THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

COURSE CERTIFICATE

Aug 17, 2021

Srikanth Deti

has successfully completed

Python and Statistics for Financial Analysis

an online non-credit course authorized by The Hong Kong University of Science and Technology and offered through Coursera

Xuhu Wan
Associate Professor
Department of Information Systems, Business Statistics and Operations Management

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Coursera has confirmed the identity of this individual and their participation in the course.

Python and Statistics for Financial Analysis

by The Hong Kong University of Science and Technology

About this Course

Course Overview: https://youtu.be/JgFV5qzAYno

Python is now becoming the number 1 programming language for data science. Due to python's simplicity and high readability, it is gaining its importance in the financial industry. The course combines both python coding and statistical concepts and applies into analyzing financial data, such as stock data.

By the end of the course, you can achieve the following using python:

- Import, pre-process, save and visualize financial data into pandas Dataframe

- Manipulate the existing financial data by generating new variables using multiple columns

- Recall and apply the important statistical concepts (random variable, frequency, distribution, population and sample, confidence interval, linear regression, etc.) into financial contexts

- Build a trading model using multiple linear regression model

- Evaluate the performance of the trading model using different investment indicators

Jupyter Notebook environment is configured in the course platform for practicing python coding without installing any client applications.

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Taught by:

Xuhu Wan, Associate Professor

Department of Information Systems, Business Statistics and Operations Management

Level	Intermediate
Commitment	4 weeks of study, 3-4 hours/week
Language	English, **Subtitles:** Arabic, French, Portuguese (European), Italian, Vietnamese, German, Russian, Spanish, Japanese **Volunteer to translate subtitles for this course**
How To Pass	Pass all graded assignments to complete the course.
User Ratings	★★★★½ 4.4 stars

Syllabus

WEEK 1

Visualizing and Munging Stock Data

Why do investment banks and consumer banks use Python to build quantitative models to predict returns and evaluate risks? What makes Python one of the most popular tools for financial analysis? You are going to learn basic python to import, manipulate and visualize stock data in this module. As Python is highly readable and simple enough, you can build one of the most popular trading models - Trend following strategy by the end of this module!

7 videos, 3 readings

1. **Video:** Course overview
2. **Reading:** Grading Criteria
3. **Reading:** Getting started with Jupyter Notebook
4. **Discussion Prompt:** Meet and Greet
5. **Video:** 1.0 Module Introduction
6. **Video:** 1.1 Packages for Data Analysis
7. **Video:** 1.2 Importing data
8. **Ungraded Lab:** Importing data from CSV files into Jupyter Notebook
9. **Reading:** pd.read_csv or pd.DataFrame.from_csv
10. **Video:** 1.3 Basics of Dataframe
11. **Ungraded Lab:** Basics of DataFrame

12. **Video:** 1.4 Generate new variables in Dataframe
13. **Ungraded Lab:** Create features and columns in DataFrame
14. **Video:** 1.5 Trading Strategy
15. **Ungraded Lab:** Build a simple trading strategy

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Graded: Quiz 1

WEEK 2

Random variables and distribution

In the previous module, we built a simple trading strategy base on Moving Average 10 and 50, which are "random variables" in statistics. In this module, we are going to explore basic concepts of random variables. By understanding the frequency and distribution of random variables, we extend further to the discussion of probability. In the later part of the module, we apply the probability concept in measuring the risk of investing a stock by looking at the distribution of log daily return using python. Learners are expected to have basic knowledge of probability before taking this module.

More

4 videos

1. **Video:** 2.0 Module Introduction
2. **Video:** 2.1 Outcomes and Random Variables
3. **Ungraded Lab:** Outcomes and Random Variables
4. **Video:** 2.2 Frequency and Distributions
5. **Ungraded Lab:** Frequency and Distributions
6. **Video:** 2.3 Models of Distribution
7. **Ungraded Lab:** Models of stock return

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Graded: Quiz 2

WEEK 3

Sampling and Inference

In financial analysis, we always infer the real mean return of stocks, or equity funds, based on the historical data of a couple years. This section is in line with a core part of statistics - Statistical Inference - which we also base on sample data to infer the population of a target variable.In this module, you are going to understand the basic concept of statistical inference such as population, samples and random sampling. In the second part of the module, we shall estimate the range of mean return of a stock using a concept called confidence interval, after we understand the distribution of sample mean.We will also testify the claim of investment return using another statistical concept - hypothesis testing.

More

5 videos, 1 reading

1. **Video:** 3.0 Introduction
2. **Video:** 3.1 Population and Sample
3. **Ungraded Lab:** Population and Sample
4. **Video:** 3.2 Variation of Sample
5. **Ungraded Lab:** Variation of Sample
6. **Video:** 3.3 Confidence Interval
7. **Ungraded Lab:** Confidence Interval
8. **Video:** 3.4 Hypothesis Testing
9. **Ungraded Lab:** Hypothesis Testing
10. **Reading:** P-value

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Graded: Quiz 3

WEEK 4

Linear Regression Models for Financial Analysis

In this module, we will explore the most often used prediction method - linear regression. From learning the association of random variables to simple and multiple linear regression model, we finally come to the most interesting part of this course: we will build a model using multiple indices from the global markets and predict the price change of an ETF of S&P500. In addition to building a stock trading model, it is also great fun to test the performance of your own models, which I will also show you how to evaluate them!

6 videos, 1 reading, 1 practice quiz

1. **Video:** 4.0 Introduction
2. **Video:** 4.1 Association of random variables
3. **Ungraded Lab:** Association between two random variables
4. **Video:** 4.2 Simple linear regression model

5. **Ungraded Lab:** Simple linear regression model
6. **Video:** 4.3 Diagnostic of linear regression model
7. **Ungraded Lab:** Diagnostic of linear regression model
8. **Video:** 4.4 Multiple linear regression model
9. **Ungraded Lab:** Build the trading model by yourself!
10. **Video:** 4.5 Evaluate the strategy
11. **Ungraded Lab:** Evaluating strategy built from Regression model
12. **Reading:** Please rate this course!
13. **Practice Quiz:** Post-course survey

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Graded: Quiz 4

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How It Works

General

How do I pass the course?

To earn your Course Certificate, you'll need to earn a passing grade on each of the required assignments—these can be quizzes, peer-graded assignments, or programming assignments. Videos, readings, and practice exercises are there to help you prepare for the graded assignments.

More

View the course in catalog

What do start dates and end dates mean?

Once you enroll, you'll have access to all videos, readings, quizzes, and programming assignments (if applicable). If you choose to audit a course without purchasing, you may not be able to access certain assignments. If you don't finish all graded assignments before the end of the course, you can reset your deadlines. Your progress will be saved and you'll be able to pick up where you left off.

Related Courses

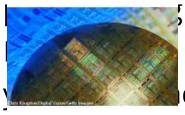
Twitter, LinkedIn, and YouTube Marketing

Digital Marketing Institute

Digitalisation in Aeronautics

Wh dates? Is there a penalty for submitting my r a due date?

Within a course, there are suggested due dates to help you manage your schedule and keep coursework from piling up. Quizzes and s assignments can be submitted late without consequence. possible that you won't receive a grade if you submit ded assignment too late because classmates usually review within three days of the assignment deadline.



VLSI CAD Part II: Layout

University of Illinois at Urbana-Champaign

Can pt an assignment?

Image Segmentation with Python and Unsupervised Learning

Coursera Project Network

Yes. If you want to improve your grade, you can always try again.

If you're re-attempting a peer-graded assignment, re-submit your work as soon as you can to make sure there's enough time for your classmates ur work. In some cases you may need to wait before g a programming assignment or quiz. We encourage you to se material during this delay.

3D Printing Hardware

University of Illinois at Urbana-Champaign