

Math 1012 Calculus IA

Course Outline – 2023-2024 Spring

1. Course webpage:

Canvas (<https://canvas.ust.hk/courses/55397>)

Instructor (s) :

L1: Maosheng Xiong (course coordinator), mamsxiong@ust.hk

Office: Room 3455 (via lift 25-26)

L2: Jiarui ZHANG, majrzhang@ust.hk

2. Teaching Assistant (s) :

Hing Sang LAU (mahslau@ust.hk) and Wenlin ZHANG (wzhangdh@connect.ust.hk)

Qing XIE (maqxie@ust.hk) and Yuanhui LUO (yluocl@connect.ust.hk)

3. Meeting Time and Venue

Lectures: L1 Tue/Thur, 16:30—17:50, CYTG010; L1 Fri, 12:00—12:50, Rm 2463

L2 Tue/Thur, 12:00—13:20, Rm 4503; L2 Fri, 9:30—10:20, Rm 2302

Tutorial: T1A, T1B, T2A, T2B.

Office hour: Tue/Thur, 15:00—15:50, or by appointment.

4. Course Description –

Math1012: 4 credit units. Complete single variable calculus at normal level. Students are expected to understand the basic concepts and be able to carry out the computations.

Main topics: Functions and graphs, limits of functions and continuity, derivatives and their applications, basic indefinite and definite integrals.

5. Intended Learning Outcomes

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

No.	ILOs
1	Recognize and use appropriately important technical terms and definitions in calculus.
2	Use calculus notation to formulate and apply the laws in concise form.
3	Apply calculus and logic in familiar situations.
4	Apply the concepts and methods of calculus in modeling and problem solving.

6. Assessment Scheme

<u>Assessment</u>	<u>Assessing Course ILOs</u>
<i>15% by online homework assignment</i>	<i>1,2,3,4</i>
<i>35% by midterm exam</i>	<i>1,2,3,4</i>
<i>50% by final exam</i>	<i>1,2,3,4</i>

7. Student Learning Resources -

Textbook: Calculus Early Transcendentals, by J. Stewart, 8th edition. Brooks/Cole.

8. Teaching and Learning Activities –

- a. Lectures: focus on course materials, 4 hours per week.
- b. Tutorials: focus on exercises and homework, 1 hour per week

9. Course Schedule

Keyword Syllabus:

- Limit: Limit of functions, continuity, computation of limits, elementary functions, composition and their limit etc.
- Differentiation: derivative rules, computation of derivative for elementary functions, mean value theorem, high order approximation, numerical application.
- Integration: concepts, Newton-Libnitz theorem, computation of integration for elementary functions, substitution, applications, etc.