

# Course Description

Department of Mathematics

Nature of the course <input type="checkbox"/> required <input type="checkbox"/> elective	Area 麻煩老師勾選類別，或直接填寫_____。				
	<input type="checkbox"/> 代數與數論 <input type="checkbox"/> 分析 <input type="checkbox"/> 幾何與拓樸 <input type="checkbox"/> 計算與應用數學 <input type="checkbox"/> 機率 <input type="checkbox"/> 統計 <input type="checkbox"/> 離散數學 <input type="checkbox"/> 其他 <input type="checkbox"/> 論文研討、獨立研究				
Calculus <input type="checkbox"/> Calculus A <input type="checkbox"/> Calculus B					
Course number		Section number	免填	Number of credits	
Course title	課程名稱： 偏微分方程 Partial Differential Equations				
Instructor	教授： 林太家 Tai-Chia Lin				

## I. \* Contents :

1. Laplace、Heat and Wave equation
2. First-Order Nonlinear PDE
3. Maximum Principle and Moving Plane method
4. Sobolev Spaces
5. Energy method

## II. Course prerequisite :

1. Advanced Calculus
2. Complex variables
3. Linear Algebra

## III. \* Reference material ( textbook(s) ) :

1. Partial Differential Equations by L.C.Evans, AMS
2. Partial Differential Equations by F. John, Springer-Verlag
3. Elliptic Partial Differential Equations by Q. Han and F. Lin, AMS
4. Maximum Principles in Differential Equations by M. H. Protter and H. F. Weinberger

## IV. \* Grading scheme : 請填寫各項計分之百分比，例如：期中 30% 期末 40% 作業 10% 報告 20%，總計 100%

Midterm I: 25%

Midterm II: 25%

Final: 50%

## V. \* Course Goal :

This course is for students to develop ability of analysis and learn abstract theorems of partial differential equations (PDEs). Students are required to be familiar with writing rigorous proofs of mathematical theorems. The main goal of this course is to cultivate the interest and train the research ability of PDEs.

1. \*號為必填欄位

2. 大綱內容字數英文最少 200 字以上