BSTA 621 Statistical Inference I

Spring 2026

Content:

This class will cover the fundamental concepts and results of statistical inference. We will focus on Chapter 6-10 of Casella and Berger. We will cover the following topics: data reduction, point estimation, hypothesis testing, interval estimation, and basic concepts about asymptotics. Students are expected to be able to understand the key concepts, theorems, and techniques, and use them to solve new problems.

Prerequisites: BSTA620

Instructors

Jiayin Zheng
CHT03-221A, 3600 Civic Center Blvd
jiayin.zheng1@pennmedicine.upenn.edu
Office Hours: Thursdays 3:30-4:30pm or by appointment

Jin Jin
CHT03-307, 3600 Civic Center Blvd
jin.jin@pennmedicine.upenn.edu
Office Hours: Thursdays 3:30-4:30pm or by appointment

TA

Xiaohan Liu
To be determined
Xiaohan.Liu@Pennmedicine.upenn.edu
Office Hours: Tuesdays 3:30-4:30pm or by appointment

Class Schedule:

Tuesday and Thursday 1:45-3:15pm
Anat-Chem 202

Textbooks:

1. *Statistical Inference ,2nd* edition, by Casella and Berger. (required).

Grading:

Homework: 40%
Midterm: 30% (covers the first half of the semester) (in class closed book)
Final exam: 30% (covers mostly the second half of the semester, in class closed book)

Note: you are encouraged to discuss your homework among classmates, but each should write up his/her own assignments. You are not allowed to look at materials from the previous years as some materials might be recycled. Use of ChatGPT or other AI tools are prohibited.

Tentative Schedule

Date	Topics	Chapter
Jan 15	Overview	6.1
20	Sufficiency	6.2
22	Sufficiency	6.2
27	Sufficiency	6.2
29	Likelihood	6.3
Feb 3	Equivariance	6.4
5	Finding estimators	7.1
10	Finding estimators	7.2
12	Finding estimators	7.2
17	Evaluating estimators	7.3
19	Evaluating estimators	7.3
24	Evaluating estimators	7.3
26	Midterm exam review	
Mar 3	Midterm	
5	Finding tests	8.1, 8.2
10	no class, spring break	
12	no class, spring break	
17	no class, ENAR	
19	Finding tests	8.2
24	Evaluating tests	8.3
26	Evaluating tests	8.3
31	Finding interval estimators	9.2
Apr 2	Finding interval estimators	9.2
7	Evaluating interval estimators	9.3
9	Evaluating interval estimators	9.3
14	Asymptotic evaluations for point estimation	10.1
16	Asymptotic evaluations for point estimation	10.2
21	Asymptotic evaluations for hypothesis testing	10.3
23	Asymptotic evaluations for hypothesis testing	10.3
28	Review	10.3
TBA	Final Exam	