

Quantitative Finance
Course Number: 22:839:611
Course Title: Analysis of Fixed Income for MQF

COURSE DESCRIPTION

This course is an introduction to fixed income markets and the analytic tools used by participants in these markets. By its nature, fixed income is a very broad subject that would literally take months (if not years) to cover in depth. Of necessity then, this course needs to be selective. We will focus primarily on the fundamental concepts underlying fixed income markets with a solid grasp of underlying theory. We will have strong emphasis on applications and quantitative techniques using realistic examples and cases.

COURSE MATERIALS

- a. **Textbook:** There are no required textbooks for this course. Most of the material you need to succeed in this course (lecture notes, practice problems, assignments, practice quizzes, and exams, etc.) will be provided by me. However, it is recommended that you read through the following textbooks to supplement the class material and to get a more in-depth analysis of fixed income markets: *The Handbook of Fixed Income Securities 9th Edition* by Frank Fabozzi and *Fixed Income Securities: Tools for today's markets 3rd Edition* by Bruce Tuckman and Angel Serrat. Recommended supplemental texts include *Options, Futures, and Derivatives Securities* by John Hull and *Fixed Income Markets and their Derivatives* by Suresh Sunderasan.

- b. **Course materials on my website:** Syllabus, lecture notes, and other relevant materials will be posted

Please make sure that you check this website regularly for updates to class materials. I will also email the class whenever I update this website and post new materials to any of the folders.

- c. **iClickerReef:** Students will need access to an iClicker remote or the iClicker Reef application on their phones to answer questions posed as part of in class exercises. If you already have an iClicker remote from another class, you can use that for the course for this class as well. If you do not have the iClicker remote, then I suggest purchasing the iClickerReef app for your smart phones. The app is cheaper and has better features. Once you purchase the app or the remote, you need to create an account and search and register for this course.
- d. **Subscription to newspapers and magazines:** You are strongly encouraged to subscribe to a periodical that carries news about global financial events. The Wall Street Journal is one good possibility. More global in outlook is the Financial Times. Also, international, but carrying more news about global politics and economics is the Economist. All of these can be accessed through the library, and you should make a habit of reading these on a regular basis.

ACADEMIC INTEGRITY

I do NOT tolerate cheating. Students are responsible for understanding the RU Academic Integrity Policy <http://academicintegrity.rutgers.edu/>

I will strongly enforce this Policy and pursue *all* violations. On all examinations and assignments, students must sign the RU Honor Pledge, which states, “On my honor, I have neither received nor given any unauthorized assistance on this examination or assignment.” I will screen all written assignments through *SafeAssign* or *Turnitin*, plagiarism detection services that compare the work against a large database of past work. Don’t let cheating destroy your hard-earned opportunity to learn. See business.rutgers.edu/ai for more details.

GRADING POLICY

Component	Weight
Class exercises	15.00%

Assignments	20.00%
Mid-term exams	30.00%
Final exam	35.00%
Total	100.00%

Note: Please note that there is no absolute grading scale for this class. Final grades for this class are awarded on a curve. Thus, a score above a certain threshold does not automatically guarantee you an ‘A’ in this class (for e.g., a score of say above 80 may or may not get an ‘A’ depending on their relative performance with respect to the class). Your final grade will reflect your performance relative to the rest of the class as whole.

At any point in this course, if you are concerned or have questions about your performance in the course you should talk to me. I may be able to discuss and devise a plan to improve your performance in the remainder of this course.

- a. Groups:** All assignments are required to be completed in groups. Groups must consist of a minimum of 4 and a maximum of 5 members each. You are free to form your own groups. One team member from each team should email me the list of students in his or her team by this date. The first assignment will be posted soon after the first class so you should not wait to form your teams. Except in the rarest of circumstances, I will not interfere in the functioning of your teams. You are responsible for ensuring that your team operates smoothly, delivers all assignments on time, and that each member contributes equally and significantly to all assignments.

- b. Class participation and exercises:** 15 percent of the course grade is determined by your performance in class participation and in class exercises. Active class participation means you have completed all (or most) of the assigned reading materials, participate in classroom discussions by either raising or answering pertinent questions, and complete all in-class exercises. In each class, after presenting key concepts and working through several examples, I will pose several questions on the material just covered. You will be required to answer all of these questions in class. A correct answer on the posed questions will earn 2 points. An incorrect answer on the posed question will earn 1 point.
- c. Assignments:** 20 percent of the course grade is determined by your performance on assignments. After every topic, I will post an assignment on my website with several questions on the material covered in the topic. You must complete this assignment by the due date, which will also be announced when the assignments are posted. No extensions will be granted for completing the assignments (except in the rarest of cases). I will require documented proof for a valid excuse (e.g., illness) to grant an extension. Late and missing assignments will get an automatic score of zero. If you face technical issues in accessing and submitting the assignments, you must flag these well before the assignment deadline. Technical issues cannot be used as an excuse for late submission unless there are widespread problems with websites, internet access (which has never happened).
- d. MATLAB or any other statistical software:** Although almost all assignments for this class can be completed in Excel, they are sometimes easier (and quicker) to complete using one of the many statistical software available for use. Thus, familiarity with MATLAB, R,

STATA, or any other similar statistical software will be useful. This will also be helpful from a placement point of view as most fixed income analysis and modeling on Wall Street uses one of these popular statistical packages. In most instances, I will either provide Assignment solutions using Excel or MATLAB. The “programming logic” for most assignment solutions can be easily translated – so if you end up using one of the other statistical packages you should still be able to work through the solutions for most assignments. While from I may be able to answer a few questions here and there related to MATLAB, STATA, or other statistical packages, the amount of course material we have to cover does not really allow for detailed review sessions on any of these softwares.

- e. **Mid-term exam:** 30 percent of the course grade will be determined by your performance on mid-term exam that will be held in class. The date, time, and room number for final exam will be announced soon via email. The tight schedule, room reservation requirements, and the size of our class does not allow for a make-up mid-term exam. To be fair to all students, the mid-term and the final exam for both the sections will be held on the same dates and at the same times.

- f. **Final Exam:** 35 percent of the course grade will be determined by your performance on the final exam at the end of the course. The final exam is “cumulative” covering the entire course material. It will place an equal emphasis on all topics and will include multiple choice questions and long answer questions. I will provide more details as the course progresses.

- g. **Formula sheets:** All exams and quizzes will be closed books and closed notes. For all exams you are allowed a one-page (double-sided) letter-sized cheat sheet with whatever information you wish to record.

Class policies:

- a. **Attendance:** I will not take attendance in class on a regular basis. However, students who do not regularly view lecture videos and complete class assignments can expect to get low scores and grades. Regularly keeping up with class videos and assignments is highly recommended.

SUPPORT SERVICES

If you need accommodation for a *disability*, obtain a Letter of Accommodation from the Office of Disability Services. The Office of Disability Services at Rutgers, The State University of New Jersey, provides student-centered and student-inclusive programming in compliance with the Americans with Disabilities Act of 1990, the Americans with Disabilities Act Amendments of 2008, Section 504 of the Rehabilitation Act of 1973, Section 508 of the Rehabilitation Act of 1998, and the New Jersey Law Against Discrimination. More information can be found at ods.rutgers.edu.

[Rutgers University-New Brunswick ODS phone (848)445-6800 or email dsoffice@echo.rutgers.edu]

[Rutgers University-Newark ODS phone (973)353-5375 or email ods@newark.rutgers.edu]

If you are *pregnant*, the Office of Title IX and ADA Compliance is available to assist with any concerns or potential accommodations related to pregnancy.

[Rutgers University-New Brunswick Title IX Coordinator phone (848)932-8200 or email jackie.moran@rutgers.edu]

[Rutgers University-Newark Office of Title IX and ADA Compliance phone (973)353-1906 or email TitleIX@newark.rutgers.edu]

If you seek *religious accommodations*, the Office of the Dean of Students is available to verify absences for religious observance, as needed.

[Rutgers University-New Brunswick Dean of Students phone (848)932-2300 or email deanofstudents@echo.rutgers.edu]

[Rutgers University-Newark Dean of Students phone (973)353-5063 or email DeanofStudents@newark.rutgers.edu]

If you have experienced any form of *gender or sex-based discrimination or harassment*, including sexual assault, sexual harassment, relationship violence, or stalking, the Office for Violence Prevention and Victim Assistance provides help and support. More information can be found at <http://vpva.rutgers.edu/>.

[Rutgers University-New Brunswick incident report link: <http://studentconduct.rutgers.edu/concern/>. You may contact the Office for Violence Prevention and Victim Assistance at (848)932-1181]

[Rutgers University-Newark incident report link: https://cm.maxient.com/reportingform.php?RutgersUniv&layout_id=7 . You may also contact the Office of Title IX and ADA Compliance at (973)353-1906 or email at TitleIX@newark.rutgers.edu. If you wish to speak with a staff member who is confidential and does **not** have a reporting responsibility, you may contact the Office for Violence Prevention and Victim Assistance at (973)353-1918 or email run.vpva@rutgers.edu]

If students who have experienced a temporary condition or injury that is adversely affecting their ability to fully participate, you should submit a request via <https://temporaryconditions.rutgers.edu> .

If you are a military *veteran* or are on active military duty, you can obtain support through the Office of Veteran and Military Programs and Services. <http://veterans.rutgers.edu/>

If you are in need of *mental health* services, please use our readily available services.

[Rutgers University-Newark Counseling Center: <http://counseling.newark.rutgers.edu/>]

[Rutgers Counseling and Psychological Services–New Brunswick: <http://rhscaps.rutgers.edu/>]

If you are in need of *physical health* services, please use our readily available services.

[Rutgers Health Services – Newark: <http://health.newark.rutgers.edu/>]

[Rutgers Health Services – New Brunswick: <http://health.rutgers.edu/>]

If you are in need of *legal* services, please use our readily available services: <http://rusls.rutgers.edu/>

Students experiencing difficulty in courses due to *English as a second language (ESL)* should contact the Program in American Language Studies for supports.

[Rutgers–Newark: PALS@newark.rutgers.edu]

[Rutgers–New Brunswick: eslpals@english.rutgers.edu]

If you are in need of additional *academic assistance*, please use our readily available services.

[Rutgers University-Newark Learning Center: <http://www.ncas.rutgers.edu/rlc>]

[Rutgers University-Newark Writing Center: <http://www.ncas.rutgers.edu/writingcenter>]

[Rutgers University-New Brunswick Learning Center: <https://rlc.rutgers.edu/>]

[Optional items that many faculty include:

- Students must sign, date, and return a statement declaring that they understand the RU Academic Integrity Policy.

- Students must sign, date, and return a statement declaring that they understand this syllabus.]