

Theoretical Statistics Exam Guidelines, August 2021

Date: April 16, 2021
From: Examination Committee
To: All Graduate Students taking Theoretical Statistics Qualifying Exam
Cc: Graduate Coordinator

Subject: Ph.D. Theoretical Statistics Qualifying Examination, Fall 2021

Instructions for the qualifying examination:

1. The examination will be written (not oral) and closed book. Bring a scientific (not a graphic) calculator.
2. The examination will consist of two parts, STA 584 and STA 684. Students will be required to answer questions from each part and pass each part with a minimum score of 70%.
3. The recommended textbook for materials in STA 584 is *John E. Freund's Mathematical Statistics* by Irwin Miller and Marylees Miller, 8th edition.
4. The recommended textbook for materials in STA 684 is *Introduction to Mathematical Statistics* by R.V. Hogg, J.W. McKean and A.T. Craig, 8th edition.

Topics in STA 584 and the relevant chapters in the recommended textbook

	<u>Topics</u>	<u>Chapter</u>
a.	Probability	2
b.	Probability Distributions and Probability Densities	3
c.	Mathematical Expectation	4
d.	Special Probability Distributions	5
e.	Special Probability Densities	6
f.	Functions of Random Variables	7

Topics in STA 684 and the relevant chapters in the recommended textbook

	<u>Topics</u>	<u>Chapter</u>
a.	Some Special Distributions	3
b.	Some Elementary Statistical Inferences	4
c.	Consistency and Limiting Distributions	5
d.	Maximum Likelihood Methods	6
e.	Sufficiency	7
f.	Optimal Tests of Hypotheses	8