

## Tamkang University Academic Year 107, 2nd 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"> <li>◆ Required</li> <li>◆ 2nd Semester</li> <li>◆ 2 Credits</li> </ul>
Departmental Aim of Education			
<ul style="list-style-type: none"> <li>I. Acquisition of professional knowledge.</li> <li>II. Learning effective self-planning.</li> <li>III. Theoretical application of practical matters.</li> <li>IV. Interpersonal communication and teamwork.</li> <li>V. Analysis of problems and recommendations.</li> <li>VI. Awareness of Ethics as a global citizen.</li> </ul>			
Departmental core competences			
<ul style="list-style-type: none"> <li>A. Students can demonstrate that they have program basic knowledge of business and management.</li> <li>B. Students can demonstrate that they have capability in professional knowledge expression.</li> <li>C. Students can demonstrate that they have capability in using information technology.</li> <li>D. Students can demonstrate that they are critical thinkers.</li> </ul>			
Course Introduction	<p>Antiderivatives and indefinite integrals. Definite integrals and areas. Average value and area between curves. Application to business and economics. Integration by substitution. Integration by parts. Improper integrals.</p> <p>Functions of several variables. Partial derivatives. Optimizing functions of several variables. Lagrange Multipliers and constrained optimization. Multiple integrals.</p>		

## 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 integral	C3	AD
2	To understand the integration of exponential and logarithmic functions	C3	AD
3	To familiarize students with the techniques of integration	C3	AD
4	Applications in economic and business	C3	AD
5	To understand the methods of calculus for functions of two or more independent variables	C3	AD

### Teaching Objectives, Teaching Methods and Assessment

No.	Teaching Objectives	Teaching Methods	Assessment
1	To understand the definition of integral	Lecture, Discussion, Problem solving	Written test, Participation
2	To understand the integration of exponential and logarithmic functions	Lecture, Discussion, Problem solving	Written test, Participation
3	To familiarize students with the techniques of integration	Lecture, Discussion, Problem solving	Written test, Participation
4	Applications in economic and business	Lecture, Discussion, Problem solving	Written test, Participation

5	To understand the methods of calculus for functions of two or more independent variables	Lecture, Discussion, 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	108/02/18 ~ 108/02/24	Antiderivatives and the Rules of Integration.	
2	108/02/25 ~ 108/03/03	Area and the Definite Integral.	
3	108/03/04 ~ 108/03/10	The fundamental theorem of calculus	
4	108/03/11 ~ 108/03/17	Evaluating Definite Integrals	
5	108/03/18 ~ 108/03/24	Applying definite integration	
6	108/03/25 ~ 108/03/31	Integration by substitution	
7	108/04/01 ~ 108/04/07	Integration by parts	
8	108/04/08 ~ 108/04/14	教學行政觀摩	
9	108/04/15 ~ 108/04/21	Improper Integrals	
10	108/04/22 ~ 108/04/28	Midterm Exam Week	
11	108/04/29 ~ 108/05/05	Applications to economics	

12	108/05/06 ~ 108/05/12	Differential equations, Improper integrals	
13	108/05/13 ~ 108/05/19	Functions of several variables	
14	108/05/20 ~ 108/05/26	Partial derivatives	
15	108/05/27 ~ 108/06/02	Optimizing functions of several variables	
16	108/06/03 ~ 108/06/09	Lagrange multipliers and constrained optimization	
17	108/06/10 ~ 108/06/16	Multiple integrals	
18	108/06/17 ~ 108/06/23	Final Exam Week	
Requirement			
Teaching Faculty	(None)		
Textbook(s)	Soo T. Tan, Applied Calculus for the Managerial, Life, and Social Sciences: A Brief Approach, 10th Edition. 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 <a href="http://info.ais.tku.edu.tw/csp">http://info.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> . <b>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</b>		