

**FIN 4340 Actuarial Finance (CRN 18877)**  
**Fall 2019 Course Syllabus**

**Instructor:** Chia-Chun Chiang

**Location and Time:** COBA 319 Monday/Wednesday 3:00 – 4:20 pm

**Office:** COBA 247

**Office Hours:** Monday/Wednesday 4:30 - 5:30 pm or by appointment

**E-mail:** cchiang@utep.edu

***For faster replies, please use the prefix “FIN4340\_18877” in the subject line of all emails.***

It is the policy of the finance department that all e-mails sent to professors or teaching assistants be of a professional nature and format. A formal greeting and salutation are required. Proper grammar, spelling, and format are required. You must clearly state the problem or question that will be addressed. You must identify the class, section, time, and location where the class meets. We reserve the right to not reply to any e-mail that does not meet these requirements and is not of a professional nature.

**Textbook**

Broverman, 7<sup>th</sup> Ed., Mathematics of Investment and Credit, ACTEX Publications. ISBN 978-1-63588-222-3

**Homework Assignment Software**

Coaching Actuaries is an online software that allows students to submit homework assignments and check their work on line. Access to Coaching Actuaries is **required** for this course.

**Calculator**

Only calculators that are approved by the Society of Actuaries for use on Exam FM will be allowed to be used on exams in this class. I recommend Texas Instruments BA II Plus. I will use Texas Instruments BA II Plus in class and explain how to work various problems with it. Make sure that you bring your calculator to every class. Other calculators are approved: BA-35, BA II Plus Professional, TI-30Xa, TI-30X II (IIS solar or IIB battery), TI-30XS MultiView (or XB battery).

**Course Description**

This course is a quantitative course and focuses on the theory of interest (part II). The goal of this course is to prepare students for the Society of Actuaries Exam 2/FM. Upon completion of this course, students will have gained a deeper understanding of applications of financial mathematics.

**Course Objectives**

- Understand key concepts concerning bonds, and how to perform related calculations.

- Understand key concepts concerning yield curves, rates of return, and measures of duration and convexity, and how to perform related calculations.
- Understand key concepts concerning cash flow matching and immunization, and how to perform related calculations
- Understand key concepts concerning interest rate swaps and how to perform related calculations.
- Understand key concepts concerning the determinants of interest rates, the components of interest, and how to perform related calculations.

### **Blackboard**

I will use Blackboard to post important announcements and upload course materials. I expect you to check Blackboard daily. Make sure you receive Blackboard announcement emails in your inbox.

### **Class E-Mail**

Each student is required to have the e-mail account that is associated with the *Blackboard system* up to date. Any class requirements sent in the e-mail messages through the Blackboard are considered delivered. You should check that e-mail account regularly.

### **Grade Components**

Exam 1	<b>20 points</b>
Exam 2	<b>20 points</b>
Exam 3	<b>20 points</b>
Final Exam	<b>25 points</b>
10 Assignments	<b>15 points</b>
Extra Credit	<b>5 points</b>
Total	<b>105 points</b>

### ***Exams***

**If lowest score on Exams 1, 2 and 3 is less than Final Exam score, then the final exam score will be used in lieu of that low score. All exams will be closed-book, and no formula sheet is allowed (and on all SOA exams as well!).** Students who miss an exam without a valid reason will receive a zero on that exam. Make-up exams will be allowed only with pre-approval of the instructor or with an acceptable, documented reason. Acceptable reasons for make-up exams include severe illness, family emergencies, or other unavoidable events, including dangerous weather conditions and car accidents. Exam format for make-up exams may be different from the original exam.

There will be a final exam during the scheduled final exam period. The final exam must be taken at the designated time. The only exceptions that will be made are for those students who have three or more exams scheduled on the same day, or two scheduled at the same time.

### ***Assignments***

The homework assignments aim to help you understand the theories covered in the class and to prepare you for the exams. You are allowed and encouraged to collaborate on these problems,

although every student must submit their homework assignments through Coaching Actuaries. **Late homework penalty is 25% per day.** Please complete your assignments well in advance.

### ***Extra Credit***

I will regularly ask questions in class for extra credit. When I ask an extra credit question, you will get 1 point for an incorrect answer and 2 points for a correct answer. At the end of the semester, I will divide your point total by the total number of points that were available during the semester and multiply that with 5 points to calculate your extra credit total. For example, if you answered every question correct, 5 points will be added to your final grade. In that case, if your final grade at the end of the semester is 75 over 100 (a C), your final grade after extra credit will be 80 (B). If you answer 0 questions, you'll add no points to your grade.

### **Grade Scale**

A	B	C	D	F
90-100+	80-89	70-79	60-69	0-59

### **Rules for student conduct**

- Please arrive to class on time and do not leave before the class period has ended. Coming late or leaving early are disruptive behaviors and disturb others in the class. If you have extenuating circumstances and must arrive late, please take a seat as close to the entrance as possible. If you have an extenuating circumstance and must leave early, please let me know before class and, again, sit as close to the exit as possible so as not to disturb others when you leave.
- Don't talk with your colleagues. Talking is disruptive to other attendees and inconsiderate to the speaker.
- Silent your cell phone. Don't take calls during the meeting. Don't read or reply text messages either.
- Don't go out of the meeting for the restroom. Use the restroom before or after the meeting. If you are sick (e.g., diarrhea), inform the speaker about your problem before the meeting and sit close to the door.
- Be polite and polished. Don't curse and don't use slang.
- Participate.
- Don't pack your things until it has been indicated that the meeting is over. It is rude to start packing up, especially if there was a time set for the meeting and the time has not expired.

Students not following these rules may be asked to leave the classroom.

### **Students with Disabilities**

If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to [cass@utep.edu](mailto:cass@utep.edu), or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at [www.sa.utep.edu/cass](http://www.sa.utep.edu/cass).

### **Scholastic Integrity**

The University of Texas at El Paso prides itself on its standards of academic excellence. In all matters of intellectual pursuit, UTEP faculty and students must strive to achieve excellence based

on the quality of work produced by the individual. In the classroom and in all other academic activities, students are expected to uphold the highest standards of academic integrity. Any form of scholastic dishonesty is an affront to the pursuit of knowledge and jeopardizes the quality of the degree awarded to all graduates of UTEP. It is imperative, therefore, that the members of this academic community understand the regulations pertaining to academic integrity and that all faculty members insist on adherence to these standards.

Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. Proven violations of the detailed regulations, as printed in the Handbook of Operating Procedures (HOP), and available in the Office of the Dean of Students, and the homepage of The Dean of Students (DOS) at [www.utep.edu](http://www.utep.edu), may result in sanctions ranging from disciplinary probation, to failing grade on the work in question, to a failing grade in the course, to suspension or dismissal, among others.

### **Campus Carry**

Persons who hold a Concealed Handgun License can lawfully carry their gun into a UTEP classroom as long as it remains concealed. Open carry remains prohibited on campus. Should you feel someone is intentionally displaying a gun (or any other weapon for that matter), do not hesitate to call Campus Police (X 5611) or 9-1-1. For more information on campus carry, see <http://sa.utep.edu/campuscarry/>; for more information on overall campus safety, see <http://admin.utep.edu/emergency>.

### **The Faculty Senate, recommended the following list of student services**

- Student Counseling Center: <http://sa.utep.edu/counsel/>; (915) 747-5302  
202 Union West; walk-ins encouraged
- Student Health Center: <http://chs.utep.edu/health>; (915) 747-5624  
Many services free to students paid for through student health fee
- Student Engagement and Leadership Center: <http://sa.utep.edu/sele>  
106 Union West; (915) 747-5670 Includes study space with workstations; family friendly room with lactation space
- Career Center: <http://sa.utep.edu/careers>; 103 Union West; (915) 747-5640
- Minetracker: <https://minetracker.utep.edu/> Events, news and organizations

**Tentative Schedule and Outline** (I reserve the right to revise it)

Week	Date	Topic
1	8/26	Introduction and Bond Market
	8/28	Bond Basics and Pricing (4.1)
2	9/2	Labor Day
	9/4	Bond Basics and Pricing
3	9/9	Premium and Discount (4.1)
	9/11	Bond Amortization (4.2)
4	9/16	Bond Amortization (4.2)
	9/18	Callable Bonds (4.3)
5	9/23	<b>Exam 1</b>
	9/25	Spot and Forward Rates (6.1 & 6.3)
6	9/30	Spot and Forward Rates (6.1 & 6.3)
	10/2	Interest Rate Swaps (FM-25-17)
7	10/7	Interest Rate Swaps (FM-25-17)
	10/9	Interest Rate Swaps (FM-25-17)
8	10/14	Determinants of Interest Rates (FM-26-17)
	10/16	Determinants of Interest Rates (FM-26-17)
9	10/21	<b>Exam 2</b>
	10/23	Duration (7.1)
10	10/28	Duration (7.1)
	10/30	Convexity (FM-24-17)
11	11/4	Redington and Full Immunization (FM-24-17)
	11/6	Redington and Full Immunization (FM-24-17, 7.2)
12	11/11	Immunization by Exact Matching (7.2)
	11/13	<b>Exam 3</b>
13	11/18	Internal rate of return and NPV (5.1)
	11/20	Internal rate of return and NPV (5.1)
14	11/25	Dollar and Time Weighted Rate of Return (5.2)
	11/27	Dollar and Time Weighted Rate of Return (5.2)
15	12/2	Dollar and Time Weighted Rate of Return (5.2)
	12/4	<b>Final Review</b>
16	12/9	<b>Final Exam 1:00-3:45 pm</b>