# ISOM3400: Business Applications Development in Python
## Winter 2025

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**Class Schedule**

### Lecture

| Date | Time | Venue |
|---|---|---|
| Tue./Thu./Fri. | 2:00PM ~ 5:20PM | LSK 1007 |

### Lab

| Date | Time | Venue |
|---|---|---|
| Tue./Thu./Fri. | 1:00PM ~ 1:50PM | LSKG021 |

**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.

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### 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 design and develop business applications in Python
(3) 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 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 |
|---|---|
| A.  Lab submissions | 10% |
| B.  Assignment 1 (Generative AI tools are allowed) | 15% |
| C.  Assignment 2 (Generative AI tools are allowed) | 15% |
| D.  Final Exam – Programming concepts | 25% |
| E.  Final Exam – Advanced techniques | 15% |
| F.  Final Exam – Business application | 20% |
| **TOTAL:** | **100%** |

### A. Assignments

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

*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](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.**

*B. Final Exam*

There is an open-book final exam, which covers ALL topics taught in the semester. It is further divided into 3 parts as listed in the evaluation section. 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 must 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 imhtwong@ust.hk. No appeal to a particular score is allowed 72 hours after its release.


## C. In-class Exercises

There are 5 in-class exercise sessions scheduled throughout the semester. Most of the exercise questions are borrowed from past exams. They will help you reinforce programming concepts in a timely manner and gain hands-on programming experience in a setting where you can ask questions and collaborate with fellow students. **No answers from these sessions will be collected for grading**.


## D. Labs

In addition to in-class exercises, this course also has a complementary lab component that provides additional hands-on practice to enhance 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.


2. **SOFTWARE**

    - Anaconda Navigator (for Win-64, OSX-64, or Linux-64):
        - Jupyter notebook
        - Python 3.10+
    - Visual Studio Code (VS code)
    - Google Colaboratory


### OTHERS

*Use of generative AI tools*

Students are permitted to use Generative AI Tools such as ChatGPT for specific assignments, as designated by the instructor. Nonetheless, students are obligated to duly acknowledge and credit any use of generative AI. Note:
- Leveraging ChatGPT, individuals can effortlessly generate content devoid of grammatical errors. As a result, during the grading process, we will presume that the content is free of any grammatical blunders.
- Generative AI Tools can provide valuable assistance when seeking additional practice and examples. Students are encouraged to utilize them for self-study and honing programming skills.


*Email Policy*

Please put **[ISOM3400] 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 make good use of labs and office hours. Note that **<span style="color:red">neither the instructor nor the TAs will provide direct answers to the assignments</span>**.

*Learning Environment*

We welcome feedback 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**

| DATE | TOPICS | LAB | ASSIGNMENTS/ DUE DATES |
|---|---|---|---|
| Jan. 2 | Course Introduction<br>Python Basics: Data, Data types, and Operators | Preparation: Software Installation | |
| Jan. 3 | Data Structures: Lists and Tuples | Revision: Python Basics | |
| Jan. 7 | Data Structures: Dictionaries and Sets<br>In-class exercise session 1 | Data Structures I: Lists, Tuples | |
| Jan. 9 | Control Structures: if, for, while, and try statements | Data Structures II: Dictionaries | |
| Jan. 10 | In-class exercise session 2<br>Functions | Control Structures | Asg. 1 Release |
| Jan. 14 | Classes and modules | Functions I | |
| Jan. 16 | In-class exercise session 3 | Functions II<br>Classes | Asg. 1 Due |
| Jan. 17 | Web Scraping with *Beautiful Soup* | HTML Basics | |
| Jan. 21 | Web Automation with *Selenium*<br>In-class exercise session 4 | Web scraping: Beautiful Soup | Asg. 2 Release |
| Jan. 23 | Web App Development with Streamlit | Web App Development | |
| Jan. 24 | Revision<br>40-min Break<br>Final Exam (3:50pm~5:50pm) | | |