MATH 2411 Applied Statistics

Course Outline – Fall 2026

1. **Instructor**

Name: Dr. YAO, Jing **(L1)**
Contact Details: Rm 3450 (Lift 25-26); Tel: 2358-8572; e-mail: majyao@ust.hk

Name: Dr. WANG, Jixin **(L2)**
Contact Details: Rm 3478 (Lift 25-26); Tel: 3469-2247; e-mail: wangjx@ust.hk

2. **Teaching Assistants**

T1A
Name: CHAN, Tsz Wai
Email: twchanaw@connect.ust.hk

T1B
Name: JIANG, Yuxin
Email: yjiangef@connect.ust.hk

T1C
Name: LIU Fengming
Email: fliuav@connect.ust.hk

T2A
Name: LIU, Hailin
Email: hliuee@connect.ust.hk

T2B
Name: LUO, Yunxiang
Email: yluocy@connect.ust.hk

T2C
Name: HAN, Shi
Email: shanav@connect.ust.hk

3. **Meeting Time and Venue**

Lectures:

L1

Date/Time: Tu/Th 09:00 - 10:20
Venue: CYT G010

L2
Date/Time: Mo 15:00 - 16:20; Fr 10:30-11:50
Venue: CYT G010

Tutorials:
T1A
Date/Time: Tu 18:00 - 18:50
Venue: Room 6602

T1B
Date/Time: Mo 9:30 - 10:20
Venue: Room 6591

T1C
Date/Time: We 09:30 - 10:20
Venue: Room 1527

T2A
Date/Time: Tu 18:00 - 18:50
Venue: Room 1410

T2B
Date/Time: Mo 11:00 - 11:50
Venue: Room 2406

T2C
Date/Time: Mo 09:30 - 10:20
Venue: Room 1527

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	**Assessing Course ILOs**
10% by assignments	1, 2, 3
25% (0%, resp) by the midterm exam	1
65% (90%, resp) by the final exam	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