

Course Description

Department of Mathematics

Nature of the course elective	Area 麻煩老師勾選類別，或直接填寫_____。				
Algebra					
Calculus	<input type="checkbox"/> Calculus A	<input type="checkbox"/> Calculus B			
Course number		Section number	免填	Number of credits	3
Course title	課程名稱(英文) 環論專題一 (TOPICS IN RING THEORY (I))				
Instructor	教授：李秋坤 (Tsiu-Kwen Lee)				

I. * Contents :

(A) Functional Identities

- 1 What is a Functional Identity?
- 2 The Strong Degree and the FI-Degree
- 3 Constructing \mathcal{A} -Free Sets
- 4 Functional Identities on \mathcal{A} -Free Sets
- 5 Functional Identities in (Semi)prime Rings
- 6 Lie Maps and Related Topics
- 7 Linear Preserver Problems
- 8 Further Applications to Lie Algebras

(B) Papers

1. T.-K. Lee, Generalized skew derivations characterized by acting on zero products, Pacific J. Math. 216(2) (2004), 293--301.
2. T.-K. Lee, Finiteness properties of differential polynomials, Linear Algebra Appl. 430(8/9) (2009) 2030--2041.
3. C.-L. Chuang, T.-K. Lee and C.-T. Yeh, Minimal polynomials of algebraic derivations and automorphisms, Linear Algebra Appl. 423 (2007), 339--350.
4. T.-K. Lee and Y. Zhou, Right ideals generated by an idempotent of finite rank, Linear Algebra Appl. 431 (2009), 2118--2126.

II. Course prerequisite :

Ring Theory (I), (II)

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

[Brešar, Matej](#); [Chebotar, Mikhail A.](#); [Martindale, Wallace S., III](#) Functional identities. [Frontiers in Mathematics](#).

Birkhäuser Verlag, Basel, 2007. xii+272 pp. ISBN: 978-3-7643-7795-3

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%
期中 40%，報告 60%，

V. *Course Goal :

Study the functional identities and their applications in rings.

1. *號為必填欄位

2. 大綱內容字數英文最少 200 字以上