THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY | HKUST Summer School

MATH 2411 – Applied Statistics

School:	**School of Science**
Subject Area:	**Mathematics**
Course Credit:	**4**
Instructor:	**HU Yu**
Pre-requisite/co-requisite:	**Details Here**

Notes:

- The syllabi provided here is for reference only and may be subject to changes and adjustments as determined by the course instructors.

MATH 2411 Applied Statistics, Summer 2025

1. Instructor(s)

Name: Prof. Yu HU

Contact Details: Rm 3443; Phone: 2358-7415; Email: mahy@ust.hk

2. Teaching Assistant(s)

TBA

3. Meeting Time and Venue

TBA

4. Course Description

Credit Points: 4
Pre-requisite: MATH 1014 OR MATH 1018 OR MATH 1020 OR MATH 1024
Exclusion: IELM 2510, ISOM 2500, LIFS 3150

Brief Information:
This course covers the basics of probability theory, including random variables, probability distributions, expectation, moment generating functions, and gives a systematic introduction to statistical inference, including the point and interval estimation, hypothesis testing, ANOVA, linear regression, goodness-of-fit tests, and using R to perform these analyses.

5. Intended Learning Outcomes

Upon successful completion of this course, students should be able to:

No.	ILOs
1	Solve some basic problems in probability.
2	Make inferences about the population by applying a range of statistical approaches, such as estimation and hypothesis testing.
3	Formulate a statistical solution to real-data problems and interpret the results.
4	Analyzing data with R.

6. Assessment Scheme

a. Examination duration: 1.5 hrs for the midterm exam and 3 hrs for the final exam
b. Percentage of coursework, examination, etc.:

Assessment	Assessing Course ILOs
40% by homework	1, 2, 3, 4
60% by the final exam	1, 2, 3, 4

c. Late submissions of homework will result in a penalty in score. Submissions beyond one day past due will not be accepted (0 score). No make-up exams will be offered other than exceptional cases such as medical emergency. You will lose their percentage if you miss the exams.

7. Student Learning Resources

No textbook is required and the main reference is the lecture slides, which will be made available on Canvas.

Optional textbook:

"*Probability and statistical inference*" by Hogg et al. Available in HKUST library.

8. Course Schedule

- Introduction
- Basic probability theory
- Random variables, distribution, special random variables
- Point estimation, confidence interval
- Hypothesis testing, p-value, t-test
- Two sample tests, ANOVA
- Linear regression
- Q-Q plot, K-S test, goodness-of-fit test