NYU TANDON SCHOOL OF ENGINEERING
Finance & Risk Engineering

Fixed Income Market Making –Syllabus (Spring 2026)

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Meeting Time: Wednesday 6:00pm – 8:30pm

Office Hours: By appointment

Course Description

This course serves to supplement Introduction to Financial Derivatives with real-world applications of various end users. As we transition from fixed income theory to the marketplace, common trading and hedging practices for asset managers, pensions, insurance companies, and hedge funds will be discussed to better understand the market-making business in an investment bank.

The class will cover a broad range of liquid products such as USTs, UST Futures, SOFR futures, interest rate swaps, basis swaps, swaptions, and listed options with attention paid to market microstructure. Pricing of volatility products will be of focus where students will learn how risk management, relative value, and structural factors influence pricing.

Students will have the opportunity to tackle technical projects such as calibration of ATM volatility, skew, and correlation parameters for the broad array of interest rate option types with data procured from Bloomberg and CME. Examples of real-workplace considerations to be incorporated are how to calibrate event risk premium based on the tenor of the curve or how best to model the Bermudan vol discount and its effects on risk management. Interactive in-class exercises will help develop a range of qualitative and quantitative skills valued by the sell-side. For the final project, students will calibrate with a snapshot of current market data and present a relative-value inspired trade idea.

Course Structure

This course will be delivered through a series of in-person lectures and interactive exercises. Class discussion is highly encouraged. Quizzes encourage monitoring of current financial market events and attention to class material. Textbooks listed provide background on Fixed Income products and their applications. Selected readings provide further context and should be familiarized ahead of each class on the topic.

Course Outline

Class 1 – Fixed Income Market Overview

- Interest Rate Theory
- Arbitrage and Relative Value
- Current State of Markets discussion
- Class Trading Exercise

Class 2 – End Users, their Business Model and Common Trading Practices

- Asset Managers
- Banks
- Insurance Companies
- Pension Funds
- Corporations
- Hedge Funds
- Career Profiles Discussion

Class 3 – Product Overview – Linear and Basis Products

- US Treasury Bonds
- US Treasury Futures
- SOFR Interest Rate Swaps
- SOFR futures
- Basis Swaps
- Cross-currency swaps

Class 4 – Product Overview – Volatility / Structured Products

- Listed Rate Future and Bond Future Options
- Swaptions
- Options of Forward Starting Swaps
- Curve Options
- Bermudan Options
- Structured Notes
- Path dependent options

Class 5 – Modeling

- OAS Models, Yield Curve Parameters: Convexity Correction, Jumps, Turns
- Volatility Surface – ATM and Skew
- Correlation parameters for Midcurves and Curve options
- Bermudan Callables and Structural Discount
- Event Weight Model for Short-Dated Options

Class 6 – Market Making

- Organizational structure – traders, sales, structuring, operations, compliance, risk, valuations
- Day in the Life
- Portfolio Risk Management, Inquiry Processing, Client Development
- Example Risk Reports and Limit Structure
- Example Market-Making Positions
- Evolving Market Structure Discussion

Class 7 – Summary and Presentations

- Case Studies – GFC, Taper Tantrum, QE, COVID, SVB, Current
- Rules of Thumb / Best Practices
- Final Presentations

Grading:

The grade for this course will be determined by the following formula:

Assignment / Activity	% of Final Grade
Class Participation	30%
Quizzes	15%
Homework Assignments	30%
Final Project	25%

Final Grade	Course Score
A	93.33%
A-	90.00%
B	83.33%
B-	80.00%
C+	76.67%
C	70.00%
F	0.00%

Assigned Textbooks:

- Huggins, Doug M., and Christian Schaller. Fixed Income Relative Value Analysis: A Practitioner's Guide to the Theory, Tools, and Trades, 2nd Edition. Wiley, 2024.
    - Chapter 1 Relative Value
    - Chapters 5-9 Yield Curves and Government Bond Markets
    - Chapter 17-18 Global Bond RV, SOFR ASWs, Swap Spreads
    - Chapter 19 Options

- Fabozzi, Frank J., and Francesco A. Fabozzi. Bond Markets, Analysis, and Strategies. 10th ed., MIT Press, 2021.
    - Chapter 2-5 Bond Basics
    - Chapter 17 Active Bond Portfolio Management Strategies
    - Chapter 19 Liability Funding Strategies
    - Chap 21-23, 14 Interest Rate Futures, Swaps, Options, Bonds with Embedded Options

Assigned Selected Readings by Topic:

- **Interest Rate Theory**

  Campbell, John Y., and Robert J. Shiller. “Yield Spreads and Interest Rate Movements: A Bird’s Eye View.” The Review of Economic Studies, vol. 58, no. 3, 1991, pp. 495–514. JSTOR, https://doi.org/10.2307/2298008.

  Mizrach, Brice and Christopher Neely. "The Microstructure of the U.S. Treasury Market." Federal Reserve Bank of St. Louis Working Paper Series, 2008.

- **Trading**

  Francis H. Trainer, Jr. “The Uses of Treasury Bond Futures in Fixed-Income Portfolio Management.” Financial Analysts Journal, vol. 39, no. 1, 1983, pp. 27–34. JSTOR, http://www.jstor.org/stable/4478612.

  Gürkaynak, Refet S., et al. “The Sensitivity of Long-Term Interest Rates to Economic News: Evidence and Implications for Macroeconomic Models.” The American Economic Review, vol. 95, no. 1, 2005, pp. 425–36. JSTOR, http://www.jstor.org/stable/4132689.

  Cochrane, John H., and Monika Piazzesi. “Bond Risk Premia.” The American Economic Review, vol. 95, no. 1, 2005, pp. 138–60. JSTOR, http://www.jstor.org/stable/4132674.

  Fleckenstein, Matthias, et al. “The TIPS-Treasury Bond Puzzle.” The Journal of Finance, vol. 69, no. 5, 2014, pp. 2151–97. JSTOR, http://www.jstor.org/stable/43612954.

  Longstaff, Francis A. “The Flight-to-Liquidity Premium in U.S. Treasury Bond Prices.” The Journal of Business, vol. 77, no. 3, 2004, pp. 511–26. JSTOR, https://doi.org/10.1086/386528.

- **Arbitrage / Risk Premium**

  Scholes, Myron, and Lasse Heje Pedersen. “Fixed-Income Arbitrage.” Efficiently Inefficient: How Smart Money Invests and Market Prices Are Determined, Princeton University Press, 2015, pp. 241–68. JSTOR, https://doi.org/10.2307/j.ctt1287knh.21.

  Shleifer, Andrei, and Robert W. Vishny. “The Limits of Arbitrage.” The Journal of Finance, vol. 52, no. 1, 1997, pp. 35–55. JSTOR, https://doi.org/10.2307/2329555.

- Asset Management

Adler, Michael. “Global Fixed-Income Portfolio Management.” Financial Analysts Journal, vol. 39, no. 5, 1983, pp. 41–48. JSTOR, http://www.jstor.org/stable/4478680.

Carol J. Billingham. “Strategies for Enhancing Bond Portfolio Returns.” Financial Analysts Journal, vol. 39, no. 3, 1983, pp. 50–56. JSTOR, http://www.jstor.org/stable/4478646.

- Pension Funds

Leibowitz, Martin L. “The Dedicated Bond Portfolio in Pension Funds: Part I: Motivations and Basics.” Financial Analysts Journal, vol. 42, no. 1, 1986, pp. 68–75. JSTOR, http://www.jstor.org/stable/4478903.

Leibowitz, Martin L. “The Dedicated Bond Portfolio in Pension Funds: Part II: Immunization, Horizon Matching and Contingent Procedures.” Financial Analysts Journal, vol. 42, no. 2, 1986, pp. 47–57. JSTOR, http://www.jstor.org/stable/4478917.

- **Hedge Funds**

Half Century of Macro Momentum by Jordan Brooks and AQR

James L. Farrell Jr. “Systematic Portfolio Management: Evolution, Current Practice and Future Direction.” Financial Analysts Journal, vol. 49, no. 5, 1993, pp. 12–16. JSTOR, http://www.jstor.org/stable/4479677.

Lo, Andrew W. “Risk Management for Hedge Funds: Introduction and Overview.” Financial Analysts Journal, vol. 57, no. 6, 2001, pp. 16–33. JSTOR, http://www.jstor.org/stable/4480353.

- **Volatility and Market Making**

Duffie, Darrell. “Over-the-Counter Markets.” Dark Markets: Asset Pricing and Information Transmission in Over-the-Counter Markets, Princeton University Press, 2012, pp. 1–12. JSTOR, http://www.jstor.org/stable/j.ctt7rxtm.6.

Longstaff, Francis A., et al. “The Relative Valuation of Caps and Swaptions: Theory and Empirical Evidence.” The Journal of Finance, vol. 56, no. 6, 2001, pp. 2067–109. JSTOR, http://www.jstor.org/stable/2697817.

Trolle, Anders B., and Eduardo S. Schwartz. “The Swaption Cube.” The Review of Financial Studies, vol. 27, no. 8, 2014, pp. 2307–53. JSTOR, http://www.jstor.org/stable/24465659.

- **Market Structure**

ETFs Help Improve Market Stability: A Closer Look at Fixed Income ETF Behavior During Recent Bond Market Movement, Blackrock, https://www.blackrock.com/corporate/literature/whitepaper/etfs-help-improve-market-stability-october-2014.pdf

Tarullo, Daniel K. “Financial Regulation: Still Unsettled a Decade After the Crisis.” The Journal of Economic Perspectives, vol. 33, no. 1, 2019, pp. 61–80. JSTOR, https://www.jstor.org/stable/26566977.

- **Risk / Liquidity Management**

Gastineau, Gary L. “The Essentials of Financial Risk Management.” Financial Analysts Journal, vol. 49, no. 5, 1993, pp. 17–21. JSTOR, http://www.jstor.org/stable/4479678.

Hartlage, Andrew W. “The Basel III Liquidity Coverage Ratio and Financial Stability.” Michigan Law Review, vol. 111, no. 3, 2012, pp. 453–83. JSTOR, http://www.jstor.org/stable/41703448.

Holmström, Bengt, and Jean Tirole. “Liquidity and Risk Management.” Journal of Money, Credit and Banking, vol. 32, no. 3, 2000, pp. 295–319. JSTOR, https://doi.org/10.2307/2601167.

- **Sample Investor Letters**

BLK Fall 2025 Outlook, https://www.blackrock.com/us/financial-professionals/insights/investment-directions-fall-2025

Capital Group Q3 2025 Fixed Income Perspectives

Crescat Capital Oct 2023 Newsletter

Oaktree Capital Investor Letter from Howard Marks - Calculus of Value Aug 2025

Resources:

- Access your course materials: NYU Classes (nyu.edu/its/classes)
- Databases, journal articles, and more: Bern Dibner Library (library.nyu.edu) NYU Virtual Business Library (guides.nyu.edu/vbl)
- Obtain 24/7 technology assistance: Tandon IT Help Desk (soehelpdesk@nyu.edu, 646.997.3123) NYU IT Service Desk (AskIT@nyu.edu, 212-998-3333)

Policies:

Academic Misconduct

A. Introduction: The School of Engineering encourages academic excellence in an environment that promotes honesty, integrity, and fairness, and students at the School of Engineering are expected to exhibit those qualities in their academic work. It is through the process of submitting their own work and receiving honest feedback on that work that students may progress academically. Any act of academic dishonesty is seen as an attack upon the School and will not be tolerated. Furthermore, those who breach the School's rules on academic integrity will be sanctioned under this Policy. Students are responsible for familiarizing themselves with the School's Policy on Academic Misconduct.

B. Definition: Academic dishonesty may include misrepresentation, deception, dishonesty, or any act of falsification committed by a student to influence a grade or other academic evaluation. Academic dishonesty also includes intentionally damaging the academic work of others or assisting other students in acts of dishonesty. Common examples of academically dishonest behavior include, but are not limited to, the following:
    1. Cheating: intentionally using or attempting to use unauthorized notes, books, electronic media, or electronic communications in an exam; talking with fellow students or looking at another person's work during an exam; submitting work prepared in advance for an in-class examination; having someone take an exam for you or taking an exam for someone else; violating other rules governing the administration of examinations.
    2. Fabrication: including but not limited to, falsifying experimental data and/or citations.
    3. Plagiarism: Intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise; failure to attribute direct quotations, paraphrases, or borrowed facts or information.
    4. Unauthorized collaboration: working together on work that was meant to be done individually.
    5. Duplicating work: presenting for grading the same work for more than one project or in more than one class, unless express and prior permission have been received from the course instructor(s) or research adviser involved.
    6. Forgery: altering any academic document, including, but not limited to, academic records, admissions materials, or medical excuses.

Disability Disclosure Statement

Academic accommodations are available for students with disabilities. Please contact the Moses Center for Students with Disabilities (212-998-4980 or mosescsd@nyu.edu) for further information. Students who are requesting academic accommodations are advised to reach out to the Moses Center as early as possible in the semester for assistance.

Inclusion Statement

The NYU Tandon School values an inclusive and equitable environment for all our students. I hope to foster a sense of community in this class and consider it a place where individuals of all backgrounds, beliefs, ethnicities, national origins,

gender identities, sexual orientations, religious and political affiliations, and abilities will be treated with respect. It is my intent that all students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. If this standard is not being upheld, please feel free to speak with me.

Using Generative AIInclusion Statement

Please refer to the Adapting Assignments to Generative AI page to craft a statement that is either Integrating, Avoiding, or Forbidding.