

STA257-Course Outline

Instructor: P. McDunnough, philip@utstat.toronto.edu, SS6002

Text:(required): Mathematical Statistics with Applications 7th ed.
Wackerly, Mendenhall & Scheaffer, Duxbury
+ Student solutions' manual

Instructor's office hours : Wednesdays 4-6 (sta347 students have priority from 4-5)

Tutorials: Begin the 2nd week of class.

Web Page : www.utstat.toronto.edu/philip/courses/sta257/home.html

Marking: 2 two-hour tests, 3-hour final exam . No make-up tests. Grade = Test1+Test2+Final or just the Final if it is to your benefit. A missed test increases the value of the final.

More details: Each tests is worth 25%. The final exam is worth either 50% or 75% or 100% depending on missed tests or if basing your grade only on the final is to your advantage. The tests will typically be easier than the final exam so please try not to only attend the final exam (not wise).

Assignments: None to be handed in. However, problems will be assigned from the lectures and the text. Most solutions will be provided.

Dates of tests:

Oct 19, 3-5PM

Nov 30, 3-5PM

Note: Tests will be returned the following week during your tutorials.

Coverage:

(A)- Events and random variables, the Bernoulli random variable, Axioms of Probability (and Expectation), Inequalities (Markov, Jensen, etc...), continuity of P and E, distribution functions, Conditional Probability, Independence.

(B)- Discrete and continuous random variables: definitions, probability functions, probability density functions, probability and moment generating functions, characteristic functions, various expectation calculations, examples of the preceding applied to binomial, Poisson, geometric, normal, exponential and other types of random variables, an introduction to the Poisson process.

(C)- Random vectors (multivariate distributions) including the multivariate normal, functions of random vectors, mean vector and variance covariance matrices, the change of variables formula, probability integral transformation.

(D)- Some large-sample results including a central limit theorem and laws of large numbers. Proofs of these.

Note: This corresponds to parts of Chapters 2->7 of the text and some additional material not found in the text.

STA257H1 (Evening Section L5101): Probability and Statistics I

Class Information

- Lecture times and location: Wednesday 7:10-10:00pm in MS2172.
- Tutorial time (held by TAs) and locations: Wednesday 6:10-7:00pm.
Students are divided into three groups alphabetically by last name: A-J in MS2172, K-Q in SS1086, R-Z in SS2110.
- Office hour (held by the instructor) and location: Wednesday 3:00-5:00pm in SS3107.
- Instructor: Fang Yao Email: fyao@utstat.toronto.edu Website:
<http://www.utstat.toronto.edu/fyao/>

Course Description

This course covers basic ideas and concepts of probability as well as its role in statistical modeling. As the first course in the undergraduate mathematical statistics, it builds up the foundation not only for STA261 but also for other further statistical courses. Topics include basic probability laws of events, continuous and discrete random variables and vectors, probability distribution functions, expectations, central limit theorem associated with normal distributions presented with a view to their applications in statistics.

Prerequisite

Assumed background is **calculus** and **linear algebra** (college level). You will be using differentiation and integration, sometimes for **multi-variable functions**.
(Exclusions: ECO227Y1/STA255H1/STA247H1)

Textbook and Blackboard

- **Mathematical Statistics with Applications, 7th Ed**, D. D. Wackerly, W. Mendenhall and R. L. Scheaffer, Duxbury.
- **Blackboard system**: I will be using Blackboard for the course. Please access Blackboard using your UTOR ID timely to keep updated. Also please provide your email address on Blackboard, so that you can receive the latest class announcements.

Test and Exam

Term test and final exam will be closed book. For term test, you may bring two pages of 8.5 x 11 inch aid sheets (you can write on both sides) with whatever facts, formulas, or explanations you find helpful. The final exam will be comprehensive and you can bring four pages of aid

sheets (double-sided 8.5 x 11 inch). You are only allowed to use a nonprogrammable calculator on test and final exam.

Grade Breakdown

Item	% of grade	Comments
Quizzes	20%	
Term test	30%	TBA
Final exam	50%	TBA

Course Policies

- **Missed test:** There are **no make-up test** . Should you miss the term test due to illness, you are required to submit to your instructor, within one week, completed by your doctor, the **"U of T Student Medical Certificate"**, obtainable from your college registrar, the Office of the Faculty Registrar (SS1006), the Statistics Department, or the Koffler health service. The weight of term test will be shifted to the final exam. **If this documentation is not received, your test mark will be zero.**
- Quizzes/test/exam credit: must show necessary work to receive full credit for any problem, and any work turned in must be your own.
- Quizzes/test grading disputes: must be submitted in writing to the TA who is in charge of your group within one week after work is returned.

Any form of academic dishonesty will be given the most severe penalty possible. Cheating includes representing the ideas of anybody except yourself as your own ideas. The minimum penalty I am required to enforce by university policy is a zero for the quizz/test/exam.
