

THE CHINESE UNIVERSITY OF HONG KONG
Department of Mathematics
MATH1010C (First term, 2014-15)
University Mathematics

The main focus of this course is on one-variable calculus. On top of the methods and techniques of computation and their applications, this section places a special emphasis on the theoretical foundations, for the benefit of those who want to acquire a deeper understanding of the subject.

Instructor

- Yung, Po Lam (Office: Rm 234 LSB. Email: plyung@math.cuhk.edu.hk)

Tutors

- Cho, Ki Kit Edward (grader). Email: ekcho@math.cuhk.edu.hk
- Jiang, Qingyuan (tutor). Email: qyjiang@math.cuhk.edu.hk

Time and Venue

- Lectures: Wednesdays 11:30–12:15 YIA LT7, Thursdays 16:30–18:15 YIA LT7.
- Tutorials (*from* Week 2): Thursdays 13:30–14:15, YIA LT3, Thursdays 18:30–19:15, YIA LT7.

Assessment Scheme

- **Assignment:** 5%
- **Quizzes:** 40%

There are two quizzes in total. The dates are Oct 8, Nov 5 (in Weeks 6, 10) respectively. The quizzes are going to be in class. They are of equal weighting.

- **Final Examination:** 55 %

Course Material and Course Announcements

- Material (including tutorial sheets and assignments) common to all sections of MATH1010 in this semester will be uploaded to the course homepage of MATH1010A at

<http://www.math.cuhk.edu.hk/course/math1010a/>

You can also find the names of the tutors for all sections of MATH1010 in this semester.

- Material specifically related to the lectures of MATH1010C will be uploaded to the course homepage of MATH1010C at

<http://www.math.cuhk.edu.hk/course/math1010c/>

- Course announcements specifically related to MATH1010C which are made in class may be put onto the course homepage of MATH1010C and communicated via the CWEM.

Assignments

Assignments count in the course assessment. They are uploaded to the course homepage of MATH1010A. An assignment that is submitted late (or is not submitted) will not be graded. You are reminded to adhere to the university policy on honesty in academic work. Please refer to

<http://www.cuhk.edu.hk/policy/academichonesty/>

- To submit your work, go to 2/F LSB. You will find the assignment boxes for all MATH courses opposite Rms 221-223 LSB. Slip your work into the assignment box for MATH1010C.
- Your marked work will be placed in the open area at the top of the assignment box for MATH1010C.

References

1. L. F. Cheung, C. H. Lau, *University Mathematics* (any edition), McGrawHill.
2. G. B. Thomas, *Thomas' Calculus* (any recent edition), Addison-Wesley or Pearson.

Here are some other references which also cover everything in the course but may give a more advanced or theoretical treatment of some (or all) of the topics in the calculus of one real variable. They are suitable for students who intend to acquire a broader and deeper understanding of mathematics beyond this course.

1. T. M. Apostol, *Calculus (Volume 1)* (Second Edition), Wiley.
2. R. Courant, *Differential and Integral Calculus (Volume I)*, Wiley-Interscience.
3. R. Courant, F. John, *Introduction to Calculus and Analysis (Volume I)*, Springer-Verlag.
4. M. Spivak, *Calculus* (any edition), W. A. Benjamin or Publish or Perish or Cambridge University Press.

Teaching Schedule

The schedule is provisional; we will adapt it along the way.

- Weeks 1-5: elementary functions, limits and continuity, differentiability, rules of differentiation.
- Weeks 6-8: Mean-Value Theorem, Taylor's Theorem, and their applications.
- Weeks 9-13: indefinite and definite integrals, Fundamental Theorem of the Calculus, techniques of integration, improper integrals, applications of integration.