

Capital University of Economics and Business

Overseas Chinese College

Course Syllabus

Year and Semester	2025 Fall					
Course Name	Calculus I					
Course Code	MAT111					
Course Type	☒ General Education (Required) ☐ General Education (Elective) ☐ Basic Disciplinary Course ☐ Professional Course (Required) ☐ Professional Course (Elective) ☐ Professional Course (Expanded) ☐ Professional Course (Advanced)					
Course Credits	4					
Course Hours	Total Class Hours	64	Lecture Hours	64	Experiment (Computer) Hours	0
Applicable object	☒ Freshman ☐ Sophomore ☐ Junior ☐ Senior					
	☒ Business Administration (Accounting)					
	☒ Information Management and Information Systems (Data Governance)					
Prerequisites	None					
Instructor	Li Ling/Tian Jiangxue/Huang Jianming					
Contact Information	Office:C217					
	Tele:010-83951082					
	liling@cueb.edu.cn					
Office Hour	TBA					
Learning Centre	TBA					
Grade/Section	2025BA&ACCA1&ACCA2&CFA&IT1&IT2					
Course Time/Place	TBA					
Textbook	James Stewart. Calculus (8th Edition). China Renmin University Press. ISBN: 978-7-300-28088-2					

Reference Book

1. Colin Adams, Joel Hass, Abigail Thompson: *How to Ace Calculus-The Streetwise Guide*, W H Freeman & Co (1998), ISBN: 0-716-73160-6
2. Anton, Bivens & Davis. *Calculus (7th Edition)*. John Wiley & Sons, Inc(2002). ISBN: 0-471-38157-8

Course Description

This is a complete course in first-semester calculus. This course emphasizes a multi-representational approach to calculus, with concepts, results, and problems being expressed graphically, numerically, analytically, and verbally. It is designed for students intending to major in business, economics, or natural and social sciences. Topics include the meaning, use, and interpretation of the derivative; techniques of

differentiation; applications to curve sketching and optimization in a variety of disciplines; the definite integral and some applications; and the Fundamental Theorem of Calculus. After learning this course, students will extend their knowledge with concepts of function, limits and continuity, differentiation rules, application to extremum problems as well as the Fundamental Theorem of Calculus. This course also develops students' understanding of the concepts of calculus and provides experience with its methods and applications.

Student Learning Objectives

After completing this course, students will be able to:

Knowledge:

- ♦ Master the properties of different functions
- ♦ Evaluate limits using algebraic, geometric, analytic techniques
- ♦ Differentiate complexly constructed elementary functions
- ♦ Find the tangent line to a given graph at a given point
- ♦ Solve maximum and minimum problems using differentiation
- ♦ Apply calculus to curve sketching
- ♦ Apply Fundamental Theorem of Calculus to integral calculation
- ♦ Evaluate definite and indefinite integrals by using substitution rule

Capability:

- ♦ Develop skills and work problems involving functions and models
- ♦ Develop skills and work problems involving limits and rates of change
- ♦ Develop skills and work problems involving derivative and its application
- ♦ Develop skills and work problems involving integral and its application
- ♦ Demonstrate proficiency in Calculus application for real life problems

Mindset:

- ♦ Foster the interest of learning Calculus
- ♦ Develop their logical thinking ability and creative thinking ability
- ♦ Cultivate the spirit of cooperation and team work
- ♦ Get the awareness of connecting between knowledge and life experiences
- ♦ Develop their patriotic emotion through learning Calculus

Website Source

1. <https://www.khanacademy.org>
2. <https://www.geogebra.org>

Teaching Methods

This course consists of lectures, discussions and student presentations. Students will be divided into small groups with a group leader helping others in the group. Students must be prepared to finish some small questions and small quizzes during the class.

Grade Criterion

Component	Weight	Description
Final Exam	20%	A cumulative final examination will be given based on all of the contents

		of the class. A minimum of 25% of the exam (5 of the 20%) will consist of questions utilizing the application of critical thinking.
Mid-Term Test	20%	A cumulative midterm examination will be given based on all of the contents of the first half of the class. A minimum of 25% of the exam (5 of the 20%) will consist of questions utilizing the application of critical thinking.
Homework	15%	Homework problems will be assigned throughout the term, including but not limited to: terminologies, research project, and reading assignments.
Quizzes	15%	There will be at least 2 quizzes during the semester. The purpose of the quizzes is to ensure that students keep up with the readings. It may also be used as a way to check the attendance. Quizzes will test your knowledge of both concepts and the application of those concepts.
Presentation	10%	The students will be divided into several groups to prepare a presentation. Each student is required to be involved in the presentation. The topics can be selected from the textbook or lectures. Each group need to finish a PPT related to the topic which is given and hand in the related resources to the teacher before the presentation. The percentage is : content50%+organization10%+language15%+performance25%
Participation	10%	Individuals will be asked to participate individually in questions during the semester. Students are required to meet with their teachers every week. Their performances should be counted in their participation.
Attendance	10%	Refer to attendance policy listed below
Total	100%	

Detailed Grade Computation

	Before Midterm	After Midterm
Attendance	5%	5%
Participation	5%	5%
Homework	5%	10%
Quizzes	5%	10%
Presentation		10%
Midterm test	20%	
Final exam		20%
Total	40%	60%

Grading Policy

A+ 97-100	A 93-96	A- 90-92	B+ 87-89	B 83-86	B- 80-82
C+ 75-79	C 70-74	C- 67-69	D+ 63-66	D 62-60	F 0- 59

Assessment of Student Performance

☞ Self-Study and Reading ability Practice

Instructor will give out the chapters or the reference books to read and use class hours to have discussion; students should be able to show a proactive attitude and ability for self-study and reading. Knowledge and oral English will be elements of homework or presentation score.

☞ Homework

Students should finish their homework by themselves. Copying from others will be treated as cheating and the homework scores will be lowered. Students should hand in all assignments on time. Late assignments will be accepted at the discretion of the instructor (i.e., when the student was ill or had an excused absence). Late assignments without reasonable proof will be reduced in score by 50%.

☞ Attendance

Because the course covers a great deal of material, attending every class session is very important for performing well.

- ♦ Being late for 15 minutes or more is considered an absence.
- ♦ Five hours or above of unexcused absences will result in the lower level of the final grade by one grade band (e.g. from C – to D +). Any excused absence must be discussed directly with the teacher.
- ♦ Absence which is more than 1/3 of the total teaching hours will cause an F (a failing grade) directly, but students are welcome to continue attending classes.
- ♦ An incomplete grade (I) will be considered in case of medical or family emergencies.

☞ Participation

- ♦ Students should participate in classes actively. Half of participation grade is determined by their presentation in class. They are encouraged to ask questions relevant to the subject and express their own opinions. Every student should respect the ideas, opinions, and questions of their classmates.
- ♦ Students should also use office hours to ask questions or talk with the instructor for good communication and effective learning.
- ♦ Frequent visiting the instructor and chatting in English during office hours is highly recommended.
- ♦ Any misbehavior and non-class related activities in class will result in the lower level of the participation grade, including ringing cell phones.
- ♦ All above behaviors will be solely evaluated by the instructor for scoring.

☞ Textbook

Students must bring the textbook to class.

Topical Course Outline

Week	Date	Topics	Homework
1-3	Sept.8-Sept.26	Freshman registration	
4	Sept.29-Oct.3	● Chapter 1 1. Introduction of the syllabus 2. Definition and properties of functions	Homework from 学习通
5	Oct.6-Oct.10	● Chapter 1 1. Calculation of composite function	Homework from 学习通

		2. The inverse trigonometric function	
6	Oct.13-Oct.17	● Chapter 1 1. Definition of limit 2. Infinite limit and vertical asymptotes	Homework from 学习通
7	Oct.20-Oct.24	● Chapter 1 1. Limit calculation 2. Definition and property of continuity	Homework from 学习通
8	Oct.27-Oct.31	● Chapter 2 1. Definition of derivative 2. Derivative as a function	Homework from 学习通
9	Nov.3-Nov.7	● Chapter 2 1. Rules of differentiation 2. Derivative of trigonometric functions 3. The chain rules	Homework from 学习通
10	Nov.10-Nov.14	● Chapter 2 1. Derivative of implicit functions 2. Higher derivatives 3. Derivative of logarithmic functions 4. Midterm Test	Homework from 学习通
11	Nov.17-Nov.21	● Chapter 3 1. Maximum and minimum values of a function 2. Mean Value Theorem	Homework from 学习通
12	Nov.24-Nov.28	● Chapter 3 1. Derivative and the shape of a graph 2. Limits at infinity and horizontal asymptotes 3. Summary of curve sketching 4. Linear approximation and differentials	Homework from 学习通
13	Dec.1-Dec.5	● Chapter 3 1. The L'Hospital's Rule 2. Anti-derivative of function 3. Optimization problem	Homework from 学习通
14	Dec.8-Dec.12	● Chapter 4 1. The area and distance problem 2. Definition of definite integral	Homework from 学习通
15	Dec.15-Dec.19	● Chapter 4 1. The fundamental theorem of calculus 2. Calculation of integration	Homework from 学习通
16	Dec.22-Dec.26	● Chapter 4 1. Integral calculation: The substitution rule 2. The substitution rule: Practice 3. Quiz 2	Homework from 学习通
17	Dec.29-Jan.2	● Presentation	
18	Jan.5-Jan.9	● Chinese Review Session ● Self-review by the students	

Note: Some chapters or sections may leave for self-study, this is the students' duty to learn and understand, they may also be included in the quizzes or exams.

A review in Chinese may be held during L.C. and O.H. in the semester.

Teacher's Office Hour

- ♦ The instructor's office hour is shown in the front of the office door.
- ♦ Students are suggested to use the instructor's office hour and learning center to ask questions or talk with the instructor once at least per week for good communication and effective learning, which is

recorded in the students' participation.

- ♦ The time can be scheduled by instructors or students, or both.

Cheating and Plagiarism

Cheating is not tolerated. Any student caught cheating on a quiz; test or exam will be given a mark of zero (0) for the particular work. At the beginning of the semester the definition of plagiarism will be carefully explained, when any thoughts or writings of another person are used, they must be clearly identified (usually one uses quotation marks) and the source notes. **If any student is caught cheating on any homework assignment, the highest score the student can earn in that course is a "C".**

Important Dates

Midterm Test	Week 10 or Week 11
Final Exam	Refer to the notice of the Academic Affairs Office

***Note:** This syllabus is tentative and may be changed or modified throughout the semester. All students will be notified and a new syllabus will be given.*

Instructor: Li Ling

Department Head: Prof. Jingning Li

