ISOM3400: Business Applications Development in Python

Prof. James Kwok
LSK 4080
jkwok@ust.hk
2358 7652

Course goals

This course aims to equip students with skills and knowledge in Python programming, coupled with practical experience in the design and development of business applications.

Learning outcomes

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

1. **Attain Proficiency in Python Programming:** Develop a solid understanding of programming concepts using the Python language.
2. **Capability to Design and Develop Python-based Business Applications:** Acquire the skills necessary to design and construct business applications utilizing Python.
3. **Effective Collaborative Programming:** Cultivate the ability to collaborate efficiently with team members while engaging in programming tasks.

Course description

Python has recently risen to prominence as the most widely embraced general-purpose programming language, as substantiated by numerous polls within the programming community. Python's scripting nature facilitates swift application development and simplified maintenance. Remarkably, its unmatched community support continues to amplify Python's capabilities. This course is designed to acquaint students with the Python programming language within the context of business applications development. Business applications necessitate alignment with both business and user requisites, thereby demanding developers and programmers to address these distinct demands.

We firmly believe that the fusion of Python programming expertise and proficiency in business applications development will offer substantial practical value to students majoring in Information Systems and related fields.

It's essential to recognize that this course revolves around programming. Students are expected to engage with online resources autonomously for learning. Throughout the course, students will be tasked with researching Python syntax, including aspects not covered in course materials yet indispensable for performing course assignments and tasks.

Assessment scheme

Evaluation and grading constitute intrinsic components of any university course. Nevertheless, the most pivotal assessment lies in the students' self-evaluation. Did the course present novel and valuable concepts and skills? Did it prompt a shift in perspectives concerning oneself, collaborative work, and organizational dynamics? If such transformations occurred, the students' endeavors in the course have been truly meaningful.

The final grade distribution will be determined based on the following percentages, which will be used to evaluate the course objectives:

Components	**Learning outcomes assessed**	**Percentage of the grade**
A. Group Exercise	1, 2, 3	**5%**
B. Assignment	1, 2	**20%**
C. Final Exam - logic	1, 2	**20%**
D. Final Exam – advanced techniques	1, 2	**28%**
E. Final Exam – business app	1, 2	**27%**
	TOTAL:	**100%**

A. Group Exercise – Group (5%)

Throughout the semester, there will be ONE group exercise. Please be advised that no makeup exercise will be provided under any circumstances.

Students may form groups of two to five members for this exercise. Groups are expected to apply their Python programming skills and knowledge to address various business challenges. At the end of each class, group programs will be collected and evaluated. All members of the group, except those who did not contribute or did not contribute sufficiently (free riders), will receive the same score for the exercise.

It is the responsibility of group members to report any free riding activity along with evidence during the group exercise. Such cases must be reported within 5 days after the group exercise.

Important Reminder: Ensuring the functionality of your Python development tools, including VS Code, Google Colab, notebook computers, and others, during the exercise is your responsibility.

Late Submission Policy: Submissions beyond the designated timeframe will result in a score of zero. Students can submit their work via Canvas or email, addressing both the instructor and TA.

B. Assignment – Individual (20%)

The course encompasses an assignment. Students are anticipated to employ their Python programming skills to address tangible challenges encountered in practical business applications.

This assignment is designed for individual completion. Each student is required to submit their respective program by the specified deadline. The comprehensive grading criteria will be explicitly outlined in the assignment document.

C. Final Exam – programming logic (20%)

A comprehensive Final Exam will encompass **ALL topics** covered during the semester. This section focuses on questions related to programming logic.

D. Final Exam – advanced techniques (28%)

A comprehensive Final Exam will encompass **ALL topics** covered during the semester. This section focuses on questions related to advanced programming techniques.

E. Final Exam – business app (27%)

A comprehensive Final Exam will encompass **ALL topics** covered during the semester. This section focuses on questions related to business applications.

Arrangements for the Make-up Final Exam

Make-up final exams will only be conducted in cases of exceptional circumstances beyond a student's control, such as medical emergencies. If a student is absent due to a medical emergency, they must submit relevant documentation from a registered medical practitioner to the course instructor via email. This documentation is required for consideration for a make-up exam. The make-up exam will be in essay format, and the maximum score a student can achieve is **50%** of the total score of the final exam.

(**Attention**: Students who are eligible to take the make-up exam are required to compose a research article consisting of an introduction, references, proper citations, and other essential sections. This article must be completed within a few hours of its assignment. Please note that there will be **no opportunity for a second make-up exam** under any circumstances. Failing to submit the research article for any reason, such as email or internet issues, will result in a grade of ZERO for the exam.**)**

Remarks:

- **Feedback on all assignments and assessments will be provided within 10 working days.**
- **A summary highlighting common mistakes or key deficiencies in answering questions will be shared with students.**
- **Additionally, students can schedule a meeting with our Teaching Assistant (TA) to review their assignments and examination papers, gaining insights into their mistakes and deficiencies. This review session must take place within a specified deadline, typically two working days after the scores are released. After this deadline, students will not be allowed to review their assignment and examination papers.**

Grade appeal

Upon completion, all scores will be posted on Canvas. It is incumbent upon the student to review their scores and verify their accuracy. If any discrepancies arise, score appeals must be submitted via email to jkwok@ust.hk. It's important to note that score appeals will not be entertained once the designated checking/appeal period has elapsed (e.g., 36 hours subsequent to the score release) if applicable.

[*In instances where a student is unable to check their paper within the stipulated checking period, the student's score will be deemed final by default. Regrettably, we won't be able to modify or rectify the score beyond the checking/appeal period.*]

Use of generative AI

Students are permitted to utilize generative artificial intelligence (AI) tools exclusively for enhancing programming tasks within this course. Nonetheless, students are obligated to duly acknowledge and credit any employment of generative AI. In the context of producing video presentations, employing generative AI tools is strictly prohibited for students.

- Leveraging ChatGPT, individuals can effortlessly generate content devoid of grammatical errors. As a result, during assessment, we presuppose that the content is devoid of any grammatical blunders.
- During the grading process, our emphasis is on two key aspects: "**Proficiency in Python**" and "**Understanding of Business and User Requirements**."
- We anticipate students to acquire coding skills by independently employing ChatGPT. For instance, when seeking additional practice and examples, ChatGPT can provide valuable assistance.

	ChatGPT only **(Other generative AI tools are NOT allowed in this course)**
Group Exercise	✔ or ✘ **(default)**
Assignment	✔
Final Exam	✘
Lecture and Lab	✔
Outside the class (for learning)	✔ **(highly recommended)**

Efficient Email Communication Guidelines

To ensure prompt assistance, please include [**Course Code** - L**X**] (**X** being the section number), e.g., [**ISOM3400**-L**1**] at the start of your email's subject line. Neglecting this may lead to delays in our response time.

Anticipate a surge in email volume as deadlines approach. For timely support, address your queries ahead of time and utilize instructor and TA office hours.

Kindly note that **direct assignment answers won't be furnished by the instructor or TAs.** Your understanding and collaboration are appreciated.

Student learning resources

Text and Reference Books

No particular textbooks or reference books are mandatory for this course. The learning materials will comprise diverse readings accessible on Canvas.

Course Website

Course content updates and other pertinent information will be communicated through the course website - http://canvas.ust.hk. It is advisable for students to consistently monitor this platform throughout the semester.

Software Requirements

- Python 3.12+
- Google Colaboratory
- Visual Studio Code (VS Code)
- ChatGPT 3.5 or above

Course schedule

The course is offered in lecture sessions and laboratory sessions.

L1:	Tuesday and Thursday	9:00 – 10:20, LSK 1014
LA1B:	Friday	14:30 – 15:20, G021
LA1A:	Friday	16:00 – 16:50, G021

Tentative Course Schedule. Please visit Canvas for updated schedule, readings, and assignments.

Schedule of Lecture (Tentative)

Week	Date	Topics	Assignment Release/Due
1	3 Sep	Intro. to Course and Programming Introduction to Python and Business Applications	
	5 Sep	Data processing: data, data types and operators	
2	10 Sep	Data processing: Lists and Tuples, Dictionaries	
	12 Sep	Data Validation: If-else, for, while, try-except	
3	17 Sep	Data Validation: If-else, for, while, try-except	Add/Drop deadline: Sep 14th
	19 Sep	Examples of Business Application	
4	24 Sep	Practice	
	26 Sep	Functions and Classes	
5	1 Oct	**No Class: The National Day**	
	3 Oct	Functions and Classes	
6	8 Oct	Functions and Classes	
	10 Oct	Functions and Classes	
7	15 Oct	Functions and Classes	
	17 Oct	**Group exercise**	
8	22 Oct	Web Automation – Selenium	
	24 Oct	Web Automation – Selenium	
9	29 Oct	Web automation – Selenium	Assignment: Released on October 29th
	31 Oct	Web automation – Selenium	
10	5 Nov	Web automation – Selenium	
	7 Nov	Web automation – Selenium	
11	12 Nov	Web Applications Development – Streamlit	
	14 Nov	Web Applications Development – Streamlit	
12	19 Nov	Web Applications Development – Streamlit	
	21 Nov	Web Applications Development – Streamlit	Assignment: Due on November 20th
13	26 Nov	Web Applications Development – Streamlit	
	28 Nov	**Presentation and Revision**	

Schedule of Laboratory (Tentative)

Week	Date	No.	Topics
1	6 Sep	LA01	VSCode & Anaconda ChatGPT, Virtual Env., data, data types
2	13 Sep	LA02	Lists, Tuples, and Dictionaries
3	20 Sep	LA03	if-else, for, while, try-except
4	27 Sep	LA04	Functions and Classes
5	4 Oct	LA05	Functions and Classes
6	11 Oct	LA06	Functions and Classes
7	18 Oct	LA07	Functions and Classes
8	25 Oct	LA08	Selenium
9	1 Nov	LA09	Selenium
10	8 Nov	LA10	Selenium
11	15 Nov	LA11	Web Applications Development
12	22 Nov	LA12	Web Applications Development
13	29 Nov	LA13	Web Applications Development

Contact Details for Instructor and TA

Prof. Kwok's office is located in room LSK4080, and he extends a warm invitation for you to visit during his office hours or at your convenience for any queries you may have. For urgent concerns, feel free to reach out via email (jkwok@ust.hk) or phone (2358-7652); however, he does emphasize that email is the preferred mode of communication as he frequently monitors it. Additionally, the Teaching Assistant (TA) assigned to this course is available to address inquiries related to grading, attendance, assignments, and any administrative matters.

Academic honesty

Upholding academic integrity stands as a fundamental principle within our university community. Any breach of integrity undermines the foundation of our learning environment and the essence of inquiry that is vital for the institution's effectiveness. I maintain a zero-tolerance stance towards cheating, and no exceptions will be entertained. Students found engaging in acts of cheating, plagiarism, or any form of academic dishonesty will face a reduction of their course grade by a minimum of one letter grade. Moreover, it is my responsibility to report any instances of unethical conduct or indications of dishonesty in this course to the University.

Please bear in mind the current university regulation: any occurrence of cheating, irrespective of its magnitude, will result in an "X" grade notation on the student's academic record, signifying that the grade was attained through dishonest means. This "X" grade will persist on the student's record until graduation. Should a student be caught cheating again and subsequently receive another "X" grade, they will be dismissed from the University.

Plagiarism encompasses the act of copying text or ideas from external sources without appropriate citation. Even if you rephrase the concept using your own words, citing the origin is necessary when utilizing someone else's idea. It is imperative to exercise extreme caution to prevent presenting someone else's work as your own. Proper citations are obligatory when incorporating external sources' ideas, arguments, or any content. Whether drawing from research or the Internet, it is mandatory to acknowledge the source, even if you employ the general notion rather than verbatim wording.

Learning environment

I wholeheartedly embrace feedback on my teaching during the entirety of the semester. I strongly encourage you to reach out to me or my TA whenever you have questions, suggestions, concerns, or if you seek advice. Your input is valued and will contribute to enhancing the learning experience. Feel free to contact us at your convenience.