

EQUITY AND FIXED INCOME



CFA[®] Program Curriculum
2017 • LEVEL I • VOLUME 5



CFA Institute

CONTENTS

How to Use the CFA Program Curriculum

This copyright covers material written expressly for this volume by the editors as well as the curriculum itself. It does not cover the individual selections herein that first appeared elsewhere. Permission to reprint these has been obtained by CFA Institute for this edition only. Further reproductions by any means, electronic or mechanical, including photocopying and recording, or by any information storage or retrieval systems, must be arranged with the individual copyright holders noted.

CFA, Chartered Financial Analyst, AIMR-PPS, and GIPS are just a few of the trademarks owned by CFA Institute. To view a list of CFA Institute trademarks and the

EQUITY AND FIXED INCOME

CFA® Program Curriculum
2017 • LEVEL I • VOLUME 5



MIX

Paper from
responsible sources



CFA Institute

WILEY

CFA PROGRAM CURRICULUM OUTLINE

2017 • LEVEL I

Photography courtesy of Hector Emanuel.

© 2016, 2015, 2014, 2013, 2012, 2011, 2010, 2009, 2008, 2007, 2006 by CFA Institute.
All rights reserved.

Functional Area

Ethical and Professional Standards

This copyright covers material written expressly for this volume by the editor/s as well as the compilation itself. It does not cover the individual selections herein that first appeared elsewhere. Permission to reprint these has been obtained by CFA Institute for this edition only. Further reproductions by any means, electronic or mechanical, including photocopying and recording, or by any information storage or retrieval systems, must be arranged with the individual copyright holders noted.

CFA®, Chartered Financial Analyst®, AIMR-PPS®, and GIPS® are just a few of the trademarks owned by CFA Institute. To view a list of CFA Institute trademarks and the Guide for Use of CFA Institute Marks, please visit our website at www.cfainstitute.org.

This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. It is sold with the understanding that the publisher is not engaged in rendering legal, accounting, or other professional service. If legal advice or other expert assistance is required, the services of a competent professional should be sought.

All trademarks, service marks, registered trademarks, and registered service marks are the property of their respective owners and are used herein for identification purposes only.

ISBN 978-1-942471-71-4 (paper)

ISBN 978-1-942471-92-9 (ebk)

10 9 8 7 6 5 4 3 2 1

Please visit our website at
www.WileyGlobalFinance.com.

WILEY



MIX

Paper from
responsible sources

FSC® C101537



How to Use the CFA Program Curriculum

Congratulations on your decision to enter the Chartered Financial Analyst (CFA®) Program. This exciting and rewarding program of study reflects your desire to become a serious investment professional. You are embarking on a program noted for its high ethical standards and the breadth of knowledge, skills, and abilities it develops. Your commitment to the CFA Program should be educationally and professionally rewarding.

The credential you seek is respected around the world as a mark of accomplishment and dedication. Each level of the program represents a distinct achievement in professional development. Successful completion of the program is rewarded with membership in a prestigious global community of investment professionals. CFA charterholders are dedicated to life-long learning and maintaining currency with the ever-changing dynamics of a challenging profession. The CFA Program represents the first step toward a career-long commitment to professional education.

The CFA examination measures your mastery of the core skills required to succeed as an investment professional. These core skills are the basis for the Candidate Body of Knowledge (CBOK™). The CBOK consists of four components:

- A broad outline that lists the major topic areas covered in the CFA Program (www.cfainstitute.org/cbok);
- Topic area weights that indicate the relative exam weightings of the top-level topic areas (www.cfainstitute.org/level_I);
- Learning outcome statements (LOS) that advise candidates about the specific knowledge, skills, and abilities they should acquire from readings covering a topic area (LOS are provided in candidate study sessions and at the beginning of each reading); and
- The CFA Program curriculum, which contains the readings and end-of-reading questions, that candidates receive upon exam registration.

Therefore, the key to your success on the CFA examinations is studying and understanding the CBOK. The following sections provide background on the CBOK, the organization of the curriculum, and tips for developing an effective study program.

CURRICULUM DEVELOPMENT PROCESS

The CFA Program is grounded in the practice of the investment profession. Beginning with the Global Body of Investment Knowledge (GBIK), CFA Institute performs a continuous practice analysis with investment professionals around the world to determine the knowledge, skills, and abilities (competencies) that are relevant to the profession. Regional expert panels and targeted surveys are conducted annually to verify and reinforce the continuous feedback from the GBIK collaborative website. The practice analysis process ultimately defines the CBOK. The CBOK reflects the competencies that are generally accepted and applied by investment professionals. These competencies are used in practice in a generalist context and are expected to be demonstrated by a recently qualified CFA charterholder.

The Education Advisory Committee, consisting of practicing charterholders, in conjunction with CFA Institute staff, designs the CFA Program curriculum in order to deliver the CBOK to candidates. The examinations, also written by charterholders, are designed to allow you to demonstrate your mastery of the CBOK as set forth in the CFA Program curriculum. As you structure your personal study program, you should emphasize mastery of the CBOK and the practical application of that knowledge. For more information on the practice analysis, CBOK, and development of the CFA Program curriculum, please visit www.cfainstitute.org.

ORGANIZATION OF THE CURRICULUM

The Level I CFA Program curriculum is organized into 10 topic areas. Each topic area begins with a brief statement of the material and the depth of knowledge expected.

Each topic area is then divided into one or more study sessions. These study sessions—18 sessions in the Level I curriculum—should form the basic structure of your reading and preparation.

Each study session includes a statement of its structure and objective and is further divided into specific reading assignments. An outline illustrating the organization of these 18 study sessions can be found at the front of each volume of the curriculum.

The readings and end-of-reading questions are the basis for all examination questions and are selected or developed specifically to teach the knowledge, skills, and abilities reflected in the CBOK. These readings are drawn from content commissioned by CFA Institute, textbook chapters, professional journal articles, research analyst reports, and cases. All readings include problems and solutions to help you understand and master the topic areas.

Reading-specific Learning Outcome Statements (LOS) are listed at the beginning of each reading. These LOS indicate what you should be able to accomplish after studying the reading. The LOS, the reading, and the end-of-reading questions are dependent on each other, with the reading and questions providing context for understanding the scope of the LOS.

You should use the LOS to guide and focus your study because each examination question is based on the assigned readings and one or more LOS. The readings provide context for the LOS and enable you to apply a principle or concept in a variety of scenarios. The candidate is responsible for the entirety of the required material in a study session, which includes the assigned readings as well as the end-of-reading questions and problems.

We encourage you to review the information about the LOS on our website (www.cfainstitute.org/programs/cfaprogram/courseofstudy/Pages/study_sessions.aspx), including the descriptions of LOS “command words” (www.cfainstitute.org/programs/Documents/cfa_and_cipmLos_command_words.pdf).

FEATURES OF THE CURRICULUM

Required vs. Optional Segments You should read all of an assigned reading. In some cases, though, we have reprinted an entire chapter or article and marked certain parts of the reading as “optional.” The CFA examination is based only on the required segments, and the optional segments are included only when it is determined that they might help you to better understand the required segments (by seeing the required material in its full context). When an optional segment begins, you will see an icon and a dashed

vertical bar in the outside margin that will continue until the optional segment ends, accompanied by another icon. *Unless the material is specifically marked as optional, you should assume it is required.* You should rely on the required segments and the reading-specific LOS in preparing for the examination.

**END OPTIONAL
SEGMENT**

End-of-Reading Problems/Solutions All problems in the readings as well as their solutions (which are provided directly following the problems) are part of the curriculum and are required material for the exam. When appropriate, we have included problems within and after the readings to demonstrate practical application and reinforce your understanding of the concepts presented. The problems are designed to help you learn these concepts and may serve as a basis for exam questions. Many of these questions are adapted from past CFA examinations.

Glossary and Index For your convenience, we have printed a comprehensive glossary in each volume. Throughout the curriculum, a **bolded** word in a reading denotes a term defined in the glossary. The curriculum eBook is searchable, but we also publish an index that can be found on the CFA Institute website with the Level I study sessions.

Source Material The authorship, publisher, and copyright owners are given for each reading for your reference. We recommend that you use the CFA Institute curriculum rather than the original source materials because the curriculum may include only selected pages from outside readings, updated sections within the readings, and problems and solutions tailored to the CFA Program. Note that some readings may contain a web address or URL. The referenced sites were live at the time the reading was written but may have been deactivated since then.

LOS Self-Check We have inserted checkboxes next to each LOS that you can use to track your progress in mastering the concepts in each reading.

DESIGNING YOUR PERSONAL STUDY PROGRAM

Create a Schedule An orderly, systematic approach to exam preparation is critical. You should dedicate a consistent block of time every week to reading and studying. Complete all reading assignments and the associated problems and solutions in each study session. Review the LOS both before and after you study each reading to ensure that you have mastered the applicable content and can demonstrate the knowledge, skill, or ability described by the LOS and the assigned reading. Use the LOS self-check to track your progress and highlight areas of weakness for later review.

As you prepare for your exam, we will e-mail you important exam updates, testing policies, and study tips. Be sure to read these carefully. Curriculum errata are periodically updated and posted on the study session page at www.cfainstitute.org.

Successful candidates report an average of more than 300 hours preparing for each exam. Your preparation time will vary based on your prior education and experience. For each level of the curriculum, there are 18 study sessions. So, a good plan is to devote 15–20 hours per week for 18 weeks to studying the material. Use the final four to six weeks before the exam to review what you have learned and practice with topic tests and mock exams. This recommendation, however, may underestimate the hours needed for appropriate examination preparation depending on your individual circumstances, relevant experience, and academic background. You will undoubtedly adjust your study time to conform to your own strengths and weaknesses and to your educational and professional background.

You will probably spend more time on some study sessions than on others, but on average you should plan on devoting 15–20 hours per study session. You should allow ample time for both in-depth study of all topic areas and additional concentration on those topic areas for which you feel the least prepared.

An interactive study planner is available in the candidate resources area of our website to help you plan your study time. The interactive study planner recommends completion dates for each topic of the curriculum. Dates are determined based on study time available, exam topic weights, and curriculum weights. As you progress through the curriculum, the interactive study planner dynamically adjusts your study plan when you are running off schedule to help you stay on track for completion prior to the examination.

CFA Institute Topic Tests The CFA Institute topic tests are intended to assess your mastery of individual topic areas as you progress through your studies. After each test, you will receive immediate feedback noting the correct responses and indicating the relevant assigned reading so you can identify areas of weakness for further study. For more information on the topic tests, please visit www.cfainstitute.org.

CFA Institute Mock Exams The three-hour mock exams simulate the morning and afternoon sessions of the actual CFA examination, and are intended to be taken after you complete your study of the full curriculum so you can test your understanding of the curriculum and your readiness for the exam. You will receive feedback at the end of the mock exam, noting the correct responses and indicating the relevant assigned readings so you can assess areas of weakness for further study during your review period. We recommend that you take mock exams during the final stages of your preparation for the actual CFA examination. For more information on the mock examinations, please visit www.cfainstitute.org.

Preparatory Providers After you enroll in the CFA Program, you may receive numerous solicitations for preparatory courses and review materials. When considering a prep course, make sure the provider is in compliance with the CFA Institute Prep Provider Guidelines Program (www.cfainstitute.org/utility/examprep/Pages/index.aspx). Just remember, there are no shortcuts to success on the CFA examinations; reading and studying the CFA curriculum is the key to success on the examination. The CFA examinations reference only the CFA Institute assigned curriculum—no preparatory course or review course materials are consulted or referenced.

SUMMARY

Every question on the CFA examination is based on the content contained in the required readings and on one or more LOS. Frequently, an examination question is based on a specific example highlighted within a reading or on a specific end-of-reading question and/or problem and its solution. To make effective use of the CFA Program curriculum, please remember these key points:

- 1 All pages of the curriculum are required reading for the examination except for occasional sections marked as optional. You may read optional pages as background, but you will not be tested on them.
- 2 All questions, problems, and their solutions—found at the end of readings—are part of the curriculum and are required study material for the examination.
- 3 You should make appropriate use of the topic tests and mock examinations and other resources available at www.cfainstitute.org.

- 4 Use the interactive study planner to create a schedule and commit sufficient study time to cover the 18 study sessions, review the materials, and take topic tests and mock examinations.
- 5 Some of the concepts in the study sessions may be superseded by updated rulings and/or pronouncements issued after a reading was published. Candidates are expected to be familiar with the overall analytical framework contained in the assigned readings. Candidates are not responsible for changes that occur after the material was written.

FEEDBACK

At CFA Institute, we are committed to delivering a comprehensive and rigorous curriculum for the development of competent, ethically grounded investment professionals. We rely on candidate and member feedback as we work to incorporate content, design, and packaging improvements. You can be assured that we will continue to listen to your suggestions. Please send any comments or feedback to info@cfainstitute.org. Ongoing improvements in the curriculum will help you prepare for success on the upcoming examinations and for a lifetime of learning as a serious investment professional.

companies, and equity securities and to equity valuation models.



For the actual GFA, please visit www.chp.gov.
Preparatory Provider
 solutions for pro
 nounced, make sure



CFA PROGRAM CURRICULUM OUTLINE

2017 • LEVEL I

Functional Area	Volume	Topic	Study Session	Readings
Ethical and Professional Standards	1	Ethical and Professional Standards	1	1-5
Investment Tools		Quantitative Methods	2	6-9
			3	10-13
	Economics	4	14-17	
		5	18-20	
	Financial Reporting and Analysis	6	21-23	
		7	24-27	
		8	28-31	
		9	32-33	
	Corporate Finance	10	34-36	
		11	37-39	
Portfolio Management		Portfolio Management	12	40-44
Asset Valuation	5	Equity	13	45-47
			14	48-50
		Fixed Income	15	51-54
			16	55-56
	6	Derivatives	17	57-59
		Alternative Investments	18	60

Digital study tools, including the eBook, study planner, and practice tests, are now available in convenient apps for iOS and Android devices. Scan the QR code to download the free app.



Android
(Google Play Store)



iOS
(iTunes Store)

CONTENTS

How to Use the CFA Program Curriculum

Curriculum Development Process	ix
Organization of the Curriculum	x
Features of the Curriculum	x
Designing Your Personal Study Program	xi
Feedback	xiii

Equity

Study Session 13

Equity: Market Organization, Market Indices, and Market Efficiency

Reading 45

Market Organization and Structure

Introduction	5
The Functions of the Financial System	6
Helping People Achieve Their Purposes in Using the Financial System	7
Determining Rates of Return	12
Capital Allocation Efficiency	13
Assets and Contracts	14
Classifications of Assets and Markets	14
Securities	16
Currencies	19
Contracts	20
Commodities	25
Real Assets	26
Financial Intermediaries	28
Brokers, Exchanges, and Alternative Trading Systems	28
Dealers	30
Securitizers	31
Depository Institutions and Other Financial Corporations	32
Insurance Companies	33
Arbitrageurs	34
Settlement and Custodial Services	36
Summary	38
Positions	38
Short Positions	40
Leveraged Positions	41
Orders	44
Execution Instructions	44
Validity Instructions	48
Clearing Instructions	49
Primary Security Markets	50
Public Offerings	50
Private Placements and Other Primary Market Transactions	52
Importance of Secondary Markets to Primary Markets	53

	Secondary Security Market and Contract Market Structures	53
	Trading Sessions	54
	Execution Mechanisms	54
	Market Information Systems	58
	Well-Functioning Financial Systems	58
	Market Regulation	60
	Summary	63
	Practice Problems	66
	Solutions	73
Reading 46	Security Market Indices	77
	Introduction	77
	Index Definition and Calculations of Value and Returns	78
	Calculation of Single-Period Returns	79
	Calculation of Index Values over Multiple Time Periods	81
	Index Construction and Management	82
	Target Market and Security Selection	82
	Index Weighting	83
	Index Management: Rebalancing and Reconstitution	91
	Uses of Market Indices	93
	Gauges of Market Sentiment	93
	Proxies for Measuring and Modeling Returns, Systematic Risk, and Risk-Adjusted Performance	94
	Proxies for Asset Classes in Asset Allocation Models	94
	Benchmarks for Actively Managed Portfolios	94
	Model Portfolios for Investment Products	94
	Equity Indices	95
	Broad Market Indices	95
	Multi-Market Indices	95
	Sector Indices	97
	Style Indices	97
	Fixed-Income Indices	98
	Construction	98
	Types of Fixed-Income Indices	98
	Indices for Alternative Investments	101
	Commodity Indices	101
	Real Estate Investment Trust Indices	102
	Hedge Fund Indices	103
	Summary	105
	Practice Problems	106
	Solutions	112
Reading 47	Market Efficiency	115
	Introduction	115
	The Concept of Market Efficiency	117
	The Description of Efficient Markets	117
	Market Value versus Intrinsic Value	119
	Factors Contributing to and Impeding a Market's Efficiency	120
	Transaction Costs and Information-Acquisition Costs	123

	Forms of Market Efficiency	124
	Weak Form	125
	Semi-Strong Form	125
	Strong Form	128
	Implications of the Efficient Market Hypothesis	128
	Market Pricing Anomalies	129
	Time-Series Anomalies	130
	Cross-Sectional Anomalies	133
	Other Anomalies	133
	Implications for Investment Strategies	136
	Behavioral Finance	136
	Loss Aversion	137
	Herding	137
	Overconfidence	137
	Information Cascades	138
	Other Behavioral Biases	138
	Behavioral Finance and Investors	139
	Behavioral Finance and Efficient Markets	139
	Summary	139
	Practice Problems	142
	Solutions	145
Study Session 14	Equity Analysis and Valuation	147
Reading 48	Overview of Equity Securities	149
	Introduction	149
	Equity Securities in Global Financial Markets	150
	Types and Characteristics of Equity Securities	155
	Common Shares	156
	Preference Shares	159
	Private versus Public Equity Securities	162
	Investing in Non-Domestic Equity Securities	164
	Direct Investing	165
	Depository Receipts	166
	Risk and Return Characteristics of Equity Securities	169
	Return Characteristics of Equity Securities	169
	Risk of Equity Securities	170
	Equity Securities and Company Value	172
	Accounting Return on Equity	172
	The Cost of Equity and Investors' Required Rates of Return	177
	Summary	178
	Practice Problems	180
	Solutions	184
Reading 49	Introduction to Industry and Company Analysis	187
	Introduction	188
	Uses of Industry Analysis	188
	Approaches to Identifying Similar Companies	189
	Products and/or Services Supplied	189

	Business-Cycle Sensitivities	190
	Statistical Similarities	191
	Industry Classification Systems	192
	Commercial Industry Classification Systems	192
	Governmental Industry Classification Systems	196
	Strengths and Weaknesses of Current Systems	197
	Constructing a Peer Group	198
	Describing and Analyzing an Industry	202
	Principles of Strategic Analysis	204
	External Influences on Industry Growth, Profitability, and Risk	222
	Company Analysis	228
	Elements That Should be Covered in a Company Analysis	229
	Spreadsheet Modeling	232
	Summary	233
	Practice Problems	237
	Solutions	241
Reading 46	Equity Valuation: Concepts and Basic Tools	243
	Introduction	244
	Estimated Value and Market Price	244
	Major Categories of Equity Valuation Models	246
	Present Value Models: The Dividend Discount Model	248
	Preferred Stock Valuation	251
	The Gordon Growth Model	254
	Multistage Dividend Discount Models	258
	Multiplier Models	263
	Relationships among Price Multiples, Present Value Models, and Fundamentals	264
	The Method of Comparables	267
	Illustration of a Valuation Based on Price Multiples	270
	Enterprise Value	271
	Asset-Based Valuation	274
	Summary	278
	Practice Problems	280
	Solutions	286
Fixed Income		
Study Session 15	Fixed Income: Basic Concepts	293
Reading 51	Fixed-Income Securities: Defining Elements	295
	Introduction	295
	Overview of a Fixed-Income Security	296
	Basic Features of a Bond	297
	Yield Measures	302
	Legal, Regulatory, and Tax Considerations	302
	Bond Indenture	303
	Legal and Regulatory Considerations	311
	Tax Considerations	314

	Structure of a Bond's Cash Flows	316
	Principal Repayment Structures	316
	Coupon Payment Structures	321
	Bonds with Contingency Provisions	327
	Callable Bonds	328
	Puttable Bonds	330
	Convertible Bonds	330
	Summary	334
	Practice Problems	337
	Solutions	341
Reading 52	Fixed-Income Markets: Issuance, Trading, and Funding	345
	Introduction	345
	Overview of Global Fixed-Income Markets	346
	Classification of Fixed-Income Markets	346
	Fixed-Income Indices	355
	Investors in Fixed-Income Securities	356
	Primary and Secondary Bond Markets	357
	Primary Bond Markets	357
	Secondary Bond Markets	363
	Sovereign Bonds	365
	Characteristics of Sovereign Bonds	365
	Credit Quality of Sovereign Bonds	366
	Types of Sovereign Bonds	367
	Non-Sovereign Government, Quasi-Government, and Supranational Bonds	369
	Non-Sovereign Bonds	369
	Quasi-Government Bonds	370
	Supranational Bonds	370
	Corporate Debt	371
	Bank Loans and Syndicated Loans	371
	Commercial Paper	372
	Corporate Notes and Bonds	375
	Structured Financial Instruments	379
	Capital Protected Instruments	380
	Yield Enhancement Instruments	380
	Participation Instruments	380
	Leveraged Instruments	381
	Short-Term Funding Alternatives Available to Banks	382
	Retail Deposits	383
	Short-Term Wholesale Funds	383
	Repurchase and Reverse Repurchase Agreements	384
	Summary	388
	Practice Problems	391
	Solutions	394
Reading 53	Introduction to Fixed-Income Valuation	397
	Introduction	397
	Bond Prices and the Time Value of Money	398
	Bond Pricing with a Market Discount Rate	398

Yield-to-Maturity	402
Relationships between the Bond Price and Bond Characteristics	403
Pricing Bonds with Spot Rates	407
Prices and Yields: Conventions for Quotes and Calculations	409
Flat Price, Accrued Interest, and the Full Price	409
Matrix Pricing	413
Yield Measures for Fixed-Rate Bonds	416
Yield Measures for Floating-Rate Notes	421
Yield Measures for Money Market Instruments	425
The Maturity Structure of Interest Rates	429
Yield Spreads	437
Yield Spreads over Benchmark Rates	437
Yield Spreads over the Benchmark Yield Curve	439
Summary	442
Practice Problems	445
Solutions	454
Reading 54	
Introduction to Asset-Backed Securities	469
Introduction	469
Benefits of Securitization for Economies and Financial Markets	470
How Securitization Works	472
An Example of a Securitization	472
Parties to a Securitization and Their Roles	474
Structure of a Securitization	477
Key Role of the Special Purpose Entity	478
Residential Mortgage Loans	481
Maturity	482
Interest Rate Determination	482
Amortization Schedule	483
Prepayment Options and Prepayment Penalties	484
Rights of the Lender in a Foreclosure	484
Residential Mortgage-Backed Securities	486
Mortgage Pass-Through Securities	487
Collateralized Mortgage Obligations	492
Non-agency Residential Mortgage-Backed Securities	499
Commercial Mortgage-Backed Securities	499
Credit Risk	500
CMBS Structure	500
Non-Mortgage Asset-Backed Securities	504
Auto Loan ABS	504
Credit Card Receivable ABS	507
Collateralized Debt Obligations	508
CDO Structure	509
An Example of a CDO Transaction	509
Summary	512
Practice Problems	515
Solutions	519