MATH 2411
Applied Statistics
2025-26 Spring

Midterm Exam date: March 22 10:00 am–11:30 am

Lecture

Time	Tuesday and Thursday: 1:30 PM-2:50 PM
Venue	2404
Instructor	**Dr. Guibo YE**
E-mail	magbye@ust.hk
Office	Room 3419, Department of Mathematics

Tutorial

session	T1A
Time	Wednesday 11:00 am-11:50 am
Venue	Room LSK 1027
Teaching Assistant	**GAO, Bingsong**
E-mail	bgaoaj@connect.ust.hk
session	T1B
Time	Wednesday 9:30 am–10:20 am
Venue	Room 4502
Teaching Assistant	**HOU, Zhen**
E-mail	zhouah@connect.ust.hk

Course Description

Course outline: This course covers the basics of probability theory, including random variables, probability distributions, expectation, and gives a systematic introduction to statistical inference, including point and interval estimation, hypothesis testing, and linear regression modeling.

Credits: 4

Teaching: Weekly schedule: 3 hrs for lecture and 1 hr for tutorial

Prerequisites: MATH 1014 OR MATH 1018 OR MATH 1020 OR MATH 1024

Exclusion: IELM 2510, ISOM 2500, LIFS 3150

Intended Learning Outcomes (ILOs)

Upon completion of this course, students are expected to be able to:

(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.

Assessment and Grading

Homework: There will be 5 problem sets. The homework is assigned in Canvas. Students should submit the homework online before the deadline. No late submission will be accepted for any reason.

Examinations: There will be a 1.5-hour midterm exam on Mar. 22 10:00 am–11:30 am, and a 3-hour final exam arranged by ARO.

Make-up exam policy:

- Under any circumstance, students who are unable to attend the midterm exam will **not** be offered a make-up midterm that takes place after the regular exam session.

- For students who have valid reasons for missing the midterm (such as time crash with another midterm), the instructor may approve an early midterm, or assign the midterm marks according to the final exam performance.
- On the other hand, for students who miss the midterm without a valid reason, the midterm score will be regarded as 0. This includes self-claimed sickness without any medical statement.

The course will follow the make-up exam policy set by ARO for the final exam. Approval from the instructor, the dean, and ARO will be needed for applying for a make-up final exam.

Grading Scheme:

This course will be assessed using **criterion-referencing**, and grades will **not** be assigned using a curve. Your course total will be calculated by taking the following scheme:

	Scheme	Address ILOs
Homework	15%	1, 2, 3, 4
Midterm	25%	1, 2, 3, 4
Final	60%	1, 2, 3, 4
Course Total	100%	

Letter Grades: Students should aim at getting a course total of 40% or above to get a pass grade.

Grade Descriptors:

Grades	Short Description A	Elaboration on subject grading description
A	Excellent Performance	The student has mastered almost all concepts and techniques of probability and statistics taught in the course, has excellent understanding of the deepest content of the subject, and acquired workable knowledge for further studies of probability, statistical inference, and related rields.
B	Good Performance	The student has mastered most computational techniques of probability and statistics taught in the course, yet the understanding of some challenging concepts may not be deep enough for further studies on related advanced subjects.
C	Satisfactory Performance	The student meets the minimum expectation of the instructor, has acquired some basic computational techniques of the subject, yet some concepts were not clearly understood.
D	Marginal Pass	The student is only able to recall some fragments of topics and is able to complete some of the easiest computations.
F	Fail	The student does not have sufficient understanding of even some fragments of topics, and is not even able to complete some of the easiest computations.

TEXTBOOKS AND OTHER RESOURCES

(1) Textbook: "Probability and Statistics for Engineers and Scientists" (9th Edition Prentice Hall) by Ronald E. Walpole, Raymond H. Myers, Sharon L. Myers and Keying Ye.
(2) other resources:
The MATH Support Center (Rm 3010-3013)
Check more information from the website: http://www.math.ust.hk/ support

COURSE SCHEDULE (ABOUT 32 HOURS)

Keyword Syllabus:

(i) Descriptive Statistics
(ii) Introduction to Probability Theory
(iii) Discrete Random Variables and Discrete Probability Distributions
(iv) Continuous Random Variables and Continuous Probability Distributions
(v) Point Estimation, Interval Estimation

(vi) Hypothesis Testing
(vii) Simple Linear Regression
(viii) [If time permits] Selected Topics

Course AI Policy

The use of ChatGPT or other generative AI is not allowed in homework assignments and exams.

Academic Integrity

Students are expected to adhere to the university's academic integrity policy. Students are expected to uphold HKUST's Academic Honor Code and to maintain the highest standards of academic integrity. The University has zero tolerance of academic misconduct.