# 96學年下學期微積分甲統一教學一組進度表

## 下學期：多變數微積分

| 單元 | 週次 | 課次 | 授課內容 |
|---|---|---|---|
| Chapter 9 & Section 11.10 | 一 | 2/20(三) | 9.1 Slope Fields and Separable Differential Equations<br>9.2 First-Order Linear Differential Equations |
| | | 2/22(五) | 9.3 Euler's Method<br>9.4 Graphical Solutions of Autonomous Differential Equations |
| | 二 | 2/27(三) | 9.5 Applications of First-Order Differential Equations<br>11.10 Applications of Power Series, Example 3 & 4 |
| | | 2/29(五) | ★2/29下午停課。（為佈置3/1.3/2碩士班招生的考場） |
| Chapter 10<br><br>Chapter 12 & Section 13.1 | 三 | 3/5(三) | 10.5 Polar Coordinates<br>10.6 Graphing in Polar Coordinates<br>10.7 Areas and Lengths in Polar Coordinates<br>12.4 The Cross Product<br>12.5 Lines and Planes in Space |
| | | 3/7(五) | |
| | 四 | 3/12(三) | 12.6 Cylinders and Quadric Surfaces<br>13.1 Vector Functions<br>14.1 Functions of Several Variables<br>14.2 Limits and Continuity in Higher Dimensions |
| | | 3/14(五) | |
| Chapter 14 | 五 | 3/19(三) | 14.3 Partial Derivatives<br>14.4 The Chain Rule<br>14.5 Directional Derivatives and Gradient Vectors |
| | | 3/21(五) | |
| | 六 | 3/26(三) | 14.6 Tangent Planes and Differentials<br>14.7 Extreme Values and Saddle Points<br>14.8 Lagrange Multipliers |
| | | 3/28(五) | |
| | 七 | 4/2(三) | 14.9 Partial Derivatives with Constrained Variables<br>14.10 Taylor's Formula for Two Variables |
| | | 4/4(五) | ★4/4 民族掃墓節(放假一天) |
| Chapter 15 & Section 13.3 | 八 | 4/9(三) | 15.1 Double Integrals<br>複習 Chapter 14 |
| | | 4/11(五) | |
| | 九 | 4/16(三) | 4/16 (三) 期中考<br>【範圍:9.1~9.5, 11.10 Ex3&4, 10.5~10.7, 12.4~12.6, 13.1, 第14章】 |
| | | 4/18(五) | 15.2 Areas, Moments, and Centers of Mass<br>15.3 Double Integrals in Polar Form |
| | 十 | 4/23(三) | 15.4 Triple Integrals in Rectangular Coordinates<br>15.5 Masses and Moments in Three Dimensions<br>15.6 Triple Integrals in Cylindrical and Spherical Coordinates |
| | | 4/25(五) | |
| | 十一 | 4/30(三) | 15.7 Substitutions in Multiple Integrals<br>複習 Chapter 15 |
| | | 5/2(五) | |

| Chapter 16 | 十二 | 5/7(三) | ~~13.3 Arc Length and the Unit Tangent Vector T~~<br>16.1 Line Integrals<br>16.2 Vector Fields, Work, Circulation, and Flux |
| | | 5/9(五) | 16.3 Path Independence, Potential Functions, and Conservative Fields |
| | 十三 | 5/14(三) | 16.4 Green's Theorem in the Plane |
| | | 5/16(五) | 16.5 Surface Area and Surface Integrals |
| | 十四 | 5/21(三) | 16.6 Parametrized Surfaces |
| | | 5/23(五) | 16.7 Stokes' Theorem |
| | 十五 | 5/28(三) | 16.8 The Divergence Theorem and a Unified Theory |
| | | 5/30(五) | 複習 Chapter 16 |
| Sections 13.4~13.6 | 十六 | 6/4(三) | 13.4 Curvature and the Unit Normal Vector N<br>13.5 Torsion and Unit Binormal Vector B |
| | | 6/6(五) | Preparation for Kepler's laws<br>(p935-937, 10.8 Conic Sections in Polar Coordinates) |
| | 十七 | 6/11(三) | 13.6 Planetary Motion and Satellites |
| | | 6/13(五) | 總複習 |
| | 十八 | 6/18(三) | 期末考周 |
| | | 6/20(五) | 【範圍：Sections 13.3~13.6, Chapters 15 & 16】 |