



## **FIN 418 & 618 800 Fixed Income**

Fall 2021 (1 Sept 2021 – 7 Dec 2021)

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Updated: 24 August 2021

### **COVID-19 Teaching Arrangements**

Welcome into FIN 418. My aim is to provide an online teaching schedule that resembles a regular classroom environment as closely as possible. I teach in a traditional way while embracing new technology online. I will hold classes at the scheduled times using Zoom and I will use a light board and a document camera for writing interactively. I intend to record the sessions for people who cannot attend, but sometimes I may forget to start recording on time because my focus is on those present. I may also sometimes record short videos on particular topics which I will share through eClass - for example [https://www.youtube.com/embed/bud06\\_Sy51A](https://www.youtube.com/embed/bud06_Sy51A) which is from FIN 413 in Winter 2020. For a behind-the-scenes look at my light board see: <https://www.youtube.com/watch?v=CAqcobRm9-w>

The online environment has provided us all with new challenges and we have to work in new ways but I am optimistic that we will do this well. In the two semesters since going online in winter 2020, I have found that the grade distributions from all my courses have ended up very similar to the pre-COVID distributions. I look forward to working with you and helping you learn about finance.

### **Description**

This course is concerned with fixed income securities, the yield curve, interest rate risk, and tools for managing interest rate risks to maintain fixed income. Fixed income securities markets dwarf the equity markets in terms of the dollar value of securities outstanding, as governments routinely sell billions of dollars' worth of securities on the primary market, and secondary market transactions of less than \$10 million are considered small. Despite this, the average person hears little of these markets. Very few news reports tell of how the bond market performed on a particular day, even though the movements in the bond market, through their effect on mortgage rates, consumer loan rates, and savings rates, have more impact on most peoples' lives than the stock market gyrations that are broadcast hourly.

Any study of fixed income securities inevitably becomes technical with a lot of math and computations. The challenge is in taking the numbers, which are found mechanically, and interpreting them into statements about expectations, risks, and value. One can then apply practical techniques of portfolio management and interest rate derivative selection to build appropriate desired positions.

### **Textbook and Class Materials**

Textbook: Fabozzi. Bond Markets, Analysis, and Strategies, 9<sup>th</sup> Edition, 2015.

Additional reading: Fabozzi and Mann, The Handbook of Fixed Income Securities, Ninth Edition  
Sundaresan. Fixed Income Markets and Their Derivatives, 3rd Edition, 2009.  
Hull. Fundamentals of Futures and Options Markets, 9th Edition; 2016.

Class materials: Class materials such as lecture slides and assignment information will be placed on eClass (<https://eclass.srv.ualberta.ca>).

## Readings and Class Schedule

The proposed class schedule is as follows. The schedule may be modified as the semester progresses if topics take more or less time than planned. Readings and/or chapters from the text may be added or deleted at a later date. Please ensure you have read the relevant materials before each session.

Date	Topic	Readings (Fabozzi)
Sep 2	Preliminaries. Time value of money. Interest rate quotes.	Ch. 1
Sep 7 Sep 9	Bonds. Characteristics. Pricing. Yield. Conventions. Yield curves.	Ch. 2 Ch. 3
Sep 14 Sep 16	Duration and convexity.	Ch. 4
Sep 21 Sep 23	<b>First Midterm Exam</b>	
Sep 28 Sep 30	Yield curve analysis and bootstrapping. <b>Truth and reconciliation day – no classes</b>	Ch. 5
Oct 5 Oct 7	Bond markets and conventions.	Ch. 6, 7, 8, 9
Oct 12 Oct 14	Valuing bonds with embedded options. <b>Teamwork Assignment 1</b>	Ch. 18
Oct 19 Oct 21	Interest rate modelling. Interest rate trees.	Ch. 17, 18
Oct 26 Oct 28	<b>Second Midterm Exam</b> Bond portfolio management strategies	Ch. 24
Nov 2 Nov 4	Interest rate derivatives: Forwards and futures. FRAs. Eurodollar futures. Treasury bond futures.	Ch. 29
Nov 8	<b>Reading week – no classes</b>	
Nov 16 Nov 18	Interest rate options, caps and floors.	Ch. 30, 31
Nov 23 Nov 25	Interest rate swaps and swaptions. <b>Teamwork Assignment 2</b>	Ch 31
Nov 30 Dec 2	Credit ratings and default models Credit derivatives. Credit default swaps.	Chs. 22, 23 Ch. 32
Dec 7	Review	
	<b>Study and exam week – no classes</b>	n/a
TBC	<b>Final Exam</b>	All chapters listed above

## Grading

Course grades will be determined by combining points on participation, online homework assignments, two midterm exams, and a final exam. The following table shows the component marks available to students. Grades will be allocated after considering the relative performance of each student.

Participation	5% or 0%	This 5% will be awarded as the higher of your participation and your final exam. Participation will be assessed throughout the course in the online environment. This assesses oral communication skills as well as critical thinking and problem solving - not attendance. If you are unable to participate online, or your final exam score is higher than your participation mark would be, this 5% will be redistributed to your final exam.
Online Practice	5%	Online practice is provided at <a href="https://GradeChaser.com">https://GradeChaser.com</a> . Please register using your ualberta.ca email address (if you have had more than one uAlberta email address please ensure you use the one that is currently registered on eClass.)  Your scores will be recorded three times corresponding to the midterm and final exams. The snapshot will be taken during or after each exam so that you can also use GradeChaser.com during your revision and continue to earn marks. You should complete the new topics for each exam in time for that exam.  In the event that you are granted a deferred exam, your deadline for the online practice may be deferred to match the deferred exam.
Assignments	10%	Teamwork assignments assess critical thinking, problem solving, teamwork and leadership, quantitative and information processing, and written communication. Each group should make one group submission for each assignment. While each student does not have to submit an individual solution, every student has an interest in knowing how to do the problems.  Teamwork assignments will be posted to the course website at least one week prior to the deadlines. Please submit by the start of the class on the deadline date. Late submissions will be awarded zero without being marked.
Midterm exams (60 minutes × 2)	20%+ 20%	These assess individual critical thinking and problem solving as well as quantitative and information processing skills, and the grasp of material.  During COVID remote teaching the exams will be held online and will be open-book, with the required tools listed below. There must be no communication with anyone until after the exam window is over for all students.
Final exam (120 minutes)	40% or 45%	This assesses critical thinking and problem solving as well as quantitative and information processing skills, and the grasp of the material.  The final exam covers the whole course, although with more questions on the portions not covered by the midterm exams.  During COVID remote teaching the exams will be held online and will be open-book, with the required tools listed below. There must be no communication with anyone until after the exam window is over for all students.
<b>TOTAL</b>	<b>100%</b>	

## Online Practice

The main purpose of the online practice at <https://GradeChaser.com> is to help you understand the material. You can attempt each question up to ten times and I provide detailed worked solutions.

Please ensure that you select the correct course. Click

[Change Course](#)

### Select your course:

University of Alberta

[Introduction to Finance FIN 301](#)

[Risk Management FIN 413](#)

[Fixed Income FIN 418 and 618](#)

You are welcome to explore the other courses too if you wish.

You earn a mark for each question if at least half of your attempts are correct. You can attempt each question up to ten times. Once you have earned the mark for a question you will keep the mark even if you subsequently make more attempts for practice and get them wrong. You know that you have earned the mark for a question when you see a smile alongside the question. The symbols are:

	Question not yet attempted.		Mark earned on first attempt.
	Mark not yet earned. More than half the attempts so far have been incorrect.		Mark earned (at least half of your attempts were correct).
			Mark retained (you keep your mark once it is earned even if subsequent additional attempts are wrong).

If you have scored the mark for at least 80% of the GradeChaser questions you will be given the full 100% for the online practice component. This means that you do not need to perfect every question to get full marks. For example if you miss out on the mark for a question because of some minor error and you are satisfied that you know what to do, you can move on without having to redo it, and still get full marks provided you have completed at least 80% of the questions correctly.

You can tell your overall score for the course by clicking on the whole course at the top and then reading the score on the bottom of the screen:

[Introduction to Finance FIN 301](#)

You have scored 1.9% of these **GradeChaser** practice problems.

Please ensure you register using the same ualberta.ca address as in eClass if you have had multiple ualberta addresses. Your grade will be matched using the eClass email address.

## Further Practice

In addition to the graded work, there are also end-of-chapter problems and exercises for you to work on throughout the term to gain a greater understanding of the material, without credit. The solutions will be placed on eClass. Sample representative exam questions will be discussed in class prior to the examinations. Many past exam questions with randomization are available at <https://GradeChaser.com>.

## Examinations

We expect to hold exams online. Check eClass for any changes (for example for deferred exams).

Our online exams will be open-book and open computer. You can access any textbooks both physically and online, and the course materials on eClass. You can even use Google to look up anything that you like - but you must not communicate with anyone until after the exam window has closed for everyone.

The questions in our on-line exams will be designed so that you cannot simply find the answers online through Google or in the lecture notes. You have to know something about the material. You are graded on demonstrated knowledge. The questions will typically be more numerical than theory and will require demonstration or application of theory.

Communication by any means with anyone other than your instructor will be considered cheating and will be prosecuted to the maximum extent of the university policy. Using materials arising from other people's unauthorized communications will also be considered cheating. If you find our questions answered on sites such as Chegg or CourseHero it means that someone is trying to cheat – please tell me immediately.

You will need access to a PC / laptop / notebook with software including a modern web browser (such as Chrome) and Microsoft Excel or similar spreadsheet package. You will not be expected to know the advanced features of Excel – this is not a test of Excel – but you should know the basics of how to read and edit a spreadsheet if required.

Any student requiring special accommodations should contact me at least two weeks before each exam.

## Missed Assessments and Deferred Exams

The rules for attendance and absence from term work and examinations are specified in the Academic Regulations (<http://calendar.ualberta.ca/content.php?catoid=6&navoid=806>). If you miss, or if you know you are going to miss any term work or exam for a reason that is acceptable to the university (such as an incapacitating illness, a severe domestic affliction, a religious belief, and so on) then please provide supporting evidence as soon as possible. You will receive a mark of zero in a missed assessment unless appropriate supporting documentation is received in a timely manner.

If you miss **online practice** or a **teamwork assignment** for a reason that is acceptable to the university, please supply supporting documentation to me within two days (or as soon as practical in cases of extenuating circumstances). With evidence provided in time, the deadline for the online practice can be changed, or the weight from the missed assignment may be redistributed to the other components.

If you miss a **midterm exam** for a reason that is acceptable to the university, please supply supporting documentation to me within two days (or as soon as practical in cases of extenuating circumstances). With evidence provided in time, the weight from the missed exam may be redistributed to the final exam.

If you miss the **final exam** for a reason that is acceptable to the university, please contact your faculty office promptly in accordance with the University Regulations and Information for Students in the University Calendar. The office will decide whether to award a deferred final exam. The deferred final exam will be held on **Wednesday 12 Jan 2022 at 3:30pm** unless an alternative arrangement is agreed.

## **Disagreements with Assessments**

Your grades will stand as posted online unless any mistakes are drawn to my attention in a timely manner. Grades will normally be available within one business week of exams. Once a final grade is assigned, it will not be changed except in the case of a recording error. If you feel that any midterm or final grade is incorrect, please notify me by email within one week from the posting of the grades online (or as soon as practical in cases of extenuating circumstances). Please note that any query about an exam mark will normally result in the entire exam being remarked which may lead to your mark going up or down. I may send your paper for remarking by a different marker, or I may invite you to witness me remarking the paper if your perception of your mark is substantially different from mine.

## **Office Hours and Email**

My virtual office hours will initially be Thursdays 11:00 to 12:00 and will initially be shared with my three courses. Any changes and additional times will be posted on eClass. The URLs for classes and office hours will be on eClass. I am often also available after each class and otherwise by appointment.

My email addresses are [keith1@ualberta.ca](mailto:keith1@ualberta.ca) for course matters and [admin@gradechaser.com](mailto:admin@gradechaser.com) for any issues with the online practice. I normally respond to emails within two business days or usually faster. In the subject line please include the course, and please include your name in the email.

Please use your university email address. Emails sent to any ualberta address from non-university accounts risk being rejected by the university's spam filter and might never be received or read.

## **Learning Goals**

Upon completion, students should be able to demonstrate knowledge of working with interest rates and their conventions, inferring the term structure of interest rates and extracting information therefrom, analyzing the risk characteristics of fixed income securities including those with embedded options, describing the features of interest rate derivatives, and designing portfolios for various market outlooks.

## **University of Alberta Rules**

Policy about course outlines can be found in Course Requirements, Evaluation Procedures and Grading of the University Calendar.

The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at [www.governance.ualberta.ca](http://www.governance.ualberta.ca)) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

Audio or video recording, digital or otherwise, of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as a part of an approved accommodation plan. Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the content author(s).