

# STA 611: Introduction to Statistical Methods

Fall 2012

TueThu 3:05 - 4:20pm in Physics Building 130

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Course Website: <http://stat.duke.edu/courses/Fall12/sta611/>

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Instructor:	Grader:
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Office: 223C Old Chemistry building	TBD
Office hour: Tuesdays 1:00-2:00 pm	TBD

## Description

Basic probability theory, Random variables, Expectations, Families of probability distribution functions, Concepts of convergence. Principles of statistical inference, Likelihood based inference, Frequentist and Bayesian paradigms. Sampling distributions and hypothesis testing.

**Textbook:** Probability and Statistics by DeGroot & Schervish (Fourth Edition).

## Pre-requisites

This class requires a solid mathematical (mostly calculus) background: Function, limit, continuity, differentiation (e.g. product rule, quotient rule and chain rule), integration, integration techniques such as integration by parts and by substitution, function of two variables, double integrals, infinite series, maxima and minima of functions.

**Important:** There is a math quiz on the website. Take this quiz by yourself, preferably before classes start and no later than by our second class (Thursday August 30), to help you determine whether you have the necessary mathematical background.

## Homework

Homework will be assigned each week, and will be due every Thursday by 5pm, unless otherwise announced in class. The homework problems will be posted on the website. The preferred method of returning homework is to your instructor during class. Alternatively you can slide it under my office door 223C Old Chemistry, or put it in my mailbox in 211a Old Chemistry by 5pm of the day it is due. Grades will be returned to you via Sakai.

It is expected that students will read the book and work problems as required to master the material. Your work must be legible, include name, and be stapled to receive credit. ALL homeworks will contribute towards your final grade. You are expected to put in 6-8 hours of work outside of class. A few of you will do well with less time than this, and a few of you will need more.

## **Office hours**

Instructor office hours are every Tuesday, 1.00-2.00pm, Old Chemistry building, office 223C. Statistical Education and Consulting Center (SECC) will have teaching assistants covering help sessions for 20-30 hours per week.

**Grades** Your grade will consist of Homework (30%), a Midterm (30%) and a Final Exam (40%). At the end of the semester, Midterm, HW and Final grades may be normalized within each category in order to calculate the final course grade.

Tentative Grading Scale: 90-100% A; 80-90% B; 70-80% C; 55-70% D; below 55% F

## **Important Dates**

First Day of Class:	Tue, Aug 28	Fall Break:	Sat, Oct 13 - Tue, Oct 16
Add/Drop Deadline:	Fri, Sept 7	Thanksgiving break:	Wed, Nov 21 - Sun, 25
Midterm:	Thu, Oct 25	Final Exam (Cumulative):	Tue, Dec 11, 2-5pm

## **Academic Integrity**

Duke University is a community dedicated to scholarship, leadership, and service and to the principles of honesty, fairness, respect, and accountability. Citizens of this community commit to reflect upon and uphold these principles in all academic and non-academic endeavors, and to protect and promote a culture of integrity. Cheating on exams, plagiarism on homeworks and projects, lying about an illness or absence and other forms of academic dishonesty are a breach of trust with classmates and faculty, and will not be tolerated. They also violate Duke's Community Standard and will be referred to the Undergraduate Judicial Board (UJB).

## **Excused Absence**

Students who miss tests or assignments due to a scheduled varsity athletic trip or religious holiday should submit an online NOVAP or RHoliday form, respectively, at least a week ahead of time and meet with me to arrange to make up the work (often before the scheduled event). Those with a personal emergency or bereavement should seek a Dean's Excuse; check with your academic dean for details, and see me as soon as possible after your return to schedule make-up work. Duke does not issue Dean's Excuses for short-term incapacitating illness; if you are too ill to complete an assignment or attend an examination, inform me as soon as possible using the online Illness Form, and see me to make arrangements to make up the missed work. No excuse is needed simply for missing class, only for missed assignments and examinations. Note that the Community Standard sanctions apply for abuse of this procedure.

## **Grading Errors**

Although every effort will be made to mark your work accurately, sometimes grading mistakes happen. If you believe that an error has been made on an in-class problem or exam, return the paper to the instructor immediately, stating your claim in writing.