國立東華大學

課　　綱　Course Outline

應用數學系博士班

中文課程名稱 Course Name in Chinese	代數專題(一)				
英文課程名稱 Course Name in English	Topics in Algebra (I)				
科目代碼 Course Code	AM__71200	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	無				

課程目標 Course Objectives
研習基本代數結構，以訓練學生處理複雜問題的簡化能力。

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. Set Theory : sets and relations, complex and matrix algebra
2. Group Representation : group actions, linear representation, subrepresentations, irreducible representations, tensor product of representations.
3. Commutative Rings : radicals, localization, primary decomposition of ideals in Noetherian rings.
4. Advanced Linear Algebra : Jordan forms, rational forms, modules over PID
5. Lie Theory : solvable, nilpotent and semisimple lie algebra.

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.)

由本系專任教師任教

課程要求和教學方式之建議
Course Requirements and Suggested Teaching Methods

演講、習題、考試

其他
Miscellaneous