

## Tamkang University Academic Year 114, 1st Semester Course Syllabus

Course Title	CALCULUS	Instructor	YAO CHENG
Course Class	TLCAB1A DEPARTMENT OF BUSINESS ADMINISTRATION (ENGLISH-TAUGHT PROGRAM), 1A	Details	◆ General Course ◆ Required ◆ 1st Semester ◆ 2 Credits
Relevance to SDGs	SDG4 Quality education		
D e p a r t m e n t a l   A i m   o f   E d u c a t i o n			
I . Acquisition of professional knowledge. II . Learning effective self-planning. III . Theoretical application of practical matters. IV . Interpersonal communication and teamwork. V . Analysis of problems and recommendations. VI . Awareness of Ethics as a global citizen.			
Subject Departmental core competences			
A. Students can demonstrate that they have program basic knowledge of business and management.(ratio:40.00) B. Students can demonstrate that they have capability in professional knowledge expression. (ratio:10.00) C. Students can demonstrate that they have capability in using information technology. (ratio:10.00) D. Students can demonstrate that they are critical thinkers.(ratio:40.00)			
Subject Schoolwide essential virtues			
1. A global perspective. (ratio:5.00) 2. Information literacy. (ratio:20.00) 3. A vision for the future. (ratio:10.00) 4. Moral integrity. (ratio:15.00) 5. Independent thinking. (ratio:30.00) 6. A cheerful attitude and healthy lifestyle. (ratio:5.00)			

7. A spirit of teamwork and dedication. (ratio:10.00)				
8. A sense of aesthetic appreciation. (ratio:5.00)				
Course Introduction	This course introduces Calculus together with its applications. Topics include limits, differentiation and exponential/logarithmic Functions. Relevant applications to the areas of business, economics, and the social sciences will also be discussed.			
<p><b>The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.</b></p> <p>Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.</p> <p>I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of the course's veracity, conception, procedures, outcomes, etc.</p> <p>II.Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal, morals, attitude, conviction, values, etc.</p> <p>III.Psychomotor: Emphasis upon the study of the course's physical activity and technical manipulation.</p>				
No.	Teaching Objectives			objective methods
1	Students are expected to understand the concepts of limit and continuity, as well as being familiar with computing the derivatives of elementary functions such as polynomials and exponential/logarithmic functions. Also, they are expected to use these techniques to solve practical problems occurring in the relevant areas.			Cognitive
The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment				
No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCD	12345678	Lecture, Discussion	Testing, Discussion(including classroom and online), Report(including oral and written), Activity Participation
Course Schedule				
Week	Date	Course Contents		Note

1	114/09/15 ~ 114/09/21	1.1 The Cartesian Plane and the Distance Formula. 1.2 Graphs of Equations.	
2	114/09/22 ~ 114/09/28	1.3 Lines in the Plane and Slope. 1.4 Functions.	
3	114/09/29 ~ 114/10/05	1.5 Limits. 1.6 Continuity.	
4	114/10/06 ~ 114/10/12	2.1 The Derivatives and the Slope of a Graph. 2.2 Some rules for Differentiation.	
5	114/10/13 ~ 114/10/19	2.3 Rates of Change: Velocity and Marginals.	
6	114/10/20 ~ 114/10/26	2.4 The Product and Quotient Rules.	
7	114/10/27 ~ 114/11/02	2.5 The Chain Rule. 2.6 Higher-Order Derivatives.	
8	114/11/03 ~ 114/11/09	2.7 Implicit Differentiation. 2.8 Related Rates.	
9	114/11/10 ~ 114/11/16	Midterm	
10	114/11/17 ~ 114/11/23	3.1 Increasing and Decreasing Functions. 3.2 Extrema and First-Derivative Test.	
11	114/11/24 ~ 114/11/30	3.3 Convacity and the Second-Derivative Test. 3.4 Optimization Problems.	
12	114/12/01 ~ 114/12/07	3.5 Business and Economic Applications. 3.6 Asymptotes.	
13	114/12/08 ~ 114/12/14	3.7 Curve Sketching: A summary. 3.8 Differentials and Marginal Analysis.	
14	114/12/15 ~ 114/12/21	4.1 Exponential Functions. 4.2 Natural Exponential Functions.	
15	114/12/22 ~ 114/12/28	4.3 Derivatives of Exponential Functions. 4.4 Logarithmic Functions.	
16	114/12/29 ~ 115/01/04	Final	
17	115/01/05 ~ 115/01/11	Review of final exam	
18	115/01/12 ~ 115/01/18	Preview of the next semester	Preparations for the next semester.
Key capabilities			
Interdisciplinary			

Distinctive teaching	
Course Content	Logical Thinking
Requirement	Scheduled time: 3 hours.  This course lasts 100 minutes, and the remaining time can be used flexibly by the professor depending on the situation.
Textbooks and Teaching Materials	Self-made teaching materials:Handouts
References	Brief Calculus: An Applied Approach (Metric Edition), 10/E, Ron Larson
Grading Policy	<p>◆ Attendance :                %    ◆ Mark of Usual : 30.0 %    ◆ Midterm Exam : 35.0 %</p> <p>◆ Final Exam :    35.0 %</p> <p>◆ Other (    ) :                %</p>
Note	<p>This syllabus may be uploaded at the website of Course Syllabus Management System at <a href="https://web2.ais.tku.edu.tw/csp">https://web2.ais.tku.edu.tw/csp</a> or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at <a href="http://www.acad.tku.edu.tw/CS/main.php">http://www.acad.tku.edu.tw/CS/main.php</a>.</p> <p>※"Adhere to the concept of intellectual property rights" and "Do not illegally photocopy, download, or distribute." Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</p>