Capital University of Economics and Business
Overseas Chinese College
Course Syllabus

Year and Semester	2024 Spring					
Course Name	Calculus II					
Course Code	MAT112					
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 (Finance)					
Prerequisites	MAT111 Calculus I					
Instructor	Li Ling/Huang Jianming					
Contact Information	Office:C217					
	Tele:01083951082					
	liling@cueb.edu.cn					
Office Hour	TBA					
Learning Centre	TBA					
Grade/Section	2023BA1&BA2&ACCA1&ACCA2&CFA&IT					
Course Time/Place						
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 (Seventh Edition). John Wiley & Sons, Inc(2002). ISBN: 0-471-38157-8

Course Description

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. After learning this course, students will extend their knowledge with techniques of integration, application of integration, parametric and polar curves, series and power series, partial derivatives as well as the multiple integration. 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 applications of integration
- Evaluate integrations by using different techniques
- Master the further applications of integration
- Apply methods of calculus to parametric curves and polar coordinates
- Understand the definition of differential equation
- Master the application of series and power series
- Evaluate the partial derivatives of functions with several variables
- Evaluate the multiple integrals in Cartesian and polar coordinates

Capability:

- Develop skills and work problems involving functions and models
- Develop skills and work problems involving integral calculation
- Develop skills and work problems involving partial derivatives
- 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%

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

		Topics	Homework
1	1	● Syllabus ● Review the basic techniques of integration ● Master integration by parts	
	2	● Master the trigonometric integration	
2	1	● Master the trigonometric substitution	
	2	● Master the partial fraction of integration	
3	1	● Summarize about the techniques of integration ● Master how to find area between curves	
	2	● Can find the volume by the slicing method ● Can find the volume by the cross section area	
4	1	● Can find the volume by the shell method	
	2	● Master how to find the length of curves ● Self-study on how to find the surface area ● Summarize about the application of integration	
5	1	● Understand modeling with differential equation ● Master the separable equations	
	2	● Master the linear equations	
6	1	● Master the parametric equation ● Master the application in parametric equation	
	2	● Master the polar coordinate ● Master the application of calculus in polar coordinate	
7	1	● Understand the definition of sequence	
	2	● Master the definition of series	
8	1	● Master the test for divergence and integral test	
	2	● Master the comparison test	
9	1	● Master the alternating series	
	2	● Master the absolute convergence and the ratio and root test ● Summarize the strategy for testing series	
10	1	● Review and the midterm test	
	2	● Review and the midterm test	
11	1	● Master the property of power series ● Able to find the radius of convergence	

	2	● Master the differentiation and integration of power series ● Master the representation of power series	
12	1	● Understand the definition of Taylor series ● Master the application of Taylor series	
	2	● Further application of Taylor series II	
13	1	● Understand functions with several variables ● Self-study the graphs and level curves ● Master the limits and continuity calculation of functions with several variables	
	2	● Master the partial derivatives of multivariable functions	
14	1	● Master the chain rules of partial derivatives of multivariable functions	
	2	● Understand the directional derivatives and the gradient ● Master the maximum/minimum problems of multivariable functions	
15	1	● Understand the definition of double integral ● Master the double integrals over rectangle	
	2	● Master the double integrals over general region	
16	1	● Review and quiz	
	2	● Review and quiz	
17	1	● Presentation	
	2	● Presentation	
18	1	● Chinese Review Session	
	2	● Chinese Review Session	

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 9 or 10
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**