朝陽科技大學 096學年度第1學期教學大綱
Calculus 微積分

當期課號	2306	Course Number	2306
授課教師	陳宏益	Instructor	CHEN,HUNG YI
中文課名	微積分	Course Name	Calculus
開課單位	資訊管理系(四日)一C	Department	
修習別	必修	Required/Elective	Required
學分數	3	Credits	3
課程目標	本課程之目的在使學生能瞭解微積分的基本原理和應用的技術，課程內容包含1.實數、函數與其圖形 2.導函數與微分 3.微分的應用 4.指數函數與對數函數的微分 5.反導函數和積分的定義 6.三角函數的微分&積分 7.積分技術	Objectives	The main purpose of this course is to let students understand the fundamental principles of the differential integral calculus and its basic techniques of applications. The content involves real numbers, functions and graphs, the derivative and its applications, derivatives of exponential and logarithmic functions, derivative the trigonometric functions, and techniques of integration.
教材	1. 教材課本: Calculus and its Applications / 3ed / Daniel D. Benice 2. 參考書籍: 1.Applied Calculus / Berkey 2.Calculus / James Stewart	Teaching Materials	1. Textbook: Calculus and its Applications / 3ed / Daniel D. Benice 2. Reference: 1.Applied Calculus / Berkey 2.Calculus / James Stewart
成績評量方式	1.平時成績:含隨堂測驗Quiz、出缺勤、學?態度 40% 2.期中成績：30 % . 3.期末成績： 30 %	Grading	1.Ordinary grading:quiz absence from class learning attitude 40% 2.Mid-Examination 30% 3.Terminal-Examination 30%
教師網頁	http://163.17.8.246/xms/		
	1.復習有關學習微積分的基礎,實數函數 代數運算. 2.極限 單邊極限 連續性 無窮極限. 3.微分 微分的性質 邊際分析. 4.微分的應用:撿驗臨界點 增減函數極值 反曲點繪圖 5.指數函數與對數函數的微分 6.反微分 7.積分基本概念 積分技術. Week 1: Ch 1.1 Real number and algebra review Ch 1.2 Introduction to functions Week 2: Ch1.3 Linear function Ch1.4 Graphs of functions Week 3: Ch 2.1 Introduction to limits Ch 2.2 Continuity Week 4: Ch 2.3 One-sided limits Ch 2.4 Limits at infinity Week 5: Ch 2.5 Infinite limits Ch 3.1 Introduction to the derivative Week 6: Ch 3.2 Basic rules for differentiation Ch 3.3 Rates of changes Week 7: Ch 3.5 The product and quotient rules		1.Review：Real numbers and Algebra operations，Functions 2.Limits，Continuity，One－side limits，infinite limits，limits at infinity 3.Derivatives，The rules for differentiation，Marginal analysis，Differentials 4.Applications of the derivative：increasing and decreasing、critical numbers、the first derivative test、extrema、the second derivative test、inflection points、graphs and elasticity of demand 5.Differentiation of exponential logarithmic functions 6.Anti-defferentiate. 7.Thefundamental conceptsof integral and basic techniques of integral Week 1: Ch 1.1 Real number and algebra review Ch 1.2 Introduction to functions Week 2: Ch1.3 Linear function Ch1.4 Graphs of functions Week 3: Ch 2.1 Introduction to limits Ch 2.2 Continuity Week 4: Ch 2.3 One-sided limits Ch 2.4 Limits at infinity Week 5:

教學內容	Ch 3.6 The chain rule Week 8: Mid-term examination Week 9: Ch 3.7 Higher-order derivatives Ch 3.8 Implicit differentiation Week 10: Ch 3.9 Related rates Ch 3.10 Differentials Week 11: Ch 4.1 Increasing and decreasing graphs and critical numbers Ch 4.2 Relative extrema and curve sketching Week 12: Ch 4.3 Concavity, the second derivative test, and curve sketching Ch 4.4 Absolute extrema Week 13: Ch 5.1 Exponential functions Ch 5.2 Logarithmic functions Week 14: Ch 5.3 Differentiation of exponential functions Ch 5.4 Differentiation of Logarithmic functions Week 15: Ch 6.1 Antidifferentiation Ch 6.2 Some applications of antidifferentiation Week 16: Ch 6.3 The definite integral as area under a curve Ch 6.4 The fundamental theorem of Calculus Week 17: Ch 7.1 Integration by substitution Ch 7.2 Integration by parts Week 18: Final examination	**Syllabus**	Ch 2.5 Infinite limits Ch 3.1 Introduction to the derivative Week 6: Ch 3.2 Basic rules for differentiation Ch 3.3 Rates of changes Week 7: Ch 3.5 The product and quotient rules Ch 3.6 The chain rule Week 8: Mid-term examination Week 9: Ch 3.7 Higher-order derivatives Ch 3.8 Implicit differentiation Week 10: Ch 3.9 Related rates Ch 3.10 Differentials Week 11: Ch 4.1 Increasing and decreasing graphs and critical numbers Ch 4.2 Relative extrema and curve sketching Week 12: Ch 4.3 Concavity, the second derivative test, and curve sketching Ch 4.4 Absolute extrema Week 13: Ch 5.1 Exponential functions Ch 5.2 Logarithmic functions Week 14: Ch 5.3 Differentiation of exponential functions Ch 5.4 Differentiation of Logarithmic functions Week 15: Ch 6.1 Antidifferentiation Ch 6.2 Some applications of antidifferentiation Week 16: Ch 6.3 The definite integral as area under a curve Ch 6.4 The fundamental theorem of Calculus Week 17: Ch 7.1 Integration by substitution Ch 7.2 Integration by parts Week 18: Final examination

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