

The Hong Kong University of Science and Technology (Guangzhou)
UG Course Syllabus

[Course Title] Data Science Project

[Course Code] DSAA 2044

[No. of Credits] 3

[Any pre-/co-requisites] DSAA 1001 OR AIAA 2205

Introduction to Data Science and Analytics OR Introduction to Artificial Intelligence

Name: [Instructor(s) Name] Zishuo DING

Email: [Your Email Address] zishuoding@hkust-gz.edu.cn

Office Hours: [Specify Office Hours and Location]

Tuesday & Thursday: 15:00-16:00, W4-410, 1-Sep-2025 - 5-Dec-2025

Teaching Assistants:

Zhengquan Li (李政权) , PhD in DSA, zli169@connect.hkust-gz.edu.cn

Xin Wang (王鑫) , PhD in DSA, xwang496@connect.hkust-gz.edu.cn

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TA Office Hours:

Zhengquan Li: Mon 9:30-11:30 E1-5F-179

Xin Wang: Fri 14:30-16:30 E1-5F-182

Yichen Wang: Fri 14:30-16:30 W2-3F-5

Course Description

[Briefly describe the course content, key topics or themes, objectives, methods of instruction, e.g., lectures, discussions, projects].

In this course, students will work in teams to design, implement, and deliver a software system that addresses a real-world data science problem. Projects will be sourced from domains such as finance, healthcare, transportation, and manufacturing. Each team will apply data science tools and techniques to develop functional software solutions, integrating data-driven models into real applications. The course also introduces agile project management, teamwork, and communication skills. Students will work from requirements through to implementation and delivery, following a structured process with a focus on collaboration, iteration, and clear reporting.

Intended Learning Outcomes (ILOs)

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

1. Use various data science tools and techniques to solve problems.
2. Master project management, team dynamics, and communication skill.
3. Capable of evaluating various data science methods and be able to use different methods to address different issues.

Assessment and Grading

This course will be assessed using criterion-referencing and grades will not be assigned using a curve. Detailed rubrics for each assignment are provided below, outlining the criteria used for evaluation.

Assessments:

[List specific assessed tasks, exams, quizzes, their weightage, and due dates; perhaps, add a summary table as below, to precede the details for each assessment.]

Assessment Task	Contribution to Overall Course grade (%)	Due date
Project report	30%	5/12/2025 *
Presentation	30%	5/12/2025 *
Project implementation	40%	5/12/2025 *

* Assessment marks for individual assessed tasks will be released within two weeks of the due date.

Mapping of Course ILOs to Assessment Tasks

[add to/delete table as appropriate]

Assessed Task	Mapped ILOs	Explanation
Project report	ILO1, ILO2	Students are required to justify their choice of tools and techniques, document how they were applied, and present the analytical process in a structured way. This shows not only that they can use data science methods, but also that they can explain and contextualize their application in solving a concrete problem (ILO1). The report also assesses students' ability to manage their project timeline, coordinate team contributions, and communicate results in a clear, professional format. This captures the teamwork and communication dimension (ILO2).
Presentation	ILO2	This task evaluates students' ability to communicate project outcomes clearly and persuasively, while demonstrating their effectiveness in teamwork and professional presentation skills, which are essential aspects of project management and team dynamics (ILO2).
Project implementation	ILO1, ILO2, ILO3	This task assesses students' ability to use data science tools and techniques to develop a working solution (ILO1), manage the project collaboratively within a team setting (ILO2), and critically evaluate and select appropriate methods to address different aspects of the problem (ILO3).

Grading Rubrics

[Detailed rubrics for each assignment will be provided. These rubrics clearly outline the criteria used for evaluation. Students can refer to these rubrics to understand how their work will be assessed.]

Criteria	A (Excellent)	B (Good)	C (Satisfactory)	D (Marginal Pass)	F (Fail)
Research and Understanding	Comprehensive research, deep understanding.	Good research, clear understanding.	Basic research, some understanding.	Limited research and understanding.	Insufficient research/understanding.
Application of Concepts	Excellent application, demonstrates innovation.	Good application, some insight.	Basic application, limited insight.	Poor application of concepts.	Incorrect or no application.
Presentation and Organization	Clear, well-organized, engaging presentation.	Clear and organized presentation.	Somewhat organized, lacks clarity.	Disorganized and unclear.	Poor presentation.
Teamwork	Excellent collaboration, balanced contributions.	Good collaboration, mostly balanced.	Some collaboration, uneven contributions.	Poor collaboration.	Little to no collaboration.

Final Grade Descriptors:

[As appropriate to the course and aligned with university standards]

Grades	Short Description	Elaboration on subject grading description
A	Excellent Performance	Demonstrates a comprehensive grasp of subject matter, expertise in problem-solving, and significant creativity in thinking. Exhibits a high capacity for scholarship and collaboration, going beyond core requirements to achieve learning goals. As a reference, the overall course score in A category (A-, A, A+) is no less than 85.00 (out of 100).
B	Good Performance	Shows good knowledge and understanding of the main subject matter, competence in problem-solving, and the ability to analyze and evaluate issues. Displays high motivation to learn and the ability to work effectively with others. As a reference, the overall course score in B category (B-, B, B+) is between 70.00 and 84.99 (out of 100).

		100).
C	Satisfactory Performance	Possesses adequate knowledge of core subject matter, competence in dealing with familiar problems, and some capacity for analysis and critical thinking. Shows persistence and effort to achieve broadly defined learning goals. As a reference, the overall course score in C category (C-, C, C+) is between 55.00 and 69.99 (out of 100).
D	Marginal Pass	Has threshold knowledge of core subject matter, potential to achieve key professional skills, and the ability to make basic judgments. Benefits from the course and has the potential to develop in the discipline. As a reference, the overall course score in D category is between 50.00 and 54.99 (out of 100).
F	Fail	Demonstrates insufficient understanding of the subject matter and lacks the necessary problem-solving skills. Shows limited ability to think critically or analytically and exhibits minimal effort towards achieving learning goals. Does not meet the threshold requirements for professional practice or development in the discipline. As a reference, the overall course score in F category is below 50.00 (out of 100).

Course AI Policy

[State the course policy on the use of generative artificial intelligence tools to complete assessment tasks.]

Students are encouraged to use generative artificial intelligence (GAI) tools (e.g., ChatGPT, Copilot, Gemini) as supportive resources during the course. Appropriate uses include:

- Understanding legacy code and unfamiliar libraries or frameworks.
- Exploring alternative approaches to data science problems.
- Enhancing self-study by clarifying concepts, generating examples, or brainstorming ideas.
- Improving productivity in coding, documentation, and project planning.

However, students must adhere to the following principles:

- Transparency – If AI tools are used in project development (e.g., code suggestions, debugging assistance, or documentation drafting), students must acknowledge and document how these tools were applied in their project report.
- Critical Use – Students should treat AI-generated output as supporting material, and are responsible for verifying correctness, originality, and suitability.
- Ethics & Academic Honesty – Misrepresenting AI-generated work as one's own will be considered a breach of academic integrity.

Communication and Feedback

Assessment marks for assessed tasks will be communicated via Canvas within two weeks of submission. Feedback will include strengths, areas for improvement, etc. Students who have

further questions about the feedback including marks should consult the instructor within five working days after the feedback is received.

Resubmission Policy

[If applicable, explain the policy for resubmitting work or reassessment opportunities, including conditions and deadlines.]

Late Submission Policy

1-3 Days Late: 10% of the total possible points will be deducted from the score.

4-7 Days Late: 20% of the total possible points will be deducted.

More than 7 Days Late: The submission will not be accepted and will receive a score of zero.

Extensions:

Extensions will only be granted in exceptional circumstances, such as documented medical emergencies or other serious situations. Students must contact the instructor as soon as possible to request an extension.

If there are technical difficulties with the submission platform, students must email the instructor immediately with evidence of the issue (such as screenshots) and submit the assignment as soon as the issue is resolved.

Required Texts and Materials

[List required textbooks, readings, and any other materials]

The textbooks are recommended but NOT REQUIRED.

- (Main textbook) Software Engineering 10th Edition by Ian Sommerville
- (Supporting textbooks)
 - Agile Software Requirements: Lean Requirements Practices for Teams, Programs, and the Enterprise
 - Agile Estimating and Planning

Academic Integrity

Students are expected to adhere to the university's academic integrity policy. Students are expected to uphold HKUST(GZ)'s Academic Honor Code and to maintain the highest standards of academic integrity. The University has zero tolerance of academic misconduct. Please refer to Regulations for Academic Integrity and Student Conduct for the University's definition of plagiarism and ways to avoid cheating and plagiarism.

[Optional] Additional Resources

[List any additional resources, such as online platforms, library resources, etc.]