Math 3033, Real analysis, Spring 2026

1. Instructor: Maosheng Xiong

   Contact infor: Email: mamsxiong@ust.hk;

   Office: Rm 3455; Tel: 2358-7456;

   Office hours: Friday, 14:00—14:50am or by appointment.

   Course website: https://canvas.ust.hk/courses/69413

2. Teaching Assistant:

   PING An, apingaa@connect.ust.hk

   QIN Xi, xqinag@connect.ust.hk

3. Meeting Time and Venue:

   Lectures: Monday, 15:00—16:20; Friday, 10:30—11:50, Rm 4580

   Tutorial: T1A: Monday, 18:00—18:50, Rm CYTG009A;

   T1B: Thursday, 14:30—15:20, Rm 5402.

4. Course Description:

   3 credit units. Prerequisite: Math 2033/ Math 2043.

   Topics: Infinite series of functions (power series), uniform convergence, topologies of Euclidean spaces, convergence and differentiation in R^n, Lebesgue measure.

5. Intended Learning Outcomes

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

No.	ILOs
1	Recognize and use appropriately important terms and definitions in analysis.
2	Understand logical deduction of important facts in mathematical analysis of high dimension spaces and apply integration theory to solve mathematical and statistical problems.
3	Apply rigorous analytical techniques taught in class to solve problems frequently appeared in the mathematical profession.

6. Assessment Scheme

Assessment	Assessing Course ILOs
15% by homework assignment	*1,2,3,4*
15% by online quiz	*1,2,3,4*
20% by midterm exam	*1,2,3,4*
50% by final exam	*1,2,3,4*

7. Grade Description

Grades	Short Description	Elaboration on subject grading description
A	Excellent	The student has mastered almost all concepts and techniques of real analysis taught in the course, has excellent understanding of the deepest content of the subject, and acquired workable knowledge for further studies.
B	Good	The student has mastered basic theoretical concepts and most computational techniques of real analysis 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	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.

8. Course AI Policy

Students are allowed to consult any person (including the instructor, TA, classmates, friends outside HKUST) in any homework for ideas and hints, but are required to write up the solutions by themselves.

The use of ChatGPT or other generative AI is allowed. However, please be warned that at the current stage of development of AI, the response to problems in advanced courses – especially those in pure mathematics – is not quite reliable. Students should be critical of the response generated by AI and do not blindly copy the generated responses to your homework.

9. Student Learning

Textbook:

- *An Introduction to Analysis*, by William R. Wade, 4th edition, Pearson, New Jersey, 2010.
- *Analysis II*, by Terence Tao, Texts and Readings in Mathematics 38, Springer, 2020.

10. Teaching and Learning Activities -
    a. Lectures: focus on course materials, 3 hours per week
    b. Tutorials: 1 hour per week

11. 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.