

MTH 309A

Syllabus:

The goal of this course is to understand the basic tools and language of modern probability theory. We will start with the axioms of mathematical probability, basic concepts of probability theory: random variables, distributions, expectations, variances, independence and convergence of random variables. Then, we will cover the following topics in detail:

- (1) basic limit theorems and the law of large numbers,
- (2) characteristic functions, and
- (3) Central limit theorems.

Recommended Books:

1. *Probability by Alan F. Karr*
2. *Probability: Theory and Examples by Rick Durrett*

Useful Website: <https://sites.google.com/site/tjahbus/home/courses/mth-309>.

Evaluation plan

There will be assignments, two quizzes, one mid-semester examination and one end semester examination.

There will be no make-up for the mid-semester exam, or quizzes.