# 朝陽科技大學 097學年度第1學期教學大綱
# Calculus 微積分

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| 當期課號 | 2558 | Course Number | 2558 |
| 授課教師 | 黃宣瑜 | Instructor | HUANG,SHIUAN YU |
| 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 | Daniel D.Benice 「Calculus and Its Applications」 | Teaching Materials | Daniel D.Benice 「Calculus and Its Applications」 |
| 成績評量方式 | 個人成績： 期中考試 30%<br>期末考試 30%<br>平時考試 20%<br>作業成績及課堂表現 20%<br><br>出席情況和積極參與課堂討論，予以酌量減或加分，並作爲課堂表現成績之依據。 | Grading | Grade : Midterm Examination 30%<br>Final Examination 30%<br>Quiz 20%<br>Homeworaks and Attendance 20% |
| 教師網頁 | | | |
| 教學內容 | 1.課程說明<br>2.函數與代數<br>3.極限與連續<br>4.無限大與無窮極限<br>5.放假一天(雙十節)<br>6.導函數、微分基本法則<br>7.積與商、連鎖率<br>8.高階導函數、隱微分、微分<br>9.期中考試<br>10.導函數應用-圖形、相對極值、二階導數判斷<br>11.絕對極值、指數與對數函數<br>12.指數函數的微分、對數函數之微分的微分<br>13.積分：反微分、定積分<br>14.微積分基本定理、代換積分法<br>15.分部積分、積分表<br>16.近似數值法、瑕積分<br>17.三角函數之微分與積分<br>18.期末考試 | Syllabus | 1.Syllabus<br>2.Function and Algebra<br>3.Limit and Continuity<br>4.Limit at Infinity and Infinite Limits<br>5.Holiday<br>6.Derivative and Basic Rules for Differentiation<br>7.The Product and Quotient Rules and The Chain Rule<br>8.Higher-Order Derivatives and Related Rates and Implicit Differentiation<br>9.Midterm Examination<br>10.Applications of the Derivative-Graphs、Relative Extrema、the Second Derivative Test<br>11.Absolute Extreme、Exponential Functions、Logarithmic Funciotns<br>12.Differentiation of Exponential Function Diffenetiation of Logarithmic Funciotns<br>13.Integration：Antidifferentiation、The Definite Integral<br>14.The Fundamental Theoerm of Calculus Ietegration by Substitution<br>15.Integration by Parts、Integration by Tables<br>16.Numerical Methods of Approximation、Improper Integrals<br>17.Differentiation and Integration of Trigonometric Functions<br>18.Final Examination |

尊重智慧財產權，請勿非法影印。