Mathematical Statistics 304029001 Syllabus

Spring 2022

A. **Instructor Information.**

- Instructor: Huang, Tzee-Ming
- Email: tmhuang@nccu.edu.tw
- Office hours: Monday 8:00-10:00 and by appointment

B. **Textbook and reference.**

- Textbook. Introduction to Mathematical Statistics (8th Edition) by Hogg, McKean, and Craig.
- Reference. Introduction to Probability and Mathematical Statistics by Bain.

C. **Course Objective(s).**

D. **Grading Policy.**

- Optional work: $x\%$, where $0 \leq x \leq 30$ is determined by homework scores.
- Midterm Exam: $(50 - 0.5x)\%$
- Final Exam: $(50 - 0.5x)\%$
- The Midterm Exam covers material taught during Week 1 – Week 7, and the Final Exam covers material taught during Week 8- Week 15.
- The Midterm Exam and Final Exam are closed book and closed notes exams.
- Most exam problems are modified from basic homework problems.
- If students in the class cannot take exams together in the classroom due to the Covid 19 regulations, the Midterm Exam and Final Exam will be replaced by the Midterm Homework and Final Homework respectively.

E. **Tentative Class Schedule.**

Week	Content	Reading chapter(s)
1	Estimation Based on IID Data	none
2	Approaches for Parametric Estimation (Sec. 6.1, 6.4)	6
3	Sufficiency (Sec. 7.1, 7.2)	7
4	Sufficiency, Order Statistics (Sec. 7.3, 4.4)	4, 7
5	Sufficiency (Sec. 7.4, 7.5)	7
6	Sufficiency (Sec. 7.6, 7.7)	7
7	Sufficiency, Confidence Intervals (Sec. 7.8, 4.2)	7,4
8	Confidence Intervals, MLE (Sec. 4.2, 6.2)	4, 6
9	Midterm Exam	
11	Tests of Hypotheses (Sec. 4.5, 4.6)	4
12	Optimal Tests of Hypothesis (Sec. 8.1, 8.2)	8
13	Chi-Square Tests (Sec. 4.7)	4
14	Convergence in Probability, Convergence in Distribution (Sec. 5.2)	5
15	Central Limit Theorem (Sec. 5.3)	5
16	Holiday	
17	Final Exam	

- The topics in the above tentative class schedule are subject to modification. Up-to-date reading schedule will be posted after the class starts on the course web site at

  `https://stat.walkup.tw/teaching/math_stat_under/S22/homepage.html`

F. **Expected time for studying outside class.** Students are expected to spend 3–6 hours on this course (for reviewing/previewing the course material) outside class every week.