

The Hong Kong University of Science and Technology

UG Course Syllabus (Fall 2026-27)

[Course Title] Introduction to Artificial Intelligence

[Course Code] COMP 2211

[No. of Credits] 3 credits

[Any pre-/co-requisites] COMP 1023 OR COMP 1028

Name: TSOI Yau Chat

Email: desmond@ust.hk

Office Hours: To be confirmed

Course Description

This course provides a gentle introduction to artificial intelligence (AI), and emphasizes hands-on practical experiences with Python and AI software tools to explore AI applications. Interesting applications that have been covered in previous class offerings include, but are not limited to, medical diagnosis, predictions of customer behaviour and user attitudes, character recognition, spam mail detection, text and image classifications and recognitions, sentiment analysis, and retinal vessel segmentation. The course also explores recent advances and discusses the history and ethics of AI.

Only for students in their first and second year of study or those with approval from instructors by applying requisite waiver.

List of Topics

1. Brief history of AI
2. Search and problem solving
3. Knowledge representation
4. Probabilistic reasoning
5. Machine learning
6. Computer vision and image processing
7. Speech and language processing
8. Robotics
9. Social and ethical implications of AI
10. Potential and limitations

Keyword Syllabus

1. A brief history of AI
2. Advanced Python for AI
3. Naïve Bayes
4. K-nearest neighbors
5. K-means clustering
6. Artificial neuron and multi-layer perceptron
7. Fundamentals of image processing
8. Deep learning using PyTorch

9. Convolutional neural networks
10. Minimax and alpha-beta pruning
11. Artificial intelligence ethics

Intended Learning Outcomes (ILOs)

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

1. Demonstrate understanding of the historical perspective and development of artificial intelligence (AI).
2. Demonstrate understanding of the basic elements of AI thinking.
3. Demonstrate proficiency in applying basic principles and techniques of AI and using AI software tools to solve problems in a range of applications.
4. Demonstrate awareness of the social and ethical implications as well as potential and limitations of AI.

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.

Assessment Task	Contribution to Overall Course grade (%)
Laboratory exercises	10%
Programming assignments	30%
Midterm examination	20%
Final examination	40%

Assessments:

Assessment Task	Contribution to Overall Course grade (%)	Tentative Due date
Lab 2 [#]	2.5%	03/10/2026*
Lab 4 [#]	2.5%	17/10/2026*
Lab 6 [#]	2.5%	31/11/2026*
Lab 8 [#]	2.5%	14/11/2026*
Lab 10 [#]	2.5%	28/11/2026*
Programming assignment 1	15%	24/10/2026*
Programming assignment 2	15%	30/11/2026*
Midterm examination	20%	
Final examination	40%	

*Assessment marks for individual assessed tasks will be released within two weeks of the due date. #10 labs are given, but only the 5 labs are required to be submitted and graded. Additionally, only the best 4 labs are counted towards the final grade.

Mapping of Course ILOs to Assessment Tasks

Assessed Task	Mapped ILOs	Explanation
Lab 2	ILO2, ILO3	The labs and programming assignments assess students' ability to understand the basic elements of AI thinking (ILO2) and to demonstrate proficiency in applying the basic principles and techniques of AI, as well as using AI software tools to solve problems in a variety of applications (ILO3).
Lab 4	ILO2, ILO3	
Lab 6	ILO2, ILO3	
Lab 8	ILO2, ILO3	
Lab 10	ILO2, ILO3	
Programming assignment 1	ILO2, ILO3	
Programming assignment 2	ILO2, ILO3	
Midterm examination	ILO1, ILO2, ILO2, ILO4	The exams assess students' ability to demonstrate an understanding of the historical perspective and development of AI (ILO1), to understand the basic elements of AI thinking (ILO2), to demonstrate proficiency in applying the basic principles and techniques of AI and using AI software tools to solve problems in a range of applications (ILO3), and to be aware of the social and ethical implications, as well as the potential and limitations of AI (ILO4).
Final examination	ILO1, ILO2, ILO3, ILO4	

Grading Rubrics

Each programming assignment has multiple tasks and carries 100 marks. The criteria for evaluation depends on specific parts in each assignment. Since the tasks in each assignment vary from year to year and are unknown in advance, it is impossible to specify a set of specific grading criteria.

Final Grade Descriptors:

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.
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.
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.

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.
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.

Course AI Policy

Generative artificial intelligence tools like ChatGPT or similar software are prohibited for all labs and assignments to facilitate reliable assessment of students' learning outcomes.

Communication and Feedback

Assessment marks for individual tasks will be communicated via Canvas within two weeks of submission. Feedback on assignments will include details about test cases and common errors. Students who have further questions about the feedback, including marks, should consult the instructor within five working days after receiving the feedback.

Resubmission Policy

No resubmission will be accepted unless accompanied by prior arrangement with reasonable situations and supporting documents.

Required Texts and Materials

Nil

Academic Integrity

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

Additional Resources

Reference Books

- Hadelin de Ponteves. **AI Crash Course**: A fun and hands-on introduction to machine learning, reinforcement learning, deep learning, and artificial intelligence with Python. Packt Publishing. 2019.

- Denis Rothman, Matthew Lamons, Rahul Kumar, Abhishek Nagaraja, Amir Ziai, and Ankit Dixit. **Python: Beginner's Guide to Artificial Intelligence**: Build applications to intelligently interact with the world around you using Python. Packt Publishing. 2018.
- Prateek Joshi, **Artificial Intelligence with Python**: Build real-world artificial intelligence applications with Python to intelligently interact with the world around you. Packt Publishing. 2017.
- Sandipan Dey, **Python Image Processing Cookbook**. Packt Publishing. 2020.