DoSS Summer Prep Bootcamp 2024

Probability

1 Time & Place

TBD

2 Instructor

Ichiro Hashimoto, 2nd year PhD student, Department of Statistical Sciences

3 Course Outline

example from math stat below:

Basics of probability theory, distribution theory of random variables, moments and inequalities, and limit theorems with examples and counterexamples.

4 Textbooks

The main reference for this course are the lecture notes, which will be made available on the course website as we progress through the course. The following books were used in preparing the course, and are recommended textbooks for STA2111H Graduate Probability I and STA 2211H Graduate Probability II.

Recommended textbooks:

Probability, Theory and Examples by Rick Durrett

A First Look at Rigorous Probability Theory by Jeffery S. Rosenthal

5 Tentative Lecture Schedule

The lecture topics and corresponding chapters in the texts (if applicable) are outlined below. This schedule is tentative and will inevitably be augmented during the course.

Lecture	**Topics**
1	Basics of Probability Introduction to measure theory
2	Random Variables Distribution, Independence
3	Common Random Variables Exponential family
4	Distribution, Functions of random variables Change of variables, order statistics
5	Expectation
6	Inequalities
7	Inequalities continued Examples and counterexamples
8	Stochastic Convergence
9	Limit Theorems
10	Limit Theorems continued Examples and counterexamples