

MATH 2411 Applied Statistics

Course Outline – Fall 2024

1. Instructor

Name: Dr. YAO, Jing (**L1, L2**)

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2. Teaching Assistants

T1A

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T1B

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T1C

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Name: WANG, Hongrui

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3. Meeting Time and Venue

Lectures:

L1

Date/Time: L1: Mon/Wed 10:30 - 11:50

Venue: Room 4620 (Lift 31-32)

L2

Date/Time: L2: Tue/Thu 16:30 - 17:50

Venue: Room 4619 (Lift 31-32)

Tutorials:

T1A

Date/Time: Wed 17:00 - 17:50

Venue: Room 6602

T1B

Date/Time: Fri 09:30 - 10:20

Venue: Room 1104

T1C

Date/Time: Fri 14:00 - 14:50

Venue: Room 1409

T2A

Date/Time: Mon 18:00 - 18:50

Venue: Room 1104

T2B

Date/Time: Tue 18:00 - 18:50

Venue: Room 2304

T2C

Date/Time: Thu 09:30 - 10:20

Venue: Room 2463

4. Course Description

Credit Points: 4 units

Corequisites: MATH 1014 OR MATH 1018 OR MATH 1020 OR MATH 1024

Exclusions: IELM 2510, ISOM 2500, LIFS 3150

Brief information:

This course covers the material about probability theory, random variables, probability distributions, expectation, a systematic introduction to statistical inference, including the point and interval estimation, hypothesis testing, and linear regression modeling.

5. Intended Learning Outcomes (ILOs)

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

No.	ILOs
1	Solve some basic problems in probability.
2	Make inferences about population by applying a range of statistical approaches, such as estimation and hypothesis testing.
3	Find a “good” regression line to describe the relationship between a response variable and an explanatory variable, with a given data set.

6. Assessment Scheme

a. Examination duration: 1.5 hrs for midterm exam, 2.5 hrs for final exam.

b. Percentage of examination.

Assessment

10% by assignments

25% (0%, resp) by the midterm exam

65% (90%, resp) by the final exam

Assessing Course ILOs

1, 2, 3

1

1, 2, 3

* For HW, no late submission will be accepted for any reason.

* No make-up midterm exam will be arranged for any reason.

* If a student misses the final exam, s/he needs to fill in a form to apply for a make-up final exam with evidence officially.

The max score from the above different schemes will be taken to determine the student's final grade.

c. The grading is assigned based on students' performance in assessment tasks.

This course will be assessed using criterion-referencing, and grades will not be assigned using a curve.

Grade Descriptors:

Grades	Short Description	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 fields.
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.

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.

7. Student Learning Resources

Lecture Notes: The course notes are available on Canvas.

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.

8. Teaching

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

9. Course Schedule

Keyword Syllabus:

- Descriptive Statistics
- Introduction to Probability Theory
- Discrete Random Variables and Discrete Probability Distributions
- Continuous Random Variables and Continuous Probability Distributions
- Point Estimation, Interval Estimation
- Hypothesis Testing
- Simple Linear Regression
- [If time permits] Selected Topics