LKS Faculty of Medicine
The University of Hong Kong
香港大學李嘉誠醫學院

MMPH6150 Advanced Statistical Methods II (Summer Semester)

Coordinator: Dr Tim Tsang

Course Description:
This course will provide a basic, yet thorough introduction to probability theory and mathematical statistics that underlie many of the commonly used techniques in public health research. The frequentist and Bayesian approaches to parameter estimation, interval estimation and hypothesis testing will be compared and contrasted. All theoretical material will be motivated by problems from epidemiology and public health.

Prerequisite: CMED 6100 Introduction to biostatistics; CMED 6020 Advanced statistical methods I

Term 3 (Tuesday)

Contact person: Ms Vania Lin/ Miss Weijia Xiong

Date	Time	Lecture Topic	Lecturer	Venue
09 May 2023	6:30 – 9:00 pm	1. Frequentist inference, interval estimation and hypothesis testing Practical	Dr Tim Tsang	3SR-LT1
16 May 2023	6:30 – 9:00 pm	2. Bootstrap method Practical	Dr Tim Tsang	3SR-LT1
23 May 2023	6:30 – 9:00 pm	3. Regression discontinuity design Practical	Dr Tim Tsang	3SR-LT1
30 May 2023	6:30 – 9:30 pm	Tutorial 1	Dr Tim Tsang	3SR-LT1
06 Jun 2023	6:30 – 9:00 pm	4. Survival analysis, multiple imputation Practical	Dr Tim Tsang	3SR-LT1
13 Jun 2023	6:30 – 9:00 pm	5. Multilevel analysis Practical	Dr Tim Tsang	3SR-LT1
20 Jun 2023	6:30 – 9:00 pm	6. Longitudinal analysis Practical	Dr Tim Tsang	3SR-LT1
27 Jun 2023	6:30 – 9:00 pm	7. Marginal structural model Practical	Dr Tim Tsang	3SR-LT1
04 July 2023	6:30 – 9:30 pm	Tutorial 2	Dr Tim Tsang	TBC
11 July 2023	6:30 – 9:00 pm	8. LASSO regression Practical	Dr Tim Tsang	TBC
18 July 2023	6:30 – 9:30 pm	9. Bayesian inference Practical	Dr Tim Tsang	TBC
25 July 2023	6:30 – 9:30 pm	Tutorial 3	Dr Tim Tsang	TBC
01 Aug 2023	6:30 – 8:30 pm	Examination	-	TBC

Course Assessment: Coursework: 30%
Examination: 70%

Recommended References:
1. Everitt B.S. and Hothorn T. A handbook of statistical analyses using R. Boca Raton, Florida: Chapman & Hall, 3rd edition.

3SR-LT1: Lecture Theatre 1, 1/F, HKUMed Academic Building, 3 Sassoon Road, HK

Contact person: Ms Vania Lin – email: vanialam@connect.hku.hk, Tel: 3917 6765.