



COURSE INFO
FIXED INCOME
PROFESSIONAL CERTIFICATE*
(5 Days)



Visit www.nyif.com for more information.

This Professional Certificate comprises the following courses:

- Fixed Income Mathematics: Pricing and Valuation of Bonds (Days 1 and 2)
- Fixed Income Instruments and Markets (Days 3 and 4)
- Yield Curve Analysis (Day 5)

Prerequisite knowledge:

- Intermediate MS Excel skills
- Elementary differential calculus
- Basic probability and statistics
- Basic familiarity with fixed income instrument

DAY 1	MODULE 1: Essential Mathematics <ul style="list-style-type: none"> • Geometric series • Derivatives • Taylor series • Logarithmic and exponential functions • (Easy) integrals 	MODULE 2: Basic Instruments <ul style="list-style-type: none"> • Zero coupon bonds • Annuities • Perpetuities • Coupon Bonds: Bullets and amortizers • Par coupon rates • Floating rate bonds
	MODULE 3: Measures of Yield and Return <ul style="list-style-type: none"> • Discount rates • Yields • Interest rates • Rates of return: Expected, contractual and realized • Yield-to-maturity: What it does and does not mean 	
DAY 2	MODULE 1: Term Structures of Rates and Yields <ul style="list-style-type: none"> • Forward rates • Bootstrapping zeros • Desirable properties of term structures • Interpolation techniques • Splines • Yield curve fitting 	MODULE 2: Measures of Risk <ul style="list-style-type: none"> • Taylor series and 'sensitivity' measures • Macaulay duration • Yield duration: Macaulay and modified • Dollar duration • Key rate duration • Macaulay convexity • Yield convexity
	MODULE 3: Elements of Fixed Income Portfolio Risk Management <ul style="list-style-type: none"> • Duration of a portfolio • Convexity of a portfolio • Immunization • Computing Value at Risk for fixed income portfolios 	MODULE 4: Corporate Bonds <ul style="list-style-type: none"> • Credit risk • Inferring (risk-neutral) default probabilities from bond prices
DAY 3	MODULE 1: Structure of Fixed Income Markets <ul style="list-style-type: none"> • Primary markets • Treasury auctions • Interdealer brokers • Secondary markets • Electronic trading platforms 	MODULE 2: US Government Bonds <ul style="list-style-type: none"> • Treasury bills • Treasury notes and bonds • Yield conventions • Risk parameters • Accrued Interest: Clean and invoice (dirty) prices • Bloomberg YAS screens for bills, notes and bonds • TIPS: Treasury inflation-protected securities
		(continued)



DAY 3	MODULE 3: Sovereign Debt Instruments and Markets	MODULE 4: Repurchase Agreements
(continued)	<ul style="list-style-type: none"> • Canada • United Kingdom • Europe • Japan 	<ul style="list-style-type: none"> • Structure of Repo and Reverse Repo contracts • Haircuts • Repo arithmetic • General and special collateral • Repo fails
DAY 4	MODULE 1: Interest Rate Derivatives: Forwards and Swaps	MODULE 2: Interest Rate Derivatives: Futures and Options
	<ul style="list-style-type: none"> • Forward rate agreements • Forward contracts on bonds • Structure of a swap contract • Swap rates and curves • Swap spreads • Overnight index swaps • Libor-OIS spreads • Forward swaps 	<ul style="list-style-type: none"> • Treasury futures • Eurodollar futures • Deriving swap rates from ED futures • Options on ED futures • Swaptions • Interest rate caps and floors
	MODULE 3: Corporate Bonds and Credit Derivatives	MODULE 4: Mortgages and Mortgage-Backed Securities
	<ul style="list-style-type: none"> • Yields and credit spreads • Risky floating rate notes • Asset Swaps • Credit default swaps 	<ul style="list-style-type: none"> • Types of mortgages • Prepayments and negative convexity • Federal agency debt securities • The TBA market • Securitization • Agency MBS
DAY 5	MODULE 1: Introduction and Overview	MODULE 2: A Taxonomy of Curves
	<ul style="list-style-type: none"> • Yield Curve Fundamentals • Financial and Economic Implications • Interpreting the Shape of the Curve, Supply, and the Business Cycle • Risk Free Curves 	<ul style="list-style-type: none"> • Spot rate curves • Swap curves • Corporate curves • Mortgage curves
	MODULE 3: Yield Curve Fitting	MODULE 4: Yield Curve Modeling
	<ul style="list-style-type: none"> • Fitting a curve to the bond market • Plotting bond yields against the fitted curve • Yield spreads to the fitted curve 	<ul style="list-style-type: none"> • Interpretation and forecasting yield curve movements • Fiscal and monetary policy • Parallel yield curve shifts • Non-parallel curve shifts (steepening/flattening/barbell) • Econometric forecasting models • Understanding and interpreting yield curves
	MODULE 5: Trading the Curve and Portfolio Applications	MODULE 6: Desk Ready Skills Knowledge Check
	<ul style="list-style-type: none"> • Yield curve strategies • Total return analysis for yield curve shifts 	

* Part of Chartered Financial Risk Engineer™ program.

