ISOM3400: Business Applications Development in Python

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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.

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. Regarding presentations, employing generative AI tools is strictly prohibited for students.

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. Assignment	1, 2, 3	30%
B. In-class Exercise	1, 2	30%
C. Final Exam	1, 2, 3	40%
TOTAL:		**100%**

A. Assignment (30%) (Individual and group)

The course encompasses TWO assignments, referred to as Assignment 1 and Assignment 2. Students are anticipated to employ their Python programming skills to address tangible challenges encountered in practical business applications.

Assignment 1 (individual) - (15%)
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.

Assignment 2 (group) - (15%)
This assignment involves group collaboration. A predetermined group is tasked with conceiving and crafting a business application. Specifics regarding this assignment will be disclosed at a later point in the course. Student groups are mandated to create a video presentation, with a maximum duration of 10 minutes, to complement their submission.

(**Important Note**: Peer evaluation will be conducted subsequent to the deadline. Students are urged to ensure their contribution to the submitted assignment is equitable. Every case will be evaluated independently, with no option for appealing the decision.)

B. In-class Exercise (30%) (Individual)

Throughout the semester, there will be a total of THREE in-class exercises, all of which will be conducted individually. Students are expected to apply their Python programming skills and knowledge to resolve business challenges during these in-class sessions. As the class concludes, student responses will be collected and evaluated. Deductions arising from errors and the application of Python will be decided at the discretion of the grader. Each student will receive scores for THREE in-class exercises; however, only the two highest scores will contribute to the final grade. It's important to note that there will be NO provision for makeup in-class exercises, regardless of the circumstances.

Please be aware: Ensuring the functionality of your Python development tools, including VS Code, Google Colab, notebook computers, and others, during in-class exercises is your responsibility.

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

C. Final Exam (40%)

A comprehensive Final Exam will encompass ALL the topics covered throughout the semester. Additional details regarding this exam will be furnished during the final class session.

(**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.**)**

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.*]

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

- Google Colaboratory
- Visual Studio Code (VS Code)
    - Python 3.7+

Course schedule

The course is offered in lecture sessions and laboratory sessions.

L1	Mon and Wed	9:00-10:20	Rm 4619 (Lift 31-32)
LA1	Wed	15:00-15:50	G021, LSK Bldg
LA2	Tue	10:30-11:20	G021, LSK Bldg
LA3	Tue	17:30-18:20	G021, LSK Bldg

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

Schedule of Lecture (Tentative)

Wk.	Date	Topics	Assignment Release/Due
1	04-Sep	Intro. to Course and Programming Introduction to Python and Business Applications	
	06-Sep	Data processing 1: data, data types and operators	
2	11-Sep	Data processing 2: Lists and Tuples, Dictionaries	
	13-Sep	Data Validation 1: If-else, for, while, try-except	
3	18-Sep	Data Validation 2: If-else, for, while, try-except	
	20-Sep	Data Validation 3: If-else, for, while, try-except	
4	25-Sep	Examples of Business Application	
	27-Sep	Practice	
5	02-Oct	**No Class: The day following National Day**	
	04-Oct	Functions and Classes 1	
6	09-Oct	Functions and Classes 2	
	11-Oct	Functions and Classes 3	
7	16-Oct	Functions and Classes 4	

	18-Oct	**In-class exercise 1**	Asg.1 Release (20 Oct)
8	23-Oct	**No Class: Chung Yeung Festival**	
	25-Oct	Web Automation - Selenium 1	
9	30-Oct	Web Automation - Selenium 2	
	01-Nov	Web automation – Selenium 3	
10	06-Nov	Web automation – Selenium 4	Asg.1 Due (7 Nov)
	08-Nov	Web automation – Selenium 5	Asg.2 Release (10 Nov)
11	13-Nov	**In-class exercise 2**	
	15-Nov	Web Applications - Flask 1	
12	20-Nov	Web Applications - Flask 2	
	22-Nov	Web Applications - Flask 3	
13	27-Nov	Web Applications - Flask 4	Asg. 2 Due (28 Nov)
	29-Nov	**In-class exercise 3**	

Schedule of Laboratory (Tentative): LA1 – LA3

Wk.	Date	No.	Topics
1	5, 6 Sep	LA01	Use of Colab, Setup of VS Code & Anaconda VSCode & Anaconda: Download, install and setup
2	12, 13 Sep	LA02	To be confirmed
3	19, 20 Sep	LA03	Data and data types: Lists & Tuples if-else, for, while, try-except
4	26, 27 Sep	LA04	Data and data types: Lists & Tuples if-else, for, while, try-except
5	3, 4 Oct	LA05	Functions and Classes 1
6	10, 11 Oct	LA06	Functions and Classes 2
7	17, 18 Oct	LA07	Functions and Classes 3
8	24, 25 Oct	LA08	Selenium 1
9	31 Oct, 1 Nov	LA09	Selenium 2
10	7, 8 Nov	LA10	Selenium 3
11	14, 15 Nov	LA11	Flask 1
12	21, 22 Nov	LA12	Flask 2
13	28 Nov	LA13	Flask 3

Office Hours and Contact Information

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.