

FOUNDATIONAL FINANCE FOR STRATEGIC DECISION MAKING

SPECIALIZATION OBJECTIVES & AUDIENCE

This is the second version of a self-contained specialization on the foundations of the framework and basic tools and techniques of finance. The specialization has been designed specifically for learners who are interested in the application of modern finance to make good and thoughtful personal decisions we all are confronted with. The focus in this specialization will be on individual/personal decisions because of two reasons: (a) we learn when we see value to us as individuals and (b) the beauty of finance is that the building blocks of finance are applicable to any decision, personal or corporate. Financial literacy is important for us all to make smart decisions, again, both personal and professional.

VERSION 2 UPDATES

This is the second version of a Specialization revised based on a review of learner enrollment, feedback and an assessment of the MOOC space and the faculty lead advised by a team at the University of Michigan. Here are the reasons for the revisions:

- The first version, which itself was a new specialization created by the same faculty lead based on an earlier one, covered too many topics
- Learner enrollment, interest and success showed this quite clearly, with two courses being far more engaging and appealing
- The other two courses were also on topics that require prerequisites to be successful
- The new specialization has now been deliberately designed to focus on four courses that expand on the two courses with richer real-world applications
- These courses all have the same underlying framework
- The first and third courses introduce the topics with simpler applications and the second and fourth ones delve into deeper applications
- There are practice assignments in all courses
- There are also graded assignments in all courses, but with more questions in the courses covering more real-world applications.

FACULTY TEAM

Professors Gautam Kaul and Qin Lei have teamed up again to offer this specialization. Dedicated professionals at the University of Michigan, Office of Academic Innovation, and at Coursera support the faculty team. The specialization is based on numerous years of teaching experience in programs ranging from undergraduate to PhD, and to audiences ranging from college students to senior executives. It has been motivated in large part by the enriching experiences offering several MOOCs to close to 2.20 million students worldwide over the past ten years.

SPECIALIZATION DESCRIPTION

In this specialization, you'll focus on the mechanics and intuition of the main building block of finance — time value of money. You'll learn the structure and basics through assignments and tests that are introductory in nature but with real-world applications.

We developed this specialization with the express purpose of enabling you to understand and apply these foundational principles of finance to your everyday life. Understanding how to use finance for personal decisions will also help you understand and excel at making professional decisions. After successful completion of this series, you will be equipped to make thoughtful decisions based on a framework that uses multiple advances in modern financial theory over the past several decades. The most important features of this specialization are: (a) it is an integrated set of courses with a focus on understanding both the theory and applicability of finance; and (b) it is applied in execution — everything is covered using examples.

The four courses in this specialization all build on each other, use real-world examples, and include richly designed assessments/quizzes to test your knowledge and enhance your learning experience. Assessments will progressively build in complexity as you better understand the applicability of finance to complex issues.

Each course is expected to take **about four weeks** of effort. This estimate is based on a learner with no formal background in finance, but who can spend between **three-to-five hours a week**, depending on his or her background. The strength of finance is that it takes a very structured approach to decision making, with one key building block underlying all decisions – value of time, or equivalently, time value of money (TVM).

Course 1: Introduction to Time Value of Money (TVM): We will introduce the time value of money (TVM) framework using simple applications.

Course 2: Advanced Concepts in Time Value of Money (TVM): In the second course, we will build on the first course and expand the context to cover more important personal decisions we confront and provide a more thorough exposure to some typical decisions we make.

Course 3: Stocks and Bonds: In the third course, will integrate the building block of TVM developed in the first two courses to understand the two most common t Understanding how borrowing and lending works is key to enabling you to make smart decisions that fit our needs. In this course, we will focus on the simpler aspects of bonds and stocks with corresponding real-world applications.

Course 4: Advanced Understanding of Stocks and Bonds: This final course will cover more advanced aspects of bonds and stocks that will help you to make smart personal decisions and develop a keen understanding of how governments and companies borrow from us.

COURSE PEDAGOGY: THE IMPORTANCE OF PROBLEM SOLVING

This is an applied specialization and I strongly encourage you to attempt every problem in the videos before we do it together. You are also encouraged to submit several assignments that involve multiple problem-solving exercises. In my view, doing problems soon after the relevant material is covered in class is the best way to learn.

Following feedback from thousands of learners, I have deliberately pitched this specialization at an introductory level with an emphasis on understanding what finance is about, yet with a focus on practical applications. To achieve these dual objectives, this course is focused on **problem solving** and, consequently, I will make a conscious attempt to introduce each topic with real-life examples. I strongly encourage you to attempt every problem in the videos before we do it together. Some of these problems by design are more complex than the examples we will do in “class” (the videos) because class time needs to be devoted to understanding the issues and concepts.

We have carefully coordinated both the content and the pace of the course. Since it is important to acquire the basic concepts and skills of a subject matter before applying them to relatively complex situations, we concentrate more on the tools of finance.

PREREQUISITES

I do not believe in prerequisites, except for a sense of curiosity and an attitude. Having said that, exposure to economics (the mother discipline of finance), accounting (the language of business), and/or algebra and statistics (we all need it) will clearly help. I will cover everything starting with fundamentals and highlight when there is a need for you to do some further work. In fact, I hope each course will motivate you to learn more. I believe that learning usually happens when you are motivated by a curiosity to understand something.

This Specialization also presents an opportunity to learn sequentially and therefore you are advised to also proceed in a structured manner.

COURSE MATERIALS

The resources provided by me for this online class are videos, assignments, readings, all organized around the topic of interest. There are videos each week, broken up into bite size pieces – this is because the general guideline is that, on average, videos cover about twice as much content as a face-to-face session is likely to. I have worked with professionals to edit the videos, but I encourage you to pace yourself according to your style and background. Most importantly, there are numerous examples/problems in all the videos, and please try and take every opportunity to attempt an exercise before you see me analyze it.

We have tried to create breaks wherever possible to facilitate this process, but I do not want the videos to become like TV advertisements or most social and real media; short and exciting, but with no real content.

It is important for you to know that while I do provide notes to accompany the videos, they are minimal. I want you to create your own notes as you watch and listen to the presentation. The best part about this online class is that you can pause, rewind, and fast forward the videos at will. You can play them at faster speeds whenever needed.

But it is also easy for us to become a passive participant. I want us to be active listeners and I encourage you to make your own notes as you go along. This will help you to understand and learn the material really well, assuming of course that you find me engaging. If you do that, you will not need textbooks or other materials, except of course to review and/or read additional stuff.

ADDITIONAL RESOURCES

We have however provided you with several other resources. First, we have prepared some brief **notes** that cover: Use the Notes on Formulae and Spreadsheets, repeatedly. Importantly, I have also constructed several assignments that will be critical to the learning process. These are all machine graded and, wherever possible, provide you hints if you do not get the right answer. They are by designed to be simpler and therefore more accessible than the more advanced learning environments in top degree programs.

TEXTBOOKS

In addition, I provide below references of several alternative textbooks that are all very high quality. To help you with your reading, we have also provided you chapters from two books as examples of references. Please note that the videos do not follow any specific book and the book chapters are only references; they do not perfectly match the material we cover and may sometimes contain material that we will not cover. My goal is to expose you to the basics of finance, not every detail in every textbook.

Please see the program schedule at the end of the syllabus for each course to refer to the specific chapters from the two books. You are not required to purchase any of these books but recognize that one of them is available to read for free on the web. You must follow the guidelines provided by the author for use of the online material. If you do choose to buy a book, a relatively recent edition will do, and look for used, international and/or paperback versions.

- (1) Corporate Finance, 10th Edition, by Ross, Westerfield & Jaffee.

This book is referenced as **RWJ** in the detailed schedule.

- (2) *Corporate Finance, 4th Edition, by Ivo Welch.*
This book can be purchased from Amazon or you can read it for free at <https://book.ivo-welch.info/read/>

A PDF version of the book can be downloaded without charge at <http://book.ivo-welch.info/home/>. You can also purchase a paperback version at the site. The material is copyrighted, however, and you are not permitted to distribute or posted it elsewhere. If this URL malfunctions, you can access the site by searching Ivo Welch on the web.

This book is referenced as **IV** in the detailed schedule. If you cannot access the above URL, just search the web using the author's name.

Finally, since many of you may have had limited exposure to Finance, it is

important to read institutional material at your own convenience. Please read business and financial news regularly. Cruise the web as often as possible not only to uncover the wealth of information at your disposal, but to also learn how things work. A good web site to begin your search is <http://finance.yahoo.com>. I will use this web site at several points during the “class.”

SPREADSHEETS

The purpose of the specialization is to introduce you to concepts and applications, without worrying too much about the calculations. I therefore encourage you to focus on setting up the problems, rather than the calculations. When you get to the calculations, you will find that technology makes life so much easier. You will also realize that spreadsheets simply calculate stuff after you tell them what to do; they are a means and not the end! If you set up a problem incorrectly, you will likely get an incorrect answer. Having said that, spreadsheets are very useful devices for laying out your information logically and executing your analysis quickly without being bogged down by algebra.

I provide a brief note on Spreadsheets, and use them during the program, but you are ultimately responsible for learning them. The assignments are a great way to do so as virtually all questions will require you to do calculations using a spreadsheet.

ASSIGNMENTS

Please use the web site to access *and* submit assignments electronically.

All **assignments** have been crafted to help reinforce the learning of concepts and problems covered in class. Since grading will be conducted using technology, all questions will take a True/False, fill in the blank, or multiple-choice form. The questions will almost always be word problems, like the ones covered in class, but there will be one specific answer to each question. We have set up the grading process so that you get feedback that is supposed to make you think in the right way about the issues.

You will have two practice and two graded assignments in each course, but more questions in the more real-world applications in Courses 2 and 4.

VERIFIED CERTIFICATES

You need to obtain 70% on each Graded Assignment within a course to qualify for a course certificate. Certificates for the Specialization will be issued to all learners who pass all four courses.

SOME CONVENTIONS AND IMPORTANT GUIDELINES

Finance is so cool because it makes sense; there is very little to memorize. But there is one convention that is built into almost every formula and in spreadsheet functions and is related to the fact that all decisions can be placed on a timeline. All flows (cash out or cash in) occur at points in time, while interest rates apply to periods of time. Unless otherwise specified, all flows occur at the end of a period. Therefore, if someone says that Maria received \$10 in year 1, it means the end of year 1. (Of course, most decisions involve an outflow/investment today; the beginning of the first period. But it will be obvious to you when that happens.) Do not worry about this; you will quickly get used to the convention once we start the class and do problems together and, fortunately, every textbook uses the same convention.

To help you attempt the Assignments without making some common errors, I suggest that you always draw a timeline corresponding to a problem, until you are completely comfortable with doing your own analysis. Some things to remember:

- (a) Since an overwhelming majority of the questions involve numbers, DO NOT enter any symbol in your answers, just the number. For example, do not enter “\$” before the number; or “%” after it, even though the questions will have these expressions;
- (b) Do not use commas when filling the blank;
- (c) For simplicity, we will use dollars as the currency. Unless specified otherwise, round off all answers involving dollars to the closest integer. For example, round \$30.49 down to \$30 rather than \$31; round \$30.50 up to \$31 rather than \$30. Sometimes the numbers are small, and we will request that you enter the number with up to two decimals;
- (d) Finance involves interest rates. We will express all interest rates in percentages. Allow two decimals in your answers but do not enter the % sign;

Also, please read instructions for the questions/problems very carefully before you attempt to answer them.

IMPORTANT ISSUES TO CONSIDER

Assignments

More importantly, the assignments reflect my belief about learning. The teacher's role is to expose us to the fundamental building blocks, and we need to learn by applying them to challenging problems. The reason I love finance is its applicability to all types of real-world situations.

Solutions to Assignments

Some of you may want answers to the assignments. This is a seemingly reasonable request but difficult to accommodate. Creating questions for the videos and the assignments has been the most challenging part of this endeavor. It took four people several weeks to create these, test them, and then modify them to fit the grading structure imposed by technology. Due to copyright issues, we cannot simply give you questions from existing books, and I would not want to do that anyway. It will therefore be difficult for us to offer this class multiple times if we have to keep preparing new sets of questions with multiple versions to allow you to attempt each one more than once. Handing out answers will force us to do that. We have instead chosen to provide a lot of hints about the main issue in each question and you can always revisit the videos, go back to the questions, work in teams, etc., to learn the content.

Honor Code

While learning from each other is very important, we all recognize the difference between collaboration and simply copying and pasting work done by others. I strongly encourage you to work collaboratively using proper judgment. Similarly, please respect all copyright rules of all materials, including books, articles, etc.

While we ultimately cannot monitor everything, Coursera and my team will monitor our Forums for any activity that violates such codes of conduct and basic civility to each other.

TEACHING ASSISTANCE

Staff from Center of Academic Innovation will serve as the course advocates for the Specialization and will monitor the forums. They will be introducing themselves in the discussion forum. They have taken all courses I have offered, performed exceptionally well, and have served admirably in facilitating past offerings. They have an exceptional grasp of the entire Specialization. They will manage all four courses. Professor Qin Lei and I are also helped by a team of graduates from University of Michigan. There also is a team of dedicated

Coursera professionals helping us with all technical aspects of the course and specialization. All technical issues will be addressed by them.

Consistent with our philosophy that you will learn from each other, our hope is that you will resolve most/all issues on your own by reviewing the videos, doing problems, reading chapters, and discussing among yourselves. But we will monitor the forums and post comments if there is an error, especially in an assignment/final or in the evaluation of the assignment/final.

Contact Course Advocates & Faculty

Given the large number of students in the specialization, the course advocates or faculty should not be contacted directly with any questions. While we love all of you, responding to questions will be virtually impossible. But course advocates will monitor the forums and keep me informed on a regular basis. This has worked quite well for the past six years and I am sure we will do fine in this specialization as well.