

# ISOM 3400 - Business Applications Development in Python

## Spring 2024

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### Class Schedule

#### Lecture

Section	Date	Time	Venue
L1	Mo	3:00pm - 4:20pm	G012 (LSK Bldg)
	Fr	10:30am - 11:50am	
L2	Mo	4:30pm - 5:50pm	
	Fr	12:00pm - 1:20pm	

#### Lab

Section	Date	Time	Venue
LA1	Th	1:30pm - 2:20pm	G021 (LSK Bldg)
LA2	We	6:00pm - 6:50pm	
LA3	Th	10:30am - 11:20am	
LA4	Th	4:30pm - 5:20pm	

**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 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) Able to design and develop business applications 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 applications. More importantly, the unparalleled community support makes Python increasingly powerful.

In this course, students will learn Python programming language in the context of business applications development. 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. Class/Lab Participation	10%
B. In-class Exercises	20%

C. Group Assignments	20%
D. Final Exam	50%
<b>TOTAL:</b>	<b>100%</b>

**A. Class/Lab Participation (10%)**

The fundamental programming concepts and associated practical examples will be covered during the lecture sessions. You are expected to attend lectures and contribute to class activities.

Additionally, participating in lab sessions is crucial to your learning, as it provides hands-on experience with more programming exercises. You are expected to attend lab sessions and submit assigned tasks during the lab time.

**B. In-class Exercises (20%)**

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.**

**C. Group Assignments (20%)**

There are **TWO** group assignments. Students are expected to apply Python programming skills to solve practical business application problems. A pre-assigned group is required. Details of the group project will be provided later in the semester.

**D. Final Exam (50%)**

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.

**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.

### **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 [jwang@ust.hk](mailto:jwang@ust.hk). No appeal to a particular score is allowed 72 hours after its release.

## **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**

- Google Collaboratory
- Anaconda Navigator
  - Jupyter notebook
  - Python 3.7+
- Visual Studio Code (VS code)

### *Learning Environment*

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

### TENTATIVE LECTURE SCHEDULE

DATE	TOPICS	ASSIGNMENTS/ DUE DATES
Feb 2	Course Introduction	
Feb 5	Python Basics: Data, Data types, and Operators	
Feb 9	Data Structures: Lists, Tuples, Dictionaries, and Sets	
Feb 12	<i>Public Holiday</i>	
Feb 16		
Feb 19	<b>In-class exercise session 1</b> on Python Basics and Data Structures	
Feb 23	Control Structures: if, for, while, and try statements	
Feb 26		
Mar 1	<b>In-class exercise session 2</b> on Control Structures	
Mar 4	Functions, Classes, and Modules	
Mar 8		
Mar 11		
Mar 15	<b>In-class exercise session 3</b> on Functions and Classes	
Mar 18	Web Scraping with <i>Beautiful Soup</i> and <i>Selenium</i>	
Mar 22		
Mar 25		Asg. 1 Release
Mar 29	<i>Midterm Break</i>	
Apr 1	<i>Midterm Break</i>	
Apr 5	<i>Midterm Break</i>	
Apr 8		
Apr 12	<b>In-class exercise session 4</b> on <i>Beautiful Soup</i> and <i>Selenium</i>	
Apr 15	Data Analysis and Manipulation using <i>pandas</i>	
Apr 19	Interactive Data Visualization with <i>plotly</i>	
Apr 22	Web App Development with <i>Dash</i>	Asg. 2 Release
Apr 26		Asg. 1 Due
Apr 29		
May 3	<b>In-class exercise session 5</b> on <i>plotly</i> and <i>Dash</i>	
May 6		
May 10	Final Revision	Asg. 2 Due

### TENTATIVE LAB SCHEDULE

WEEK/DATE	TOPICS
Feb 7/8	Python Basics
Feb 14/15	Data Structures: List, Tuple, Dictionary
Feb 21/22	Control Structures I
Feb 28/29	Control Structures II
Mar 6/7	Function and Class I
Mar 13/14	Function and Class II
Mar 20/21	Web Scraping I: HTML Basics
Mar 27/28	<i>Midterm Break</i>
Apr 3/4	<i>Midterm Break</i>
Apr 10/11	Web Scraping II: <i>Beautiful Soup</i>

Apr 17/18	Web Scraping III: Selenium
Apr 24/25	Interactive Data Visualization
May 1/2	<i>Public Holiday</i>
May 8/9	Web App Development

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