

Math 373: Financial Mathematics

Meets: Tuesday and Thursday from 1:30 to 2:45 in Beering 2290

Instructor: Jeff Beckley
Office: 818 Mathematics Building 317-698-8543
E-mail: jbeckley@purdue.edu
Web: <http://www.math.purdue.edu/~jbeckley/>

Office Hours:

Monday 6:30 to 8:30 pm – Run by Tommy Kube
Tuesday Noon to 1:20 pm
Wednesday 6:30 to 8:30 pm – Run by Tommy Kube
Thursday 9:00 am to 10:20 am
or by appointment

General Information

The course will cover the learning objectives for the Society of Actuaries Examination FM and the Casualty Actuarial Society Examination 2.

The course is also an excellent course for business or finance majors who want a full understanding of financial mathematics.

NOTE: TEXTBOOKS ARE OPTIONAL

Textbook: Mathematical Interest Theory, Second Edition
By James Daniel and Leslie Vaaler
Published by Mathematical Association of America
ISBN 978-0-88385-754-0

Notes on Textbooks: The first edition of Mathematical Interest Theory is exactly the same as the second edition. If you can get it cheaper, it is fine to get the first edition.

Calculators

The only calculators permitted for this class will be those permitted to be used on the Society of Actuaries examinations in the Fall of 2017. The Society of Actuaries website states: “Candidates may ONLY use the battery or solar-powered Texas Instruments BA-35 model calculator, the BA II Plus*, the BA II Plus Professional*, the TI-30Xa or TI-30X II* (IIS solar or IIB battery), or TI-30XB MultiView (XS Solar or XB Battery). Candidates may use more than one of the approved calculators during an examination.” The best one for this class is the **Texas Instruments BAI Plus or Texas Instruments BAI Plus Professional**. For the purpose of this class, it will be assumed that you have this calculator. **Use of any other calculator on a test or quiz will result in a zero on that test or quiz.**

The class website has instructions from the Society of Actuaries website for either calculator that you choose.

The student is expected to learn the functionality of the calculator as part of the preparation for class exams and the Exam FM/Exam 2. Some of the calculator functionality will be covered in class. Please bring your calculator to each class.

Procedures

Evaluation will be based on a combination of tests, quizzes, and homework assignments.

There will be 6 quizzes during the semester. Quizzes will be announced. The lowest quiz grade will be dropped and disregarded.

There will be 2 tests of an hour and 15 minutes each and a two hour final. The final will NOT be comprehensive. Tests will be during class time.

All tests and quizzes will be closed book and closed notes. Calculators are allowed. Quizzes cannot be made up under any circumstances. There will be no makeup exams except in extreme circumstances and then only with a prior arrangement with the instructor.

Final grades will be based on the following weights:

Quizzes	20%
Homework	5%
Test 1	25%
Test 2	25%
Final	25%
Total	100%

Homework: Homework will be completed on line using LON CAPA. Homework will be due on Tuesdays and Thursdays by 1:30 pm. Doing the homework is essential to understanding the material. No homework will be accepted past the due date, but your lowest two homework scores will be dropped.

For quizzes and tests, answers are expected to include all the work necessary to do the problems.

Grades

Grades will be on a plus/minus scale as follows:

Score	Grade
99.5% and above	A+
94-99.4	A
90-93.9	A-
87-89.9	B+
83-86.9	B
80-82.9	B-
77-79.9	C+
73-76.9	C
70-72.9	C-
67-69.9	D+
63-66.9	D
60-62.9	D-
59.9 and below	F

Cheating

- **Academic Dishonesty will not be tolerated!**
- **If you cheat on a Quiz, the penalty is a zero on the Quiz and you will lose 5% of the total score for the class. The score of zero will not be dropped.**
- **If you cheat on a Test, you will receive a failing grade in this class.**

Purdue has a student-initiated Purdue Honors Pledge:

“As a boilermaker pursuing academic excellence, I pledge to be honest and true in all that I do. Accountable together - we are Purdue.”

You will be asked to sign this pledge for each exam and quiz.

Students can report issues of academic integrity that they observe, either through the Office of the Dean of Students (purdue.edu/odos), call 765-494-8778 or email integrity@purdue.edu .

Academic Adjustments

In this mathematics course accommodations are managed between the instructor, the student and the DRC Testing Center.

Students should see me before or after class or during office hours to share your Accommodation Memorandum for the current semester and discuss your accommodations as soon as possible.

Course Outline

November 19, 2019

While this outline tries to be complete and accurate, there will be changes in the schedule of the course; these will be announced in class and on the class website. The material listed is the sections of the book that we will cover in class. The homework listed is to be turned in on the date listed. For example, on August 22, we will cover the material in Sections 1.1 to 1.5 in the book. The homework listed on the August 27 will be turned in on the 27th.

The Homework for the class will consist of the problems that will be posted to LON CAPA. This syllabus will be updated with the Homework assignment after each class. Homework will be due on Tuesday and Thursday at 1:30 pm.

Day	Date	Material	Class Homework
Tu	8/20		
Th	8/22	1.1-1.5	
Tu	8/27	1.6-1.7	Lon Capa Homework Number 1
Th	8/29	1.9-1.10	Lon Capa Homework Number 2
Tu	9/3	1.11-1.12	Lon Capa Homework Number 3
Th	9/5	2.1-2.4	Lon Capa Homework Number 4
Tu	9/10	2.5-2.7	Lon Capa Homework Number 5
Th	9/12	Determinants of Interest Rates	Lon Capa Homework Number 6
Tu	9/17	Determinants of Interest Rates	Lon Capa Homework Number 7
Th	9/19	3.2-3.3	Lon Capa Homework Number 8
Tu	9/24	3.4-3.6	Lon Capa Homework Number 9
Th	9/26	3.7-3.8	Lon Capa Homework Number 10
Tu	10/1	3.9-3.11	Lon Capa Homework Number 11
Th	10/3	Test 1	
Tu	10/8	Break	
Th	10/10	4.5-4.6	No Homework!
Tu	10/15	5.2-5.3	Lon Capa Homework Number 12
Th	10/17	5.4, 6.1-6.2	Lon Capa Homework Number 13
Tu	10/22	6.3-6.6	Lon Capa Homework Number 14
Th	10/24	6.9	Lon Capa Homework Number 15
Tu	10/29	Review	Lon Capa Homework Number 16
Th	10/31	Test 2	
Tu	11/5	7.1	
Th	11/7	8.3	Lon Capa Homework Number 17
Tu	11/12	9.1-9.3	Lon Capa Homework Number 18
Th	11/14	9.4-9.5	Lon Capa Homework Number 19
Tu	11/19	Interest Rate Swaps	Lon Capa Homework Number 20
Th	11/21	Interest Rate Swaps	Lon Capa Homework Number 21
Tu	11/26	Interest Rate Swaps	
Th	11/28	Break	
Tu	12/3	Interest Rate Swaps	
Th	12/5	Review	
Finals	12/14	10:30 to 12:30	BRNG 2290

Copyright

In general, notes are “considered to be ‘derivative works’ of the instructor's presentations and materials, and they are thus subject to the instructor's copyright in such presentations and materials.” I consider class notes, tests, and quizzes to be derivative works and therefore copyrighted. Class notes, tests, and quizzes may not be sold, bartered, or even given to websites or other resources. Examples of such websites are Course Hero, Chegg, or Quizlet.

CAPS Information

Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS) at (765)494-6995 and <http://www.purdue.edu/caps/> during and after hours, on weekends and holidays, or through its counselors physically located in the Purdue University Student Health Center (PUSH) during business hours.

Exam FM/Exam 2 Preparation

Exam FM/Exam 2 is will be offered by the Society of Actuaries and the Casualty Actuarial Society on December 10-21. The registration deadline is November 5. It will also be offered around the middle of February, but the dates have not been announced yet.

If you want to pass Exam FM/Exam 2, I strongly recommend that you invest 250 hours of study time for the Exam. The 250 hours would include anytime spent for this class, plus additional time working as many problems as possible. During the first day of class, I will go over a recommended study program for those students planning on taking Exam FM/Exam 2.

For this class, between class time and homework, I estimate that you will put in 125 hours. Additionally, going through the Actex or ASM Manual or Coaching Actuaries will require about 75 hours. Finally, I will provide you with sufficient exam preparation problems that will require about 50 hours.

Students Not Taking Exam FM/Exam 2

If you are not taking Exam FM/Exam 2, you only need to do the Homework for the Class. If you master these problems and the material, you should be successful in this Course.