Tamkang University Academic Year 102, 1st Semester Course Syllabus

Course Title	CALCULUS	Instructor	CHAN CHANG WHEI-CHING
Course Class	TGLXB0A ELECTIVES COURSES BY COLLEGE OF BUSINESS AND MANAGEMENT, 0A	Details	◆ Required ◆ 1st Semester ◆ 2 Credits

Departmental teaching objectives

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 are equipped with professional knowledge of core courses.

B. Students can follow the course schedule and complete the assignment.

C. Students can apply their profession to practice matters.

D. Students can communicate in business environment.

E. Students can perform the ability of professional analysis and thinking.

F. Students can recognize ethical issues in local and international business environment.

Course Introduction	This course will introduce the following concepts. 1. The properties of real valued functions. 2. The differentiation of real valued functions. 3. The application of the derivative to management, social science, biomedical science and other fields.

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.To learn the real valued functions and their graph 2. To learn the concept of limit and continuity a functions 3. To learn how to take the derivative of real valued functions 4.To learn how to apply the derivative to different real world problem	C3	AC
2	1.To learn the concept of the graph of a function and how to sketch them 2.To learn the limits and continuity of a function and use them to find the derivative of a function. 3.To learn how to use rules to find the derivative of a function and application on solving story problem. 4.To learn how the derivative can be used to solve the real world problem.	C3	AC

Teaching Objectives, Teaching Methods and Assessment

No.	Teaching Objectives	Teaching Methods	Assessment

1	1.To learn the real valued functions and their graph 2. To learn the concept of limit and continuity a functions 3. To learn how to take the derivative of real valued functions 4.To learn how to apply the derivative to different real world problem	Lecture	Written test
2	1.To learn the concept of the graph of a function and how to sketch them 2.To learn the limits and continuity of a function and use them to find the derivative of a function. 3.To learn how to use rules to find the derivative of a function and application on solving story problem. 4.To learn how the derivative can be used to solve the real world problem.	Lecture	Written test

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	102/09/16 ~ 102/09/22	Functions, graph of a function, lines and linear functions	
2	102/09/23 ~ 102/09/29	Functional models, limits.	
3	102/09/30 ~ 102/10/06	Limits and continuity.	
4	102/10/07 ~ 102/10/13	derivative	
5	102/10/14 ~ 102/10/20	Techniques of differentiation, product rule, quotient rule	
6	102/10/21 ~ 102/10/27	Higher-order derivative, chain rule, marginal analysis	
7	102/10/28 ~ 102/11/03	Implicit differentiation and related rates.	
8	102/11/04 ~ 102/11/10	Increasing and decreasing functions, relative extrema	
9	102/11/11 ~ 102/11/17	Concavity and points of inflection	
10	102/11/18 ~ 102/11/24	Midterm Exam Week	
11	102/11/25 ~ 102/12/01	Curving sketching	
12	102/12/02 ~ 102/12/08	Elasticity of demand	
13	102/12/09 ~ 102/12/15	Applied optimization	
14	102/12/16 ~ 102/12/22	Exponential functions, continuous compounding	
15	102/12/23 ~ 102/12/29	Logarithmic functions	
16	102/12/30 ~ 103/01/05	Differentiation of logarithmic and exponential functions	
17	103/01/06 ~ 103/01/12	Applications, exponential models	
18	103/01/13 ~ 103/01/19	Final Exam Week	

Requirement	1.Turn off the cell phone 2.Do not talk to each other , unless there is a question.
Teaching Facility	(None)
Textbook(s)	Calculus for business, economics and the social and life sciences, 11th edition, by Hoffmann, Bradley, Sobecki and Price
Reference(s)	

Number of Assignment(s)	(Filled in by assignment instructor only)
Grading Policy	◆ Attendance： 30.0 % ◆ Mark of Usual： % ◆ Midterm Exam： 25.0 % ◆ Final Exam： 25.0 % ◆ Other〈quiz(10%),recitation〉：20.0 %
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.**