

ISOM 3400 - Python Programming for Business Analytics Spring 2023

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Class Schedule

Lecture

Section	Date	Time	Venue
L3	Mon. / Wed.	12:00 ~ 13:20	LSK Rm. 1009

Lab

Section	Date	Time	Venue
LA1	Wed.	9:00am -9:50am	G021 (LSK Bldg)
LA2	Mon.	12:00pm - 12:50pm	
LA3	Thur.	1:30pm - 2:20pm	
LA4	Fri.	12:00pm – 12:50pm	

Course Website: <https://canvas.ust.hk>. All course materials and announcements will be posted on this site. You are advised to check it regularly throughout the course.

COURSE GOALS

This course will provide students with skills and knowledge of Python programming and experience in designing and developing business analytics applications.

LEARNING OUTCOMES

By the end of this course, students will be able to:

- (1) Acquire general programming knowledge with Python language
- (2) Able to process data with Python language
- (3) Build some statistical and machine learning models with Python language
- (4) Conduct programming with team members effectively

COURSE DESCRIPTION

Python has recently become the most popular general-purpose programming language according to many polls among programmers. The scripting nature of Python allows fast development and easy maintenance of business analytics applications. More importantly, the unparalleled community support makes Python increasingly powerful.

In this course, students will learn Python for developing business analytics applications. Business applications involve both business requirements and user requirements. Therefore, developers and programmers who design and develop business applications for organizations are required to meet those requirements. We believe that the combination of Python programming skills and business applications development will provide high practical value to students majoring in Information Systems as well as other related fields.

TEACHING APPROACH

In general, the teaching approach of this course is based on the notion of sustained, deep learning by applying knowledge through programming, hands-on practices, and assignments.

Teaching & Learning Activities	Roles in the Course	Learning Outcomes addressed
Lecture	Explain key concepts to students using an active learning approach, in-class exercise, and after-class discussion of questions.	1, 2, 3
Laboratory	Apply concepts presented in lectures to hands-on exercises.	1, 2, 3
Assignment	It requires students to apply their knowledge and understanding in programming to solve business analytics problems.	2, 3, 4

EVALUATION

Components	Percentage of the grade
A. In-class Exercises	25%
B. Assignments	35%
C. Final Exam	40%
TOTAL:	100%

A. In-class Exercises (40%)

There are **FIVE** in-class exercises throughout the semester. They will give you hands-on practice in Python programming in a setting where you can ask questions and collaborate with fellow students. Students' answers will be collected and graded. All scores will count towards the final grade. For each in-class exercise, the deadline of submission will be one day after the corresponding in-class exercise session (the midnight of that day 23:59pm). **There will be NO makeup in-class exercises for whatever reasons.**

B. Assignments (35%)

There are **TWO** assignments. Students are expected to apply Python programming skills to solve practical business application problems.

Assignment 1 (individual) - (15%) This is an individual assignment. Each student needs to submit his/her program by the deadline. The detailed grading criteria will be stated clearly in the assignment document.

Assignment 2 (group) - (20%) This is a group assignment. A pre-assigned group is required to design and develop a business analytics application. A video demonstration (no more than 10 minutes) is required as part of assignment submission. Details of the group project will be provided later in the semester.

Peer evaluation

Peer evaluation will be conducted for the group assignment. Students should make sure they make a fair contribution. We reserve the right to give less or even no credit to students who contribute significantly less or make no contributions.

Late policy

Turn in your work early if there is any uncertainty about your ability to turn it in at the due time. Submissions up to 24 hours late will have their grade reduced by 25%; those up to 48 hours late will have their grade reduced by 50%. They will not be accepted for credit after two days.

Honor-code policy

The basic presumption is that the work you submit is your own. Every line of text and line of code that you submit must be written by you personally.

However, occasionally, it may be necessary to ask someone for help. You are permitted to do so, provided you meet the following two conditions:

1. You acknowledge any help received on the work you hand in. That is, you must include a comment in your homework submission that clearly states the name of the student, book, or online reference from which you received assistance.
2. You *understand* the work that you hand in, so that you could explain the reasoning behind the parts of the work on which you received assistance from others.

We shall not deduct credit for small amounts of acknowledged assistance. Even working as a team on one of several problems in a problem set may not hurt your grade, as long as all members of the group acknowledge their collaboration. Such shared interest can be beneficial to all concerned. Nevertheless, we *do reserve the right* to give less than full credit in circumstances where it appears that there has been *large-scale division of labor*, and you are not getting as much learning out of the in-class exercise or assignment as you should.

Submissions that fail to properly acknowledge help from other students or non-class sources **will receive no credit**. Copied work **will receive no credit**. Any and all violations **will be reported** to the University administration.

Moreover, all students are expected to comply with the HKUST policy on academic integrity. This policy can be found online at <http://ugadmin.ust.hk/integrity/student-1.html>.

If you have any questions about what this policy means, please discuss the matter with the instructor.

C. Final Exam (40%)

There is a paper-based final exam (open note), which covers ALL topics taught in the semester. Details of the exam will be provided later in the semester.

Make-up policy

There will be no make-up exams except due to extraordinary circumstances beyond your control such as medical emergencies. Students have to submit appropriate documentation issued by a registered medical practitioner in order to be considered for a make-up exam.

Grade appeal

All scores will be uploaded to Canvas when ready. It is always the student's responsibility to check the scores and make sure they are correct. Any appeal to score has to be filed through email to imncpang@ust.hk. No appeal to a particular score is allowed 72 hours after its release.

D. Labs

In addition to in-class exercises, this course also has a complementary lab component, which exposes you to more programming exercises. Although lab participation will not count towards the final grade, you are highly encouraged to make good use of lab hours to solve your puzzles and hone your programming skills.

MATERIALS

1. MAIN READING

This course has no required textbook. Lecture notes and extra exercises (either in pdf or ipynb format) will be posted on the course website.

Many useful resources are also available online, for example, an online book *Object-Oriented Programming in Python* (<https://python-textbok.readthedocs.io>).

2. SOFTWARE

- Anaconda and Jupyter Notebook
- Visual Studio Code (VS code)
- Google Collaborator

Email Policy

Please put **[ISOM3400 LX LAX]** (X being the section number) **at the beginning of the subject line of your email along with your email subject.** Failure to do so may result in a longer response time.

As expected, there will be numerous emails when it is closer to the due dates. If you need any assistance, raise them **as early as possible**, and/or take advantage of the office hours of the instructor and the TA. Note that **neither the instructor nor the TAs will provide direct answers to the assignments.**

Learning Environment

We welcome feedbacks on our teaching throughout the semester. You are encouraged to contact me or the TA any time you have any questions, suggestions, concerns, or would like to ask for advice.

TENTATIVE LECTURE SCHEDULE

WEEK (M.)	TOPICS	ASSIGNMENTS/ DUE DATES
1 Feb. 6 Feb. 8	Course Introduction Python Basics: Data, Data types, and Operators	
2 Feb. 13 Feb. 15	Data Structures: Lists, Tuples, Dictionaries, and Sets	
3 Feb. 20 Feb. 22	In-class exercise session 1 on Python Basics and Data Structures	
4 Feb. 27 Mar. 1	Control Structures: if, for, while, and try statements	
5 Mar. 6 Mar. 8	In-class exercise session 2 on Control Structures Functions, Classes, and Modules	
6 Mar. 13 Mar. 15		Asg. 1 Release
7 Mar. 20 Mar. 22	In-class exercise session 3 on Functions and Classes Web Scraping with <i>Beautiful Soup</i> and <i>Selenium</i>	
8 Mar. 27 Mar. 29		Asg. 1 Due
9 Apr. 3 Apr. 5	<i>Midterm Break</i>	
10 Apr. 10 Apr. 12	<i>Midterm Break</i> In-class exercise session 4 on <i>Beautiful Soup</i> and <i>Selenium</i>	
11 Apr. 17 Apr. 19	Interactive Data Visualization with <i>plotly</i> Web App Development with <i>Dash</i>	
12 Apr. 24 Apr. 26		Asg. 2 Release
13 May. 1 May. 3	<i>Public Holiday</i> In-class exercise session 5 on <i>plotly</i> and <i>Dash</i>	
14 May. 8	Revision	

TENTATIVE LAB SCHEDULE

WEEK/DATE	TOPICS
Feb 10 - 16	Python Basics
Feb 17 - 23	Data Structures: List, Tuple, Dictionary
Feb 24 – Mar 2	Control Structures I
Mar 3 - 9	Control Structures II
Mar 10 - 16	Function and Class I
Mar 17 – 23	Function and Class II
Mar 24 – 30	Web Scraping I
Mar 31 – Apr 6	Web Scraping II
Apr 7 – 13	<i>Midterm Break</i>
Apr 14 – 20	Web Scraping III
Apr 21 – 27	Interactive Data Visualization
Apr 28 – May 4	Web App Development

** Note both the lecture, lab, and assignment schedules are tentative and subject to change without notice.*