

Tamkang University Academic Year 107, 1st Semester Course Syllabus

Course Title	CALCULUS	Instructor	CHEN SHUN-YI
Course Class	TLFBB1A DIVISION OF GLOBAL COMMERCE, DEPARTMENT OF INTERNATIONAL BUSINESS (ENGLISH- TAUGHT PROGRAM), 1A	Details	<ul style="list-style-type: none"> ◆ Required ◆ 1st Semester ◆ 2 Credits
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			
<ul style="list-style-type: none"> 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. 			
D e p a r t m e n t a l c o r e c o m p e t e n c e s			
<ul style="list-style-type: none"> A. Students can demonstrate that they have program basic knowledge of business and management. B. Students can demonstrate that they have capability in professional knowledge expression. C. Students can demonstrate that they have capability in using information technology. D. Students can demonstrate that they are critical thinkers. 			
Course Introduction	<p>This introductory calculus course covers differentiation and integration with applications in business, economics, and the social and life sciences. Topics of the first semester include:</p> <ol style="list-style-type: none"> 1. Functions and Graph of Function 2. Limit and Continuity 3. Exponential and Logarithmic Functions 4. Techniques of Differentiation 5. Application of Differential Calculus 		

The Relevance among Teaching Objectives, Objective Levels and Departmental core competences

I. Objective Levels (select applicable ones) :

- | | | |
|-------------------------|-------------------------------------|---------------------------|
| (i) Cognitive Domain | : C1-Remembering, C2-Understanding, | C3-Applying, |
| | C4-Analyzing, C5-Evaluating, | C6-Creating |
| (ii) Psychomotor Domain | : P1-Imitation, P2-Mechanism, | P3-Independent Operation, |
| | P4-Linked Operation, P5-Automation, | P6-Origination |
| (iii) Affective Domain | : A1-Receiving, A2-Responding, | A3-Valuing, |
| | A4-Organizing, A5-Characterizing, | A6-Implementing |

II. The Relevance among Teaching Objectives, Objective Levels and Departmental core competences :

- (i) Determine the objective level(s) in any one of the three learning domains (cognitive, psychomotor, and affective) corresponding to the teaching objective. Each objective should correspond to the objective level(s) of ONLY ONE of the three domains.
- (ii) If more than one objective levels are applicable for each learning domain, select the highest one only. (For example, if the objective levels for Cognitive Domain include C3, C5, and C6, select C6 only and fill it in the boxes below. The same rule applies to Psychomotor Domain and Affective Domain.)
- (iii) Determine the Departmental core competences that correspond to each teaching objective. Each objective may correspond to one or more Departmental core competences at a time. (For example, if one objective corresponds to three Departmental core competences: A, AD, and BEF, list all of the three in the box.)

No.	Teaching Objectives	Relevance	
		Objective Levels	Departmental core competences
1	To understand the definition of functions and its graph	C3	AD
2	To understand the limit of a function at some point, and the continticy of functions	C3	AD
3	To understand exponential and logarithmic functions	C3	AD
4	To familiarize students with the techniques of differentiation	C3	AD
5	Applications in economic and business	C3	AD

Teaching Objectives, Teaching Methods and Assessment

No.	Teaching Objectives	Teaching Methods	Assessment
1	To understand the definition of functions and its graph	Lecture, Discussion, Appreciation, Problem solving	Written test, Participation
2	To understand the limit of a function at some point, and the continticy of functions	Lecture, Discussion, Problem solving	Written test, Participation
3	To understand exponential and logarithmic functions	Lecture, Discussion, Appreciation, Problem solving	Written test, Participation
4	To familiarize students with the techniques of differentiation	Lecture, Discussion, Appreciation, Problem solving	Written test, Participation
5	Applications in economic and business	Lecture, Discussion, Appreciation, Problem solving	Written test, Participation

This course has been designed to cultivate the following essential qualities in TKU students

Essential Qualities of TKU Students	Description
◆ A global perspective	Helping students develop a broader perspective from which to understand international affairs and global development.
◆ Information literacy	Becoming adept at using information technology and learning the proper way to process information.
◇ A vision for the future	Understanding self-growth, social change, and technological development so as to gain the skills necessary to bring about one's future vision.
◇ Moral integrity	Learning how to interact with others, practicing empathy and caring for others, and constructing moral principles with which to solve ethical problems.
◆ Independent thinking	Encouraging students to keenly observe and seek out the source of their problems, and to think logically and critically.
◇ A cheerful attitude and healthy lifestyle	Raising an awareness of the fine balance between one's body and soul and the environment; helping students live a meaningful life.
◇ A spirit of teamwork and dedication	Improving one's ability to communicate and cooperate so as to integrate resources, collaborate with others, and solve problems.
◇ A sense of aesthetic appreciation	Equipping students with the ability to sense and appreciate aesthetic beauty, to express themselves clearly, and to enjoy the creative process.

Course Schedule

Week	Date	Subject/Topics	Note
1	107/09/10 ~ 107/09/16	Functions, The graph of a function	
2	107/09/17 ~ 107/09/23	Linear functions, functional models	
3	107/09/24 ~ 107/09/30	Limits and continuity	
4	107/10/01 ~ 107/10/07	Derivative	
5	107/10/08 ~ 107/10/14	Techniques of differentiation	
6	107/10/15 ~ 107/10/21	The chain rule	
7	107/10/22 ~ 107/10/28	Marginal analysis, Approximations using increments, Implicit differentiation	
8	107/10/29 ~ 107/11/04	Increasing and decreasing functions	
9	107/11/05 ~ 107/11/11	Concavity and points of inflection	
10	107/11/12 ~ 107/11/18	Midterm Exam Week	
11	107/11/19 ~ 107/11/25	Curve sketching	
12	107/11/26 ~ 107/12/02	Optimization	

13	107/12/03 ~ 107/12/09	Additional applied optimization	
14	107/12/10 ~ 107/12/16	Exponential functions, Continuous compounding	
15	107/12/17 ~ 107/12/23	Logarithmic functions and applications	
16	107/12/24 ~ 107/12/30	Differentiation of logarithmic and exponential functions	
17	107/12/31 ~ 108/01/06	Additional applications, Exponential models	
18	108/01/07 ~ 108/01/13	Final Exam Week	
Requirement			
Teaching Facility	Computer, Projector		
Textbook(s)	Applied Calculus for the Managerial, Life, and Social Sciences: A Brief Approach, Edition Ten, by Soo T. Tan (2015), CENGAGE Learning.		
Reference(s)			
Number of Assignment(s)	(Filled in by assignment instructor only)		
Grading Policy	◆ Attendance : % ◆ Mark of Usual : 20.0 % ◆ Midterm Exam : 35.0 % ◆ Final Exam : 45.0 % ◆ Other < > : %		
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php . ※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.		