# STAT 346 / STAT 446 / PQHS 482
# Theoretical Statistics II

Instructor: Jenný Brynjarsdóttir

Tue/Thu 10:00 am - 11:15 pm, Olin 306

Spring semester 2025

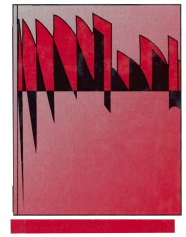
# Welcome to Theoretical Statistics II

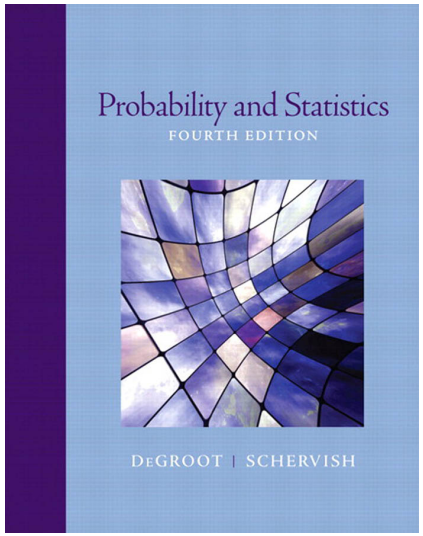
## STAT 346 / STAT 446 / PQHS 482

- Theoretical Statistics I and II
  - Mathematical foundations of Statistics
- STAT 345 / STAT 445
  - Probability
    - Definition of probability, univariate and multivariate random variables, distributions, joint, marginal and conditional distributions, expectation, covariance, sampling distributions, ...
- STAT 346 / STAT 446
  - Statistical Inference
    - Point estimation, hypothesis testing, interval estimation, ...
- Goals:
  - Understand the foundations of Statistical Inference
  - Continue to raise the level of rigor of your Mathematics

# Syllabus - Please read the Syllabus!

- **Required Textbook:** Statistical Inference, 2nd edition by George Casella and Roger L. Berger
  - Same as we used in STAT 345/445
- **Recommended text:** Probability and Statistics, 4th edition by DeGroot and Schervish
- Grader: Congli Ma, MS student in Statistics
- Office hours
  - Tuesdays 2:30-3:30pm and Thursdays 11:30 - 12:30pm in 2145 Adelbert Rd, Room 202C.
    - Front door card access only, Back door should be unlocked
  - By appointment on Fridays - Appointments can be made on Google calendar (link on Canvas)



# More from the Syllabus

- Homework assignments (15%)
  - 8 homework assignments, 10 points each. Grade out of 70 points
- Quizzes (25%)
  - 4 quizzes, 20 points each. Grade out of 60 points.
- Midtem exam 3/6 (30%)
  - *There is always hope rule:*

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if MidtemGrade < FinalGrade
   then MidtermGrade = FinalGrade
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- Final Exam 5/8 (30%)

# How to approach this course

- Key to success in this course:

  Read, write, ask – repeat!

- Read the assigned reading carefully
- Write detailed notes both in class and when reading the textbook
- Ask when anything is unclear, in class or in office hours

# Course Topics

- Properties of Random Sample
- Large Sample Theory
- Theory of point estimation
- Interval Estimation
- Hypothesis Testing

Text Book (CB) Chapters: 5 - 10 (not necessarily in numerical order, and some sections will be skipped)

Recommended text (DS) Chapters 6 - 9