

## Ma 388 ~ Applications of Finance

### Spring Semester 2022-2023

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Instructor: Dr. Melissa Gardenghi  
Office: Alumni 38  
Office Hours: Daily by appointment, see <https://calendly.com/mgardeng/20min>  
Preferred Method of Communication: MS Teams; personal correspondence by personal chat and general course/content related questions in the course general channel  
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Course Website: <http://math.bju.edu/ma388/>

#### Catalog Description:

A study of the applications of the theory of interest and financial derivatives consistent with the SOA/CAS Exam FM/2 syllabus.

**Prerequisites:** At least a grade of C in Ma 308 Theory of Interest

**Course Context:** This course supports the following goals of the actuarial program:

- AS1: Solve problems using standard mathematical techniques.
- AS2: Progress logically from premises to valid conclusions in a variety of mathematical and applied contexts, including analysis, statistics (both theoretical and applied), probability and finance.
- AS3: Apply mathematics to actuarial problems (such as financial math and probability modeling) in exercising the biblical mandate to have dominion over the earth.

#### Course Goals:

- CG1: Introduce the student to the content and style of questions presented on the Financial Mathematics Exam (Exam FM/2). AS1-3
- CG2: Prepare the student, including their speed and accuracy, to pass the Financial Mathematics Exam (Exam FM/2). AS1-3

**Course Objectives:** The student will be able to

1. Plan/manage exam study to be able to thoroughly prepare for a SOA exam. CG2
2. Determine the appropriate approach for solving problems similar to those given on the Financial Mathematics Exam (Exam FM/2). CG1
3. Complete a practice exam during a three-hour period with an acceptable percentage of correct answers. CG2

**Attendance Policy:** You are expected to attend class Thursdays in accordance with University policy. See the student handbook for attendance requirements. Note that you are still required to meet your weekly study requirements even if you miss class.

#### Office Hour Appointments:

Office hour appointments can be made using the Calendly site, <https://calendly.com/mgardeng/20min> (appointments may be made up to two weeks in advance). If there are no available times at which you are able to meet, send Dr. Gardenghi a message including some days/times between 7:30am and 3pm when you are available.

### General Policies:

1. We will meet together each Thursday (the 1.25 hours in class can be counted towards your weekly totals).
2. You will maintain the study log (see the provided Excel spreadsheet) to document your study efforts. You will post the Excel file (and keep it updated) in your personal Exam Prep MS Teams channel, so that I can keep tabs on your progress.
3. You are expected to come to class each week with questions and/or problems with which you struggled.
4. You may find it beneficial to study together. This can be very valuable and is highly recommended.

### Course Requirements and Evaluation:

1. The grade in this course will be based on the following:
  - a. complete the Exam FM Starter assignment – 10%
  - b. quality time spent in preparation for the exam (computed as quality time = time in # of hrs \* quality rating/4; where quality rating is given on a scale of 1 to 4) – 30%,
  - c. time spent reviewing previous material – 5%
  - d. number and accuracy of practice problems completed – 30% and 15% respectively,
  - e. scores on practice exams – 10%.
2. Passing the Financial Mathematics Exam (Exam FM/2) at any point prior to the end of the semester will immediately result in an A in the course (no additional work will be required), provided that the student submits a copy of the notification of their exam results from the SOA.

**General Guidelines for Actuarial Exams:** Note that in 2022 (from February to August) the SOA exam FM passing score was 70% correct for the computer-based testing and approximately 46% of the students taking Exam FM passed it. The October sitting was noticeably different with a passing score of 71% and 54% of the students taking it passed.

**Textbook:** There is no required text for this course. However, you may find it beneficial to acquire any of the texts recommended for the exam or one of the study guides available. I have a copy of the following that I am willing to loan to students:

- *Mathematics of Investment and Credit* by Broverman.
- *The Theory of Interest* by Kellison.
- *ACTEX FM/2 Study Manual*, by Matthew J. Hassett, Ph.D., Michael I. Ratliff, Ph.D., ASA, Amy C. Steeby, MBA, Toni Coombs Garcia
- *ASM Study Manual Exam FM/Exam 2*, by Harold Cherry, FSA, MAAA, Rick Gorvett, FCAS, MAAA, ARM, FRM, Ph.D.

Students in the past have found the Adapt exams at Coaching Actuaries a very helpful resource.

(see <https://www.coachingactuaries.com/FM>)