that has been copied.

RELIGIOUS HOLIDAYS: Please visit [http://www.gwu.edu/~regweb/web-content/policies.html#religious_holidays](http://www.gwu.edu/~regweb/web-content/policies.html#religious_holidays) for GWU Policy on Religious Holidays. It states that

1. Students should notify faculty during the first week of the semester of their intention to be absent from class on their day(s) of religious observance.

2. Faculty should extend to these students the courtesy of absence without penalty on such occasions, including permission to make up examinations.

3. Faculty who intend to observe a religious holiday should arrange at the beginning of the semester to re-schedule missed classes or to make other provisions for their course-related activities.

ACADEMIC INTEGRITY: I personally support the GW Code of Academic Integrity. It states: Academic dishonesty is defined as cheating of any kind, including misrepresenting one’s own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information. For the remainder of the code, see: [http://www.gwu.edu/~ntegrity/code.html](http://www.gwu.edu/~ntegrity/code.html)

SUPPORT FOR STUDENTS OUTSIDE THE CLASSROOM:

1. **DISABILITY SUPPORT SERVICES (DSS)**: Please inform the instructor if you have a documented disability and need special arrangements for tests or quizzes. To establish eligibility and coordinate reasonable accommodations for exams, please contact the Disability Support Services Office (202-994-8250), in Rome Hall, Suite 102, or at [http://gwired.gwu.edu/dss/](http://gwired.gwu.edu/dss/)

2. **UNIVERSITY COUNSELING CENTER (UCC)**: The University Counseling Center offers 24/7 assistance and referral to address students personal, social, career, and study skills problems. Services for students include crisis and emergency mental health consultations, confidential assessment, counselling services (individual and small group), and referrals visit [http://gwired.gwu.edu/counsel/CounselingServices/AcademicSupportServices/](http://gwired.gwu.edu/counsel/CounselingServices/AcademicSupportServices/) or call 202-994-5300.

SECURITY: In the case of an emergency, if at all possible, the class should shelter in place. If the building that the class is in is affected, follow the evacuation procedures for the building. After evacuation, seek shelter in Gelman Library.