

**Seattle University**

**FINC 5330: Fixed Income Analysis  
Spring Quarter 2019**

**Lecture Time:** Tuesday: 6:00pm-8:40pm  
**Lecture Room:** Pigott 109  
**Course Webpage:** See Canvas

**Instructor:** Shengyu Zhang, Ph.D., CFA, FRM  
**Phone:** 206-200-7344 (cell)  
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**Office Hours:** Tuesday 5:15pm-6:00pm  
**Office Room:** Pigott 516

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**Course Description:**

This course is designed to provide the students with an understanding of modeling, valuation and risk management in fixed income markets. It presents the conceptual frameworks for fixed income analytics with real world practical application. Upon successful completion, students will have a basic understanding of fixed income markets, data and analytics, and be able to apply this knowledge to fixed income security valuation and pricing, risk measurement and management.

A basic understanding of undergraduate calculus, probability and statistics are required. The prerequisite to this class is FINC 5100 "Investments" and Finc 5105 "Valuation of derivatives". The course involves a mix of lectures, homework and computer exercises. No specific computing language is required, but student must know how to use Excel.

Topics covered will include:

- Basics of fixed income analysis  
Cash flows, time value and discount factors, bond price, zero coupon rate, par coupon rate, forward rate
- Fixed income securities  
Pure discount bonds, coupon bond, callable bonds, Treasury bonds, Mortgage backed securities
- Interest rate derivatives  
Forward contract, future contract, interest rate swap, swaption, cap and floor
- Risk measurement tools of fixed income securities  
Duration, convexity, key rate duration, yield curve shock, scenario analysis, hedging

**Course schedule (tentative):**

- Lecture 1: Cash flow, discount factor and yield curve – 04/02/2019
- Lecture 2: Discount bonds, coupon bonds and floating rate bonds – 04/09/2019

- Lecture 3: Callable bonds and tree model – 04-16/2019
- Lecture 4: Returns, spread and yield – 04/23/2019
- Lecture 5: Mortgage Backed Securities and midterm exam – 04/30/2019
- Lecture 6: Forwards, futures and swaps – 05/07/2019
- Lecture 7: Swaption, caps and floors – 05/14/2019
- Lecture 8: Duration and convexity – 05/21/2019
- Lecture 9: Key rate duration, yield curve shock and scenario analysis – 05/28/2019
- Lecture 10: Hedging of fixed income portfolio - 06/04/2019
- Final exam - 06/11/2019, 6:00pm-7:50pm

**Textbooks (required):**

The following textbooks are required.

1. Tuckman, B. and Serrat, A., 2011. Fixed income securities: tools for today's markets. John Wiley & Sons (3rd Edition). ISBN: 978-0-470-89169-8 (hardback) or 978-0-470-90403-9 (paperback)
2. Barbara S. Petitt, Jerald E. Pinto, Wendy L. Pirie, Bob Kopprasch, February 2015, Fixed Income Analysis, 3rd Edition, ISBN: 978-1-119-02976-2

**Grade Evaluation:**

The course grade is given below:

Course Component	Weight	Date
Homework	50%	Posted on Canvas
Midterm	20%	Posted on Canvas
Final Exam	30%	Posted on Canvas

**Exams:**

Both midterm and final exams are in-class open-book and open-notes. Calculator is allowed.

**Homework:**

- The students will form the groups with two students in a group to finish the homework. You are encouraged to discuss the homework with other students. However, please write your own homework solutions and please do not share your homework solutions with other groups.
- Homework due date will be announced at each homework assignment and are typically due by the beginning of the next lecture time. No late homework is accepted.
- Homework should be submitted via the folder accessible through the course site or handed to me by the posted deadline. You should submit a write up of your work, including relevant derivations and descriptions. If there is a computational component in Excel format, you should submit your Excel workbook separately. If you are scanning written work, combine all the scans into a single document and save as a PDF. All turned in work must be written in a legible and well organized manner. Instructor reserves the right not to give any credit for the problems that are not readable.
- Show your work except when the assignment states otherwise.