DAT101: CODING FOR BUSINESS

Spring 2024

Course Introduction

Course Title	Coding for Business
Course Code	**DAT101**
Credit Hours	3 (three)
Semester & Year	Spring 2024
Pre-requisites	None

Class Type	Section	Days	Time	Room
Lecture	1 2 3	Friday Tuesday & Thursday Tuesday & Thursday	09:00-12:00 13:00-14:30 09:00-10:30	601 601 601

Instructor

Instructor	Lik-Ren Tai
Office	Room 210
Consultation Hours	By appointment
Email	likrentai@wsu.ac.kr

Mission Map

Mission Based Goals	Approximate % of Course Content
Global Perspective	20%
Asian Expertise	20%
Creative Management & Technology Foundation	20%
Cross Cultural Competence	20%
Social Responsibility	20%
Total	100%

SolBridge Mission and Course Objectives

The prime goal of the course is to deliver the promise of SolBridge. SolBridge has the mission of educating the next generation of Asian Thought leaders. The school aims to instill in our graduates a Global Perspective, Asian Expertise, Creative Management Foundation, Cross Cultural Competence and a sense of social responsibility.

This course offers the foundational knowledge essential for managers and organizations to engage in programming using Python and SQL for the development of information systems crucial for efficient business operations. The emphasis is on comprehending various programming language functionalities, technologies, data management, error handling, system security, and information control processes managed by programmers. It encompasses a broad perspective on information programming practices and data systems management, drawing from a global Asian expertise.

The objectives of this course are:

- To understand the basic concepts of programming, including variables, data types, control structures, and functions and demonstrate proficiency in problem-solving using algorithmic thinking.
- To explore fundamental data structures such as arrays, linked lists, stacks, and queues. Implement and analyze algorithms for sorting, searching, and basic computational problems.
- To grasp the principles of object-oriented programming, including encapsulation, inheritance, and polymorphism. And design and implement classes and objects in the chosen programming language.
- To develop skills in identifying, handling, and debugging errors in code. And utilize debugging tools and techniques to troubleshoot common programming issues.
- To learn how to read from and write to files using the programming language's file I/O capabilities. And Implement exception handling to manage errors gracefully.
- To understand basic database concepts and integration with the programming language and Implement CRUD operations and interact with a database.
- To work on a practical project to apply learned concepts in a real-world scenario and collaborate with peers on a group project to enhance teamwork and project management skills.
- To develop the ability to stay updated with emerging trends and changes in the programming language and a habit of continuous learning beyond the course.

Learning Outcomes

Following successful completion of the course, the participant would be able to:

- CO 1: Construct codes with Python syntaxes
- CO 2: Troubleshoot Python codes
- CO 3: Create Python based programs
- CO 4: Write SQL queries
- CO 5: Retrieve and analyze data from databases
- CO 6: Understand Python concepts
- CO 7: Become ethically and socially responsible

Course Outcome – Solbridge Mission Matrix

Course Outcomes	Learning level	Course Outcome Statement	AoL competency Goal (code and the brief description)	Global Perspective	Asian Expertise	Creative Management Foundation	Cross Cultural Competence	Social Responsibility	Assessments
CO 1	L6 Create	Construct codes with Python syntaxes.	Concepts and Components of programming language	0	0	3	0	0	Assignments Exams
CO 1	L4 Analyze	Troubleshoot Python codes	Concepts and Components of programming language	0	0	0	0	0	Assignments Exams
CO 3	L6 Create	Create Python based programs	Programming Language Development and Implementation Approaches	0	0	3	0	0	Assignments Exams
CO 4	L3 Apply	Write SQL queries	Applications of programming language	0	0	3	0	0	Assignments Exams
CO 5	L6 Create	Data retrieval and analysis from databases	Programming Language Selection and Acquisition approaches	0	0	3	0	0	Assignments Exams
CO 6	L2 Understand	Understand Python concepts	Programming Language Selection and Acquisition approaches	0	0	3	0	0	Assignments Exams
CO 7	L6 Understand	Become ethically and socially responsible	Programming Language Selection and Acquisition approaches	0	0	3	0	0	Assignments Exams

Teaching Methodology

The course will be implemented as a combination of lectures, activities, case discussions and group work. The course will be conducted using a variety of textbook exercises, in-class handouts and multimedia tools designed to challenge students.

Course Materials and Readings

The textbook required for this course is (the material specially developed for this course):

https://bit.ly/solpython

Assessment Method and Grading

These are the components of the evaluation scheme for this course:

Component	Weight
Class Attendance	20%
Assignments, Case Studies, Quizzes and Class Exercises	20%
Midterm Examination	20%
Final Examination	40%
Total	**100%**

Attendance and Class Participation

This class requires active engagement from students which means you are required to actively participate in discussions. Effective participation involves the following aspects:

Attendance

Active participation in discussions is contingent upon your presence in class. Therefore, it is imperative to maintain 100% attendance, as any shortfall in attendance will have an adverse impact on your overall grade.

To facilitate attendance tracking, students are required to utilize the SolBridge Official Attendance App, which automatically calculates the number of absences throughout the semester. Despite the professor manually checking attendance, it remains the student's responsibility to use the attendance app. Failure to do so will be regarded as negligence, resulting in an equivalent point deduction. It is incumbent upon students to ensure the proper functioning of the app and their devices during class. It is the students' sole responsibility to arrange for the makeup of any missed classes and to acquire any class materials or assignments they may have missed.

The professor reserves the right to assign a failing grade to any student with unacceptable attendance. Notably, the following actions will be recorded as partial absences, equivalent to one or more recording periods:

- Unexcused late arrivals to class

- Unexcused cutting of classes
- Unexcused frequent exits and entries from the class
- Unexcused early departures
- Failure to use the attendance app
- Sleeping in class

Effective Listening and Contribution

Demonstrating effective listening is a crucial skill for managers, and it is an expectation that students showcase this skill in the classroom. When the instructor or any speaker is addressing the class, it is anticipated that the rest of the students maintain silence, display consideration, and show respect. Meaningful contributions to discussions can only arise from careful listening, identification of key points, and thoughtful responses. A valuable comment or contribution is one that is pertinent and enhances the overall learning experience of the class.

Class participation constitutes a significant portion of the grading system, with the anticipation that all students actively engage in regular class discussions. If there are any unclear topics, it is highly encouraged for students to seek clarification by asking questions.

It is important to note that disruptive or disrespectful behavior during lectures can undermine, diminish, or even disrupt an otherwise excellent discussion, thereby impacting your learning and contributions in lectures. Such behavior will not be tolerated, and the instructor reserves the right to discipline any student who repeatedly disrupts the class or exhibits disrespectful behavior.

Assignments

Submission of all assignments, including individual or group case studies, is mandatory and should be done through the LMS system online or as a hard copy in class, or both. Students who fail to submit assignments on time will face consequences such as a reduced grade or a complete zero for the specific assignment. Persistent failure to submit assignments promptly may lead to the instructor failing the student for the entire course. It is important to highlight that in case of technical difficulties during the submission process, students should promptly email their assignments to likrentai@wsu.ac.kr to ensure a timestamp of submission can be verified.

Assessment information

- Assignments: Coding problems will be released during lecture times
- Midterm: Contents of the Midterm Exam will be announced in 2 weeks before the exam.
- Final Exam: Contents of the Final Exam will be announced 3 weeks before the exam.

Session Plan

Week	Topic	Activity	Homework/ Assessment
1	Module 1: Python & Jupyter Basics	Lecture Q&A Discussion Coding problems	• Data Types & Variables • Troubleshooting Errors, Input • Print formatting and Boolean Methods
2	Module 2: Functions	Lecture Q&A Discussion Coding problems	• Functions with Parameters • Return Values • Sequence
3	Module 3: Conditionals	Lecture Q&A Discussion Coding problems	• if/else Conditionals with Boolean Methods • Comparison Operators • elif, casting and basic math operators • Nested Conditionals
4	Module 4: Loops	Lecture Q&A Discussion Coding problems	• while loop, incrementing • while loops with Boolean Operators • for loops
5	Module 5: Sequence Index	Lecture Q&A Discussion Coding problems	• String Sequence • Index Slicing • String Iteration • String Methods
6	Module 6: Sequence Manipulation	Lecture Q&A Discussion Coding problems	• List Sequences • List Append • List Insert • List Delete
7	Module 7: Sequence Iteration	Lecture Q&A Discussion Coding problems	• Power of List Iteration • Range Iteration • Extend, Reverse & Sort Methods • Between Strings & Lists
8	Midterm exam		
9	Module 8: File Handling	Lecture Q&A Discussion Coding problems	• Files import, open & read • Files .readline() & .close() methods • Files .readline() & .strip() methods • Files .write() & .seek() methods
10	Module 9: Advanced Methods	Lecture Q&A Discussion Coding problems	• Lambda function • Map, Filter & Reduce • zip • Comprehensions

11	SQL Module 1	Lecture Q&A Discussion Coding problems	• Spreadsheets & Databases • DBMS & Schemas • PostgreSQL + PgAdmin • Installation & Loading
12	SQL Module 2	Lecture Q&A Discussion Coding problems	• SELECT • ORDER BY • LIMIT • COUNT • WHERE • WHERE + AND/OR • Comments & AS
13	SQL Module 2 (Continued)	Lecture Q&A Discussion Coding problems	• (NOT) BETWEEN + AND • (NOT) IN • LIKE/ILIKE • Aggregate Functions • GROUP BY • HAVING
14	SQL Module 3	Lecture Q&A Discussion Coding problems	• LOWER(), UPPER() & LENGTH() • LEFT() & RIGHT() • CONCATENATE || • POSITION • SUBSTRING • Intervals and Timestamps • EXTRACT • TO_CHAR • Mathematical Functions & Operators • CASE WHEN → THEN • COALESCE • CAST • NULLIF
15	Final Exam		
16	Consultation		

Academic Integrity & Conduct

Academic integrity and honesty are fundamental to the values of our institution. Academic misconduct by students negatively affects both our academic reputation & quality and our students' learning experience & progress (academic and career). Thus, SolBridge pays utmost importance to academic integrity and honesty and expects all the students to maintain academic integrity in all their academic endeavors.

Academic Dishonesty

Academic dishonesty includes but not limited to: (a) plagiarism, (b) cheating during examinations, (c) obtaining/ providing information for reports, assignments and examinations by fraudulent means, (d) falsification of information or data, and (e) false representation of others' effort as one's own.

Some examples of academic dishonesty are: copying from other students during examinations; obtaining or using unauthorized information, material, or assistance in quizzes, exams or any academic assignment; copying material from other students' reports/ assignments and submitting the same as one's own report; creating fictitious interview materials for assignments or reports. These are just a few examples and not exhaustive. Any kind of cheating.

Plagiarism

SolBridge considers plagiarism as a serious breach of professional ethics. Plagiarism will not be tolerated in any form at SolBridge. Penalties can be as severe as expulsion from the university. To avoid plagiarism, it is always best to do your own work or cite the work of others appropriately. Refer to your student handbook for a more detailed description of plagiarism and the associated penalties.

Copying Textbooks & copyrighted materials

Copying Textbooks and other copyrighted materials without permission of publisher or author is tantamount to theft. Therefore, students are expected to purchase the prescribed books and other materials from the Woosong Bookstore or from other legal sellers.

- Students using copied versions of books without permission will be asked to leave the classroom.
- In addition, such students will get "zero" participation points and any other penalties as levied by the instructor.

The rules for any act of academic dishonesty including plagiarism and copyright violations are:

1. The first instance or the act will result in a "zero" for the assignment or the assessment in question, and a report will be filed with the disciplinary committee. Further actions may be taken by the disciplinary committee.
2. The second instance or the act will result in a 'fail' grade for the entire course, and a report will be filed with the disciplinary committee. Further actions may be taken by the disciplinary committee.
3. The third cumulative instance or act will result in institutional-level disciplinary action which could include expulsion from the school.
4. The instructor will report each instance of plagiarism, academic dishonesty and violation of school disciplinary rules to the disciplinary officer.