

PADM-GP-2148

**Introduction to Structured Finance- Strategies for Municipal, Health, and Corporate Finance
Spring 2017**

Thursday 6:45 to 8:25 (January 26, 2017 – May 4, 2017)

Global Center for Academic & Spiritual Life (GCASL) Room 379

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Office hours: Puck, Room 3047, Thursday 4:00pm-6:00pm and by appointment.

Course Description: We will study the process by which financing objectives are transformed into municipal bond transactions and other opportunities to utilize structured finance products in the health and corporate finance sectors. The course will center on case studies of actual bond transactions that financed multiple new money (construction) and refunding projects. We will learn the mathematics underlying financial structure and the governing conventions and vocabulary of structured finance. We will study the instruments of structured finance and how they manifest into structural form. Once we have developed this core understanding, we will review in detail the Official Statements related to the case studies to begin our exploration of the structuring process.

All cash flow elements of the structuring process will be discussed in detail and formulated in EXCEL. Once a sufficient understanding of the purpose and protocols associated with the structuring process is developed, we will explore the bond structuring process using DBC Finance, the industry standard bond structuring software.

Course Objective: To develop structured finance proficiency within and without DBC Finance which is a capability that is highly desired by both public and private sector municipal market participants.

Course Website: The course website resides on the NYC Classes system and is accessible via the “Academics” tab on NYU Home.

Course Materials: I have assigned chapters from the following works.

Securities Industry and Financial Markets Association (SIFMA), *Fundamentals of Municipal Bonds*, 6th Ed., Wiley, 2012.

Edward R Tufte, *The Visual Display of Quantitative Information*, Graphics Press, Cheshire, Connecticut

Frank J. Fabozzi, *Introduction to Fixed Income Analytics: Relative Value Analysis, Risk Measures and Valuation*, John Wiley & Sons. Inc.

Additional readings will be assigned on a weekly basis and made available on the course website. Such readings will include Official Statements for select structured transactions, rating agency structured finance criteria, DBC Finance tutorials and support manuals, and *The Art of Structured Finance* (Wadler).

Calculator: HP 12C

Assignments and grading: Two homework assignments: 30%
Term Project: 40%
Take home final: 30%

For the Term Project you will select a specific transaction type and fully formulate and model transactional cash flows and sizing elements in EXCEL. You will be responsible for the design and organization of all cash flow and sizing schedules and presentation materials. You will also be required to create the sample transaction in DBC Finance.

Academic Integrity: Academic dishonesty is unacceptable and will not be tolerated. Cheating, forgery, plagiarism and collusion in dishonest acts undermine Wagner's educational mission and your own personal and intellectual growth. If you study together, which is often useful, please be careful to create your own spreadsheets and write your own answers to assignments. You are expected to bear individual responsibility for your work and to uphold the ideal of academic integrity. Any student who attempts to compromise or devalue the academic process will be reported to appropriate authorities and subject to disciplinary action.

Attendance: I will not be keeping track of attendance but strongly encourage you to attend all classes in order that you can achieve a full and proper understanding of the course material.

Class 1 – January 26: Introduction

Syllabus Review
Overview of Course Objectives
Discussion on the Nature of Finance (Finance as Convention)
Discussion of Financing Objectives: New Money
Refunding/Refinancing
Defining Structured Finance

Readings: *Fundamentals, Chapter 2, The Basics of Municipal Securities*
Tufte, Part 1, Graphical Practice, Chapter 1. Graphical Excellence
Fabozzi, Chapter 1, Time Value of Money

Class 2 – February 2: The Mathematics of Cash Flow

Discussion of readings

Discussion of importance of fundamental understanding

Modeling in EXCEL: Debt service
Accrual periods
Day-Count protocols
Compounding
Present and Future Value

Readings: *Fundamentals, Overview of the Municipal Bond Market, Introduction Fundamentals, The Rating Agencies*
Tufte, Part 1, Graphical Practice, Chapter 2. Graphical Integrity
Fabozzi, Chapter 3, Day Count Conventions and Accrued Interest

Class 3 – February 9: The Instruments of Structured Finance

Discussion of readings

Define: Fixed Rate Bonds
Variable Rate Bonds
Current Interest Bonds
Serial Bonds
Term Bonds
Capital Appreciation Bonds
Hybrids
Derivatives

Discussion of Yield

Bond Pricing Modeling in EXCEL - Premium Bonds
Discount Bonds

Readings: *Tufte, Part 1, Graphical Practice, Chapter 3, Sources of Graphical Integrity and Sophistication*
Fundamentals, The Issuers
Fabozzi, Chapter 5, Yield Measures

Class 4 – February 16: Introduction to Financial Structure

Discussion of readings

Define: Dated date
Delivery date
First interest payment date
First principal payment date
Final principal payment date

Introduction to Case Study

Review of Case Study Official Statement

Readings: *Tufte, Part II, Theory of Data Graphics, Chapter 4, Data Ink and Graphical Redesign*
Fundamentals, Understanding Interest Rates

Class 5 – February 23: Introduction to New Money Bond Structure

Discussion of readings

Discussion and examples of Sizing Elements: Project Fund
 Capitalized Interest Fund
 Debt Service Reserve Fund
 Cost of Issuance Fund
 Rebate Fund

Readings: *Tufte, Part II, Theory of Data Graphics, Chapter 5, Chart Junk: Vibrations, Grids and Ducks*
 Fundamentals, The Primary Market
 Case Study Official Statement – Sources and Uses Sections
 Fabozzi, Chapter 2, Yield Curve Analysis

Class 6 – March 2: New Money Cash Flow Modeling

Discussion of readings

Sources and Uses Table
Define Net Funding and Gross Funding
Modeling New Money Cash Flow Elements in EXCEL
 Net Funding of Project Fund
 Net Funding of Capitalized Interest Fund
 Gross Funding of Debt Service Reserve Fund
 Constructing Sources and Uses Table

Readings: *Tufte, Part II, Theory of Data Graphics, Chapter 6, Data-Ink Maximization and Graphical Design*
 Case Study Official Statement – Funding Flows sections
 Fabozzi, Chapter 4, Valuation of Option-Free Bonds

Class 7 – March 9: Introduction to Refunding Modeling

Discussion of readings

Define: Current Refunding
 Advance Refunding

Issuer
Financial Advisor

Readings: *Fundamentals, The Secondary Market*
Fabozzi, Chapter 8,,Cash Flow for Mortgage-Backed Securities and Amortizing Asset-Backed Securities

Class 13 – April 27: Other Structured Finance Applications

Discussion of readings

General discussion of securitizations

Examples: Mortgage Backed Securities
Collateralized Debt Obligations
Certificates of Participation
Lease Backed Revenue Bonds

Readings: *Sample Collateralized Debt Obligation Offering Statement*
Fundamentals, Regulatory and Disclosure Requirements
Fabozzi, Chapter 9, Valuation of Mortgage-Backed and Asset-Backed Securities

Class 14 –May 4: Review and Final Thoughts

Discussion of readings

Review of Course Goals

Reflections on the nature of finance and its impact on global prosperity

Structured finance as a conscious process

Final Thoughts