



課 綱 Course Outline
應用數學系博士班

中文課程名稱 Course Name in Chinese	代數導論				
英文課程名稱 Course Name in English	Introduction to Algebra				
科目代碼 Course Code	AM_75120	班 別 Degree	博士班 Ph. D.		
修別 Type	選修 Elective	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite	大學部線性代數。 College Linear Algebra.				
課程目標 Course Objectives					
本課程主要目標以為高等代數課程或是相關課程之基礎。 Provide a foundation for higher study of algebra and related courses.					
系教育目標 Dept.'s Education Objectives					
1	訓練嚴謹思考與推理能力。 To provide a solid training in rigorous thinking and reasoning ability.				
2	奠定理論與應用數學的基礎知識。 To establish well-founded background knowledge in pure and applied mathematics.				
3	具備跨領域學習能力。 To prepare the students for interdisciplinary study in the future.				
系專業能力 Basic Learning Outcomes				課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.'s Education Objectives	
A	具備專業知識及邏輯推理能力 Have well-founded expertise and be capable of logical reasoning.			●	
B	具備學習其它學科的能力，以期能邁向跨領域研究。 Be able to study other fields of science so as to conduct interdisciplinary research in the future.			○	
C	具備獨立思考與解決問題的能力。 Be capable of independent thinking and have the problem-solving skills.			●	
圖示說明 Illustration : ● 高度相關 Highly correlated ○ 中度相關 Moderately correlated					
課程大綱					

Course Outline

1. 群：同構定理、排列群、Sylow定理、可解群。
2. 環：多項式環、同構定理。
3. 體：體擴張、有限體、Galois理論。

- 1.Groups: Isomorphic Theorems, Symmetric Groups, Sylow theorem, Solvable Groups.
- 2.Rings: Polynomial Rings, Isomorphic Theorems
- 3.Fields: Extension fields, Finite fields, Galois Theory.

資源需求評估（師資專長之聘任、儀器設備的配合．．．等）

Resources Required (e.g. qualifications and expertise, instrument and equipment, etc.)

本系專任教師(尤以具代數或相關領域專長為佳)。

Faculties of applied math department, expertise in algebra or related areas preferred.

課程要求和教學方式之建議

Course Requirements and Suggested Teaching Methods

課堂講授。

Lecture

其他

Miscellaneous

撰寫人：應用數學系 王立中

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