Tamkang University Academic Year 107, 1st Semester Course Syllabus

Course Title	CALCULUS	Instructor	CHIAN-JEN WANG
Course Class	TLWXB1A BACHELOR'S PROGRAM IN GLOBAL FINANCIAL MANAGEMENT (ENGLISH-TAUGHT PROGRAM), 1A	Details	◆ Required ◆ 1st Semester ◆ 2 Credits

Departmental Aim of Education

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.

Departmental core competences

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	This introductory calculus course covers differentiation and integration with applications in business, economics, and the social and life sciences. Topics to be discussed in this semester include: concepts of functions; limits and continuity; differentiation rules; curve sketching; related rates; optimization problems; exponential and logarithmic functions and their derivatives.

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-Charaterizing,   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	1 Students will be able to understand the concepts of limit and continuity of a function.	C3	AD
2	2 Students will be able to understand the theory and various interpretations of derivatives.	C3	AD
3	3 Students will be able to apply techniques of differentiation to solve real-world problems	C3	AD

Teaching Objectives, Teaching Methods and Assessment

No.	Teaching Objectives	Teaching Methods	Assessment
1	1 Students will be able to understand the concepts of limit and continuity of a function.	Lecture, Discussion	Written test, Participation
2	2 Students will be able to understand the theory and various interpretations of derivatives.	Lecture, Discussion	Written test, Participation
3	3 Students will be able to apply techniques of differentiation to solve real-world problems	Lecture, Discussion	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, Graphs, Mathematical Models (2.1~2.3)	
2	107/09/17 ~ 107/09/23	Limits (2.4)	
3	107/09/24 ~ 107/09/30	One-Sided Limits and Continuity (2.5)	
4	107/10/01 ~ 107/10/07	The Derivative (2.6)	
5	107/10/08 ~ 107/10/14	Basic Rules of Differentiation, Product and Quotient Rules (3.1~3.2)	
6	107/10/15 ~ 107/10/21	The Chain Rule, Marginal Functions in Economics (3.3)	
7	107/10/22 ~ 107/10/28	Higher-Order Derivatives, Implicit Differentiation and Related Rates (3.5~3.6)	
8	107/10/29 ~ 107/11/04	Differentials (3.7)	
9	107/11/05 ~ 107/11/11	Applications of the First Derivative (4.1)	
10	107/11/12 ~ 107/11/18	Midterm Exam Week	
11	107/11/19 ~ 107/11/25	Applications of the Second Derivative (4.2)	
12	107/11/26 ~ 107/12/02	Curve Sketching (4.3)	

13	107/12/03~ 107/12/09	Optimization (4.4~4.5)	
14	107/12/10~ 107/12/16	Exponential Functions, Logarithmic Functions (5.1~5.2)	
15	107/12/17~ 107/12/23	Compound Interest, Differentiation of Exponential Functions (5.3~5.4)	
16	107/12/24~ 107/12/30	Differentiation of Logarithmic Functions (5.5)	
17	107/12/31~ 108/01/06	Exponential Functions as Mathematical Models (5.6)	
18	108/01/07~ 108/01/13	Final Exam Week	

Requirement	
Teaching Facility	(None)
Textbook(s)	Applied Calculus for the Managerial, Life, and Social Sciences, by Soo T. Tan, 10th edition
Reference(s)	
Number of Assignment(s)	(Filled in by assignment instructor only)
Grading Policy	◆ Attendance：　　　% ◆ Mark of Usual：　　% ◆ Midterm Exam： 30.0 % ◆ Final Exam： 40.0 % ◆ Other〈Homework and Quizzes〉：30.0 %
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.**