

## Instructor Contact Info and Grading Components

Instructor: Brian R Lessing (212) 314-2931 (office); (917) 417-7317 (cell)

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### Course Structure:

Anticipated class sessions for lectures, discussions of homework assignments, and final exam are as follows:

**(NOTE THAT THE FOLLOWING TENTATIVE SCHEDULE WILL BE ADJUSTED IF NECESSARY TO BE CONSISTENT WITH THE FINAL FALL 2016 FRE ACADEMIC CALENDAR FOR THE FIRST HALF)**

Mon 9/5 Labor Day (no class)

Mon 9/12 regular class

Mon 9/19 regular class

Mon 9/26 regular class

Mon 10/3 regular class

Mon 10/10 regular class

Monday, 10/17 regular class

Mon, 10/24 final exam

### **Course Requirements:**

Students will be expected to master all material from the assigned chapters of the text book, the class lecture slides, and the homework. Class lectures will touch on many of the topics from the text book and slides, but will not cover everything; independent study of the text book and class lecture slides will be necessary and expected.

Course grades will be based upon the final exam and class participation including homework. Students are encouraged to complete and hand in homework assignments by the next following or second following class session (but in any case not later than the final exam class session), as well as to participate fully in class discussions. It's anticipated that the final exam will count for approximately 60% of the final course grade, and homework and class participation will together count for approximately 40%.

The final exam will be "open book" in that reference to the text book "Models for Quantifying Risk" (see below for more details) and printed class room lecture slides (to be provided) will be permitted. Reference to other notes or written materials will not be allowed.

It is expected that each student will have the necessary equipment in their possession to do numerical calculations by hand, via handheld calculators or via personal computers to do homework assignments, participate in class sessions, and to take the final exam.

For the final exam, students may use only their text book, lecture slides, calculator and personal computer. No other books, notes, stored files, or electronic devices may be used. Cell phones may not be used as a calculator.

## **Learning Objective**

Course Description: This course will provide an introduction to the actuarial mathematics of life contingencies.

Course Prerequisites: Students will be assumed to have a basic understanding of algebra, calculus, probability, and the theory of interest. (However, note that the first three chapters of the text book provide a review of probability and interest theory.)

Course Objectives: To gain a basic understanding and familiarity with actuarial mathematics of life insurance and annuities. To understand the concepts, be able to explain and use the concepts to solve problems, and be able to apply techniques of calculation to arrive at correct numerical results.

Readings: Subject to class participation and topic mastery, we'll attempt to cover most or all of chapters 5, 6, 7, and 8 of the required text book (see below for text particulars) during the regular class sessions, devoting approximately one and a half class sessions (see above for session schedule) to each chapter. If there is any additional time, we will cover other topics in the text. Students should review chapters 1, 2, 3 and 4 on their own during the first few weeks while we are covering chapter 5.

The chapter topics are as follows:

Chapter One: Review of Interest Theory

Chapter Two: Review of Probability

Chapter Three: Review of Markov Chains

Chapter Four: Characteristics of Insurance and Pensions

Chapter Five: Survival Models (Continuous Parametric Context)

Chapter Six: The Life Table (Discrete Tabular Context)

Chapter Seven: Contingent Payment Models (Insurance Models)

Chapter Eight: Contingent Annuity Models (Life Annuities)

Chapter Nine: Funding Plans for Contingent Contracts (Annual Premiums)

Chapter Ten: Contingent Contract Reserves (Net Level Premium Reserves)

Chapter Eleven: Contingent Contract Reserves (Reserves as Financial Liabilities)

Chapter Twelve: Models Dependent on Multiple Survivals (Multi-Life Models)

Chapter Thirteen: Multiple-Decrement Models (Theory)

Chapter Fourteen: Multiple-Decrement Models (Applications)

Chapter Fifteen: Models with Variable Interest Rates

Chapter Sixteen: Universal Life Insurance

Chapter Seventeen: Profit Analysis

### **Required Materials**

We will use the following textbook:

“Models for Quantifying Risk”, 6th Edition;

by Stephen Camilli, ASA, Ian Duncan, FSA, FIA, FCIA, MAAA, and Richard L. London, FSA

ISBN: 978-1-62542-347-4

Available from ACTEX Publications 1-800-282-2839,

<http://www.actexamdriver.com/Models-for-Quantifying-Risk-6th-Edition-P2290.aspx>

### **Moses Center Statement of Disability**

**If you are student with a disability who is requesting accommodations, please contact New York University’s Moses Center for Students with Disabilities at [212-998-4980](tel:212-998-4980) or [mosescsd@nyu.edu](mailto:mosescsd@nyu.edu). You must be registered with CSD to receive accommodations. Information about the Moses Center can be found at [www.nyu.edu/csd](http://www.nyu.edu/csd). The Moses Center is located at 726 Broadway on the 2nd floor.**