Math 1013 Calculus IB

Course outline - Spring 2023-2024

1. Course webpage:

   Canvas (https://canvas.ust.hk/courses/55397/pages/I1-maosheng-xiong)

   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.

   　　　　　 L2 Tue/Thur, 12:00—13:20, Rm 4503

   Tutorial: T1A, T1B, T2A, T2B.

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

4. Course Description –

   Math1013/Math1014: 3 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 of Math 1013: Functions, Limits, Derivatives, Integration.

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

Assessment	Assessing Course ILOs
15% by online homework assignment	*1,2,3,4*
35% by midterm exam	*1,2,3,4*
50% by final exam	*1,2,3,4*

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, 3 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.