

課程大綱及進度表

開課系所	數學系
開課學年	101
開課學期	1
課程名稱(中文)	實變數函數論
課程名稱(英文)	Real Analysis
課程碼	C136200
分班碼	
先修科目或先備能力	
學分數	3
開課教師	吳順益
e-mail	soonyi@mail.ncku.edu.tw
電話	(06)2757575 轉 65133
Office Hours	By Appointment
課程概述	主要討論 Lebesgue Measure、Lebesgue Measurable Function 及 Lebesgue Integration，主要是教導實變函數的基礎概念。
教學目標	主要是讓選這門課程的學生對 Lebesgue Measure，與 Lebesgue Integration 有一些基礎概念。
授課課程大綱明細	<p>Chapter 1. Lebesgue measure</p> <p>1.1 Introduction</p> <p>1.2 Lebesgue other measure</p> <p>1.3 The σ-Algebra of Lebesgue Measure Sets</p> <p>1.4 Outer and Inner Approximation of Lebesgue Measurable Sets</p> <p>1.5 Countable Additivity, Continuity, and</p>

the

Borel–Contelli Lemma

Chapter 2. Lebesgue Measurable Functions

2.1 Sums, Products, and Compositions

2.2 Sequential Pointwise Limits and Simple

Approximation 2.3 Littlewood’s Three

Principles, Egoroff’s

Theorem, and Lusin’s Theorem

Chapter 3. Lebesgue Integration

3.1 The Riemann Integral

3.2 The Lebesgue Integral of a Bounded Measurable Nonnegative Function over a set of

Finite Measure

3.3 The Lebesgue Integral of a Measurable Nonnegative Function

3.4 The General Lebesgue Integral

3.5 Countable Additivity and Continuity of Integration

3.6 Uniform Integrability: The Vitali

Convergence

Theorem

Chapter 4. Lebesgue Integration:

Further

Topics

4.1 Uniform Integrability and Tightness: A General Vitali Convergence Theorem

4.2 Convergence in Measure

4.3 Characterizations of Riemann and Lebesgue

	Integrability
參考書目	<i>Real Analysis</i> (Fourth Edition) by Halsey Royden and Patrick Fitzpatrick
課程要求	
評量方式	期中考：40% 期末考：40% 平時成績：20%
課程網址	
助教資訊	
備註	