

Mathematical Statistics 354003001 Syllabus

Fall 2025

A. Instructor Information.

- Instructor: Huang, Tzee-Ming
- Email: tmhuang@nccu.edu.tw
- Office hours: to be arranged

B. Textbook. Mathematical Statistics by Jun Shao.

C. Course Objectives. This two-semester course will focus on frequentist Statistics, Bayesian Statistics, and recently developed statistical methodologies from a theoretical perspective. Students will be trained in a mathematically rigorous fashion and are expected to develop the ability of deriving theoretical results for their future research after completing this course.

D. Grading Policy.

- Homework: 100%

E. Additional Information.

- The topics in the content column of the class schedule are subject to modification.

Tentative Class Schedule

Week	Content	Chapter(s)
1	Probability Theory Review	1
2	Population and Samples, Exponential Family.	2.1
3	Sufficient Statistics	2.2
4	Complete Statistics, Decision Theory	2.2-2.3
5, 6	Holiday	
7	Decision Theory	2.3
8	UMVUE	3.1
9	Invariance	4.2
10	Invariance	4.2
11	Bayesian Estimation	4.1
12	Bayesian Estimation	4.1
13	Minimax and Admissibility	4.3
14	Minimax and Admissibility	4.3
15	Asymptotic Efficient Estimation	4.5
16	Asymptotic Efficient Estimation	4.5