

# MATH 554 – B01 FINANCIAL MATHEMATICS SUMMER 2013

- PREREQUISITE:** Math 114 or equivalent
- INSTRUCTOR:** Richard O’Beirne, Department of Mathematical Sciences  
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Email: ROBEIRNE@GMU.EDU  
Office: Room 4452, Exploratory Hall
- MEETINGS:** Tuesdays and Thursdays from 7:20 p.m. to 10:00 p.m. from June 4, 2013 through July 23, 2013 in room TBA
- OFFICE HOURS:** 3:30 p.m. – 4:30 p.m. on Tuesdays and Thursdays, and by appointment as necessary.
- TEXTBOOK:** “The Theory of Interest” by Stephen Kellison (Third Edition)  
“Derivatives Markets” by Robert McDonald (Second Edition) – not required to purchase this text
- MATERIAL:** The course will cover most of the material contained in the following chapters of the Kellison text:  
Chapter 1 – The measurement of interest  
Chapter 2 – Solutions of problems in interest  
Chapter 3 – Basic annuities  
Chapter 4 – More general annuities  
Chapter 5 – Amortization schedules and sinking funds  
Chapter 6 – Bonds and other securities  
Chapter 7 – Yield rates  
Chapter 9 – More advanced financial analysis  
Chapter 10 – The term structure of interest rates  
Chapter 11 – Duration, convexity and immunization
- GRADING:** There will be 3 one-hour tests and a final exam. I will drop the lowest of the three test scores. The highest two tests will count for 60% of the grade. There will be no makeup tests. If a test is missed it will count as the dropped test. The final exam will be Thursday, July 25 at 7:20 p.m. and will count for 40% of the grade.

This course has wide applicability to many areas of finance and business in general. However, it is focused on the topics prescribed by the Society of Actuaries (SOA) for their FM/2 exam. Throughout the course I will work many sample questions from past SOA examinations. In addition to covering the Theory of Interest topics, I will cover relevant material on derivative securities from the McDonald “Derivatives Markets” text (Chapters 1-5 and 8 – forwards, options, futures and swaps). It will not be necessary to purchase this text for this course. However, if you plan on taking the SOA FM/2 or MFE/3 examination you will need this text. Finally, to bring the subject matter to life we will do some actual paper trading in equity and index options throughout the course.