

FBE 535 – Applied Finance in Fixed Income Securities

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Course Description

The global market for fixed income securities and their derivatives continues to grow and evolving at a rapid pace. This course is designed to develop an understanding of fixed income valuation and hedging methods and a familiarity with major markets and instruments. Tools for quantifying, hedging, and speculating on risk are emphasized. The emphasis of the course will be on conceptual issues as opposed to the institutional aspects (although the basic institutional aspects will be covered). By all standards this is a quantitative class and a good background in calculus and statistics is highly desirable, if not necessary. Prior knowledge of Excel will be useful (though not required) as some analysis will be done in Excel.

Class Schedule

The class meets on Thursdays from 6:30–9:20 p.m. in JKP 204.

Course Website

All teaching materials will be posted on Blackboard. Class announcements and problem sets will also be posted on Blackboard.

Office Hours

I will hold office hours on Thursdays, noon–1:00 p.m., HOH 713, or by appointment (jlinnain@usc.edu). Feel free also to ask questions by email.

Course Requirements and Grading

The following weighting scheme will be used to determine the course grade:

- 25% Problem Sets

- 25% Quizzes (planned and/or pop)
- 40% Final Exam
- 10% Constructive contribution and in-class presentations

All material for the quizzes and final exam will be contained in the course notes. The final will be held **Thursday, December 8, 7–9 p.m.** No make-up exams are possible. Problem sets are an important part of the course, and are strongly recommended. However, if you choose not to turn in a problem set, the final exam score will replace the homework grade. The final exam is cumulative. One week after the grades are posted, the posted grades become final and no claims on them will be considered. Any request for grade change must be made in writing.

The constructive contribution portion of your grade is based on positive and quality contributions shared in class, made with thoughtful planning and preparation prior to class meetings. The grade is not for time spoken in class (quantity), but rather on the quality of the contribution. Key factors that I will use in my assessment:

- In-class short group presentations (see below) of interesting market-related articles.
- A positive attitude that enriches the learning experience of the class (e.g., showing excitement towards the course and the topic), in and out of the classroom.
- Helping other students.
- Sharing with the class finance-related stories.

Entering, leaving, or disturbing during class, and/or lack of attendance will have a negative effect on the grade. If you are unable to attend a class, please notify me about it by email.

In-Class Presentation

For a few minutes in each class, a different group should present and discuss an interesting topic related to fixed income markets. Preference should be given for topics covered in current or recent media. The student groups should find a topic, and prepare to present it and answer potential questions in class.

Students should form groups of two to four people and book their presentation date and topic with me in advance. I will also collect a list of students without preferences for a group and randomly assign a group and presentation date (with topic to be selected by the group.) By Tuesday at 6:00 p.m. before the presentation, one of the students in the group should email me information about the topic and how the group plans to present it in class. You must also

submit by email a copy of any presentation slides by the presentation time. I will not evaluate students differently within each group; rather, I will evaluate the group performance as a whole. Thus, it does not matter whether you presented or helped behind the scene in the preparation for your group presentation.

Course Materials

- Class Notes: Notes will be available on Blackboard.
- Problem Sets: Problem sets will be available on Blackboard.
- Textbook: Bruce Tuckman and Angel Serat, Fixed Income Securities, 3rd edition, Wiley Finance Series.

All material for the problem sets and exams will be covered in the course notes.

Course Topics

The following is a list of potential topics, time permitting, that we will cover in the course.

1. Introduction to fixed-income markets.
2. Term structure of interest rates.
3. Interest rate risk.
4. Duration, convexity, and managing interest rate risk.
5. Swaps.
6. Repurchase agreements (repos).
7. Multi-factor interest rate risk.
8. Futures and forwards.
9. Note and bond futures.
10. Empirical measures of risk.
11. Introduction to term structure models.
12. Risk-neutral pricing.
13. Evolution of the term structure.
14. Mortgages and mortgage-backed securities.

Problem Sets

There will be 5 problem sets over the course of the semester. Late problem sets will not be accepted. You are encouraged to work in groups on the problems, but you must hand in your own copy. You also need to acknowledge any help you received on the first page of your work. The exam questions will have the same format as the problem sets.

Quizzes

There will be several quizzes over the course of the semester. You may drop the lowest quiz score. No make-up quizzes will be allowed. The quizzes may be announced or may be pop quizzes. The announced quizzes will require a calculator and you will be allowed one double-sided 8.5" × 11" page of notes; pop quizzes will not require a calculator and will be closed book/closed notes.

Final Exam

The final exams will test your understanding of the key class concepts. To prepare for the exam, you should review the slides together with your own class notes, the problem sets & quizzes, and the sample exams. The final exam is cumulative.

The final exam will be closed book. You will be allowed two double-sided 8.5" × 11" pages of notes. There are no restrictions on the content of the formula sheets.

You must take the exam at the scheduled times; no exceptions will be granted. If you must miss an exam, you will be required to make it up after the semester is over.

No laptops or smartphones are allowed on the exam.

Academic Conduct

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Section 11, *Behavior Violating University Standards*¹ Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university [policies on scientific misconduct](#).

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the [Office of Equity and Diversity](#) or to the [Department of Public Safety](#). This is important for the safety

¹<https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions>.

of the whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. [The Center for Women and Men](#) provides 24/7 confidential support, and the [sexual assault resource center webpage](#) describes reporting options and other resources.

Support Systems

Students whose primary language is not English should check with the [American Language Institute](#), which sponsors courses and workshops specifically for international graduate students. The Office of Disability Services and Programs www.usc.edu/disability provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, [USC Emergency Information](#) will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.