

Math0470 Actuarial Math 1 SYLLABUS Fall 2025

Instructor: Dr. Sheng Xiong

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Office Hours: TTh 1:00pm-2:00pm or by appointment

Class Meetings: TTh 2:00-3:15pm, Thackeray 703

Web: The Canvas page for this course will contain assignments, handouts, due dates, and announcements.

Calculator: Each student is required to bring an approved calculator to every class session. Extensive use of this calculator, approved for use on the Actuarial exam, will be covered in class. The **TI BA-II +** (BA = Business Analyst) is the **STRONGLY RECOMMENDED** calculator.

Course Materials/Texts (recommended, Not required):

Broverman, S.A., Mathematics of Investment and Credit (Eighth Edition), 2024, ACTEX Learning, ISBN 978-1-74756-616-6

Chapter 1 (excluding 1.2.1 and 1.8) Chapter 2 (excluding 2.3.1.2, 2.4.2, 2.4.3 and 2.4.5)
Chapter 3 (excluding 3.2.1, 3.2.2, 3.3, and 3.4) Chapter 4 (excluding 4.1.3, 4.1.4, and 4.4 is for background only) Chapter 5 (excluding 5.2, the investment year method portion of 5.3.1, and excluding all of 5.3.2, 5.3.3 and 5.3.4) Chapter 6 (excluding 6.2 and 6.4) Chapter 7 (excluding 7.1.3 and 7.3)

At various places in the sections of this text that are listed above there are statements indicating that more information is available in sections that are not listed above. Candidates are not responsible for this additional information.

ADDITIONAL REFERENCES:

There is one study note that is required reading for this examination. It can be downloaded from this document by clicking on the links.

<https://www.soa.org/globalassets/assets/Files/Edu/2017/fm-duration-convexity-present-value.pdf>

Sections 1-4 are required reading for this examination.

Course Objectives: This course follows the syllabus for Financial Mathematics (FM) Exam of the Society of Actuaries and prepares students to pass the FM Exam. The primary learning goals of the course are to 1) introduce students to the concepts in financial mathematics; 2) introduce students to financial instruments as they relate to financial mathematics 3) introduce students to the use of mathematical models for financial products; 4) develop student abilities to create and apply mathematical models. The specific content goals contained in items (1), (2) are: the concepts of fixed income, equities, and financial derivative products; the time value of money; compound interest; annuities; cash flows; loan concepts and amortization; mathematics of fixed income products; portfolios; and immunization.

You are highly encouraged to visit the SOA Exam FM website for recent updates on the exam syllabus, including updates to sample exam questions.

Co-Prerequisite: Math 0230

Assessments:

1. Homework & Quiz 30% (HW 20%, 10% Quiz): Homework will be assigned weekly.
2. Three exams 70%: Two midterms (20% each) and one Final exam (30%) (TBD)

Final grade will be based on homework and exams.

Grading Scale: A+ (97-100%), A (93-96%), A- (90-92%), B+ (87-89%), B (83-86%), B- (80-82%), C+ (77-79%), C (73-76%), C- (70-72%), D+ (67-69%), D (63-66%), D- (60-62%), F(<60%)

For the official Exam FM syllabus and registration information, visit the SOA website at

<https://www.soa.org/globalassets/assets/files/edu/2020/2020-12-exam-fm-syllabi.pdf>

Makeup policy: Makeup examinations will be granted only for excused absences (prior approval of the instructor for required travel, or verifiable medical doctor's excuse). *Makeups for exams must be scheduled within twenty-four hours of the originally scheduled exam time.* Failure to contact the instructor (Dr. Xiong) within this twenty-four-hour period with a valid medical/travel excuse will result in a zero for that examination.

Academic Integrity

Students in this course will be expected to comply with the [University of Pittsburgh's Policy on Academic Integrity](#). Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy. Furthermore, no student may bring any unauthorized materials to an exam, including dictionaries and programmable calculators.

Disability Services

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and [Disability Resources and Services](#) (DRS), 140 William Pitt Union, (412) 648-7890, drsrecep@pitt.edu, (412) 228-5347 for P3 ASL users, as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

E-mail Communication Policy

*Each student is issued a University e-mail address (username@pitt.edu) upon admittance. The University for official communication may use this e-mail address with students. Students are expected to read e-mail sent to this account on a regular basis. Failure to read and react to University communications in a timely manner does not absolve the student from knowing and complying with the content of the communications. The University provides an e-mail forwarding service that allows students to read their e-mail via other service providers (e.g., Hotmail, AOL, Yahoo). Students that choose to forward their e-mail from their pitt.edu address to another address do so at their own risk. If e-mail is lost as a result of forwarding, it does not absolve the student from responding to official communications sent to their University e-mail address. To forward e-mail sent to your University account, go to <http://accounts.pitt.edu>, log into your account, click on **Edit Forwarding Addresses**, and follow the instructions on the page. Be sure to log out of your account when you have finished. (For the full E-mail Communication Policy, go to www.bc.pitt.edu/policies/policy/09/09-10-01.html.)*

STATEMENT ON CLASSROOM RECORDING: *To ensure the free and open discussion of ideas, students may not record classroom lectures, discussion and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the students' own private use.*