ASC401: Financial Economics
Section A
Fall 2019
6:00 - 9:35 pm T
Rankin 209

Instructor: John Symms
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Office Hours: 10:00-11:50 am TR, or by appointment
Texts: The most recent ASM study manual
Calculator: A Society of Actuaries approved calculator
Prerequisite: ASC301 and ASC302

Course Overview
This course develops the theoretical basis of certain financial-economic models and the application of those models to insurance and other financial risks. Topics include interest rate models, rational valuation of derivatives securities, simulation, and risk management techniques. In terms of the text, we will seek to complete the content, sample problems, and sample exams in the ASM Study Manual.

Course Objective
Introduce students to topics needed to pass the Models for Financial Economics (MFE) exam.

Learning Outcomes
Students should be able to:

1. For rational valuation of derivative securities:
   (a) Explain the properties of a lognormal distribution and explain the Black-Scholes formula as a limited expected value for a lognormal distribution.
   (b) Explain what it means to say that stock prices follow a diffusion process.
   (c) Apply Itôs lemma in the one-dimensional case.
   (d) Apply option pricing concepts to actuarial problems such as equity-linked insurance.

2. For simulation:
   (a) Simulate lognormal stock prices.
   (b) Use variance reduction techniques to accelerate convergence.

3. For risk management techniques:
   (a) Explain and demonstrate how to control risk using the method of delta-hedging.

Assessment of all learning objectives will be conducted via journals of solved problems and in-class exams.

Attendance
Students are expected to attend all classes. Classes will frequently involve activities that will impact
your overall grade. In assigning a final course grade, each absence beyond the first will result in a half-letter grade drop.

**Professional Exam Preparation**
Recall that the rule-of-thumb in this industry is that for each hour of an exam, one should study 100 hours. Exam MFE is a three hour exam. Studying means trying to understand content in the textbook, working practice problems or trying to figure them out, deconstructing provided solutions to ferret out errors or to improve understanding, and exam simulations.

Most of you should plan on taking the exam in March 2018. For this fall semester, you should study at least 8 hours per week outside of class. Your self-reporting on number of hours per week studied will impact your final grade.

**Homework**
You will do lots of practice problems. Get a notebook, which we’ll refer to as your journal, to record your work. Bring the journal to class each week, and I will use it to gauge work completed. You can work in groups, but I recommend against doing so, as group work will not aid in exam preparation. You should also only use an approved calculator while studying, as knowing how to use the calculator efficiently and accurately is a key skill for success (resist using your TI-83’s and such).

**Exams**
Exams will measure both your conceptual understanding of the material and your problem solving skills. There will be three 2-hour comprehensive exams each consisting of 20 multiple choice questions. You may use an SOA approved calculator and approved formula sheets for these exams. No other notes, books, or calculators will be allowed during exams. I expect to give the first two 2-hour exams on October 10 and November 14. The last will be given at 6:00 pm on Tuesday, December 19th. If you miss an exam, acceptable written documentation for the absence must be supplied to be eligible for a make-up.

Exams will simulate an actual professional exam, i.e., problems will be multiple choice with five possible answers for each. There will be no penalty for wrong answers. A good rule-of-thumb for passing a professional exam is to get 70% or higher on the problems, so exams will be graded as follows: 70% or higher = 100 points; less than 70% but at least 60% = 80 points; less than 60% but at least 50% = 70 points; less than 50% but at least 40% = 60 points; less than 40% = Actual Score.

**Academic Honesty**
All work on assignments, quizzes and tests is expected to be your own and represent your ability in course content. The Carroll University Academic Integrity Policy is located in your student handbook. Please familiarize yourself with this policy. If a student violates this policy in any way, the instructor or College reserves the right to impose a sanction of failure on the assignments/assessment or failure in the course.

**Grades**
The grading scheme is as follows:
Final day to drop: Thursday, November 2.

Carroll Portal (LMS)
This course will use the Carroll Portal for various purposes, including for your grades. Keep track of your grades, and notify the instructor should you spot an error.

Final Notes
1. Special accommodations for this course may be granted via direct orders from the Walter Young Center (WYC). It is your responsibility to notify the WYC of your special needs. (They will require certain forms of verifiable documentation or diagnoses.) Such accommodations will be made only after the instructor has received notification from the WYC, and will not be given retroactively for previous assignments or exams.

2. The instructor and the College reserve the right to modify, amend, or change the syllabus (course requirements, grading policy, etc.) as the curriculum and/or program require(s).