淡江大學九十七學年度第一學期課程教學計畫表(格式二)

壹、 科目名稱：常微分方程。

貳、 授課老師：楊定揮。

參、 開課系所班級：數學系碩士班一年級數學組。

肆、 必選修：選修。

伍、 學分數：3。

陸、 先修科目：線性代數，高等微積分。

柒、 教學內容及進度：

1. INTRODUCTION
    - Introduction: Where ODE comes from

2. FUNDAMENTAL THEORY
    - Introduction and Preliminary
    - Local Existence and Uniqueness of Solutions of I.V.P
    - Continuation of Solutions
    - Continuous Dependence on Parameters and Initial Conditions
    - Differentiability of Initial Conditions and Parameters
    - Differential Inequality

3. LINEAR SYSTEMS
    - Introduction
    - Fundamental Matrices
    - Linear Systems with Constant Coefficients
    - Two Dimensional Linear Autonomous system
    - Linear Systems with Periodic Coefficients
    - Adjoint System

4. STABILITY OF NONLINEAR SYSTEMS
    - Definitions
    - Linearization
    - Saddle Point Property: Stable and unstable manifolds
    - Orbital Stability
    - Travelling Wave Solutions

捌、 授課方式：課堂講授。

拾、 教材課本：Sze-Bi Hsu, *Ordinary Differential Equations with Applications*, World Scientific Press, 2006.

拾壹、 參考書籍：Lawrence Perko, *Differential Equations and Dynamical Systems*, Springer

拾貳、 成績考核方式：

平時成績	50%
考試成績	50%