

**Department of Decision, Operations and Information Technologies
University of Maryland**

**BUDT 758I-0501
Applied Finance Information Systems
Fall 2022**

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Class Meets: Monday 05:00 PM – 07:40 PM VMH 1418
Office Hours: TBD

Course Introduction

There has been an explosion in the volume, velocity, and variety of financial data in the last decade. Most financial institutions have automated their processes and digitized their solutions. This has generated a healthy demand for professionals from a variety of fields who not only use cutting edge technologies but also understand financial terminology and concepts.

This course is designed for Master of Science in Information Systems (MSIS) students who are looking for a possible career in the finance industry. The course requires no background in finance; it uses a practical approach to understanding financial concepts using various open-source technologies such as Python. The IT know-how required for this course is familiarity and some prior experience with Python.

Course Objectives:

The focus of the course is to provide relevant background in the financial industry and leverage students' IT experience to position them for possible IT/IS opportunities in the field.

Course Length:

This is a 3-credit full semester course and will be taught one weeknight every week.

Learning Objectives

The course has two primary objectives:

1. Enable students to understand various basic concepts and terminology used in the finance industry
2. Help students use open-source technologies such as Python to implement these concepts

After completing this course, students will be able to:

1. Understand portfolio analysis and construction

2. Handle, process and forecast time-series data
3. Understand portfolio performance measurement and some basic optimization
4. Have an overview of capital markets trading in various asset markets

Though the finance industry domain is very extensive, an introductory course such as this is useful in providing familiarity with important concepts and equipping students with the tools needed to implement those concepts through practical example applications.

Course Methodology:

This course will focus will provide a lot of the theoretical foundation for the topics covered, but emphasis will be placed on a practitioner's viewpoint and approach. The theory to practice split will be about 30:70. The course will include a final project where students will work on a real-world example of financial engineering and present an original solution and a detailed analysis of their chosen problem and approach.

Prerequisites

There are no formal prerequisites in finance; students are expected to have some familiarity with basic Python coding, but we will cover some of the open-source libraries that are specifically for use in this domain.

Software Needed

We will use Excel and Python for this course. This open-source technology is easily available on the internet. Libraries used for this course are also free and easily downloadable.

Most of the time we will download data from free and public sources such as Yahoo Finance and Google Finance.

Class Materials

1. *[Optional]* Analyzing Financial Data and Implementing Financial Models Using R – Clifford S. Ang
2. *[Optional]* Python for Finance – Yves Hilpisch
3. Class Handouts

Assignments

We will have many small quizzes designed to help students understand and implement concepts discussed in class. We will also have a few homework assignments which will be slightly broader in scope.

Class project

We will form groups where students will work on a real-world example of financial engineering and present an original solution and a detailed analysis of their chosen problem and approach. More details will be provided in class.

Grading

The final grade for the course will be composed of the following items:

Quizzes:	40%
Homework Assignments:	40%
Class project:	20%

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