

**City University of Hong Kong**  
**Course Syllabus**

**offered by Department of Information Systems**  
**with effect from Semester A 2024 / 25**

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**Part I Course Overview**

<b>Course Title:</b>	Artificial Intelligence for Business Applications
<b>Course Code:</b>	IS6423
<b>Course Duration:</b>	One Semester (13 weeks)
<b>Credit Units:</b>	3
<b>Level:</b>	P6
<b>Medium of Instruction:</b>	English
<b>Medium of Assessment:</b>	English
<b>Prerequisites:</b> <i>(Course Code and Title)</i>	Nil
<b>Precursors:</b> <i>(Course Code and Title)</i>	IS6400 Business Data Analytics
<b>Equivalent Courses:</b> <i>(Course Code and Title)</i>	Nil
<b>Exclusive Courses:</b> <i>(Course Code and Title)</i>	Nil

## Part II Course Details

### 1. Abstract

This Master-level course explores the practical applications of Artificial Intelligence (AI) in the context of business. Students will learn how to leverage these techniques and models to solve complex business problems, optimize processes, enhance decision-making, and drive innovation. The course will cover theoretical foundations, hands-on practical exercises, and case studies to provide students with a comprehensive understanding of AI techniques and their impact on business strategies.

### 2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1.	Describe the fundamental concepts and principles of Artificial Intelligence and their applications in business.	10%			
2.	Apply various AI techniques and models used in different business domains.	25%	✓	✓	
3.	Apply practical skills to design, implement, and evaluate AI solutions for business applications.	25%	✓	✓	
4.	Apply AI techniques to real-world business challenges and decision-making processes.	25%	✓	✓	✓
5.	Critically evaluate the impact of AI on business strategies, innovation, and customer experience.	15%	✓	✓	
		100%			

A1: *Attitude*

*Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.*

A2: *Ability*

*Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.*

A3: *Accomplishments*

*Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.*

### 3. Learning and Teaching Activities(LTAs)

(LTAs designed to facilitate students' achievement of the CILOs.)

LTA	Brief Description	CILO No.					Hours/week (if applicable)
		1	2	3	4	5	
LTA1: Lecture	Students will learn the concepts of Artificial Intelligence and its applications in business.	✓	✓	✓			
LTA2: Case Studies	Students will learn and discuss the examples of various AI in different business domains.	✓	✓				
LTA3: Demonstrations and hands-on exercises	Students will demonstrate and practice AI technique design, implementation, and conduct evaluation for real-world business challenges and decision-making processes.		✓	✓	✓		
LTA4: Project	Students would have to complete a group project to demonstrate the ability on effectively applying AI to solve real-world business problems.	✓	✓	✓	✓	✓	

### 4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.					Weighting	Remarks
	1	2	3	4	5		
<b><u>AT1. Participation and Exercises</u></b> Each exercise consists of impromptu quizzes, paired/small group discussions, role-plays, self reflection, or student presentations to assess students' understanding of the chosen topics and their abilities to apply their skills.	✓	✓	✓	✓	✓	10%	
<b><u>AT2. Group Project</u></b> A group project, which includes a project report and/or a presentation, will be assigned to let students apply AI concepts and techniques to for solving real-world business problems.	✓	✓	✓	✓	✓	40%	
<b><u>AT3. Examination (Duration: 2 hours)</u></b> A written examination is developed to assess student's competence level of the topics taught.	✓	✓	✓	✓	✓	50%	
						100%	

Note: Students must pass BOTH coursework and examination in order to get an overall pass in this course.

## 5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. AT1: Seminar Participation and Exercises	Ability to accurately describe all key concepts and principles of AI and its applications in business;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to accurately describe various AI techniques and models used in different business domains;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively design, implement, and evaluate AI solutions for business applications;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply AI techniques to real-world business challenges and decision-making processes;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to critically evaluate the impact of AI on business strategies, innovation, and customer experience	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. AT2: Group Project	Ability to accurately describe all key concepts and principles of AI and its applications in business;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to accurately describe various AI techniques and models used in different business domains;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively design, implement, and evaluate AI	High	Significant	Moderate	Basic	Not even reaching marginal levels

	solutions for business applications;					
	Capability to creatively and effectively apply AI techniques to real-world business challenges and decision-making processes;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to critically evaluate the impact of AI on business strategies, innovation, and customer experience	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. AT3: Final Exam	Ability to accurately describe all key concepts and principles of AI and its applications in business;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to accurately describe various AI techniques and models used in different business domains;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively design, implement, and evaluate AI solutions for business applications;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply AI techniques to real-world business challenges and decision-making processes;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to critically evaluate the impact of AI on business strategies, innovation, and customer experience	High	Significant	Moderate	Basic	Not even reaching marginal levels

Applicable to students admitted from Semester A 2022/23 to Summer Term 2024

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
1. AT1: Seminar Participation and Exercises	Ability to accurately describe all key concepts and principles of AI and its applications in business;	High	Significant	Moderate	Not even reaching marginal levels
	Ability to accurately describe various AI techniques and models used in different business domains;	High	Significant	Moderate	Not even reaching marginal levels
	Capability to creatively and effectively design, implement, and evaluate AI solutions for business applications;	High	Significant	Moderate	Not even reaching marginal levels
	Capability to creatively and effectively apply AI techniques to real-world business challenges and decision-making processes;	High	Significant	Moderate	Not even reaching marginal levels
	Ability to critically evaluate the impact of AI on business strategies, innovation, and customer experience	High	Significant	Moderate	Not even reaching marginal levels
2. AT2: Group Project	Ability to accurately describe all key concepts and principles of AI and its applications in business;	High	Significant	Moderate	Not even reaching marginal levels
	Ability to accurately describe various AI techniques and models used in different business domains;	High	Significant	Moderate	Not even reaching marginal levels
	Capability to creatively and effectively design, implement, and evaluate AI solutions for business applications;	High	Significant	Moderate	Not even reaching marginal levels

	Capability to creatively and effectively apply AI techniques to real-world business challenges and decision-making processes;	High	Significant	Moderate	Not even reaching marginal levels
	Ability to critically evaluate the impact of AI on business strategies, innovation, and customer experience	High	Significant	Moderate	Not even reaching marginal levels
3. AT3: Examination	Ability to accurately describe all key concepts and principles of AI and its applications in business;	High	Significant	Moderate	Not even reaching marginal levels
	Ability to accurately describe various AI techniques and models used in different business domains;	High	Significant	Moderate	Not even reaching marginal levels
	Capability to creatively and effectively design, implement, and evaluate AI solutions for business applications;	High	Significant	Moderate	Not even reaching marginal levels
	Capability to creatively and effectively apply AI techniques to real-world business challenges and decision-making processes;	High	Significant	Moderate	Not even reaching marginal levels
	Ability to critically evaluate the impact of AI on business strategies, innovation, and customer experience	High	Significant	Moderate	Not even reaching marginal levels

### **Part III Other Information** (more details can be provided separately in the teaching plan)

#### **1. Keyword Syllabus**

*(An indication of the key topics of the course.)*

##### Introduction to Artificial Intelligence in Business

- Overview of Artificial Intelligence and its applications in business
- Introduction to machine learning, deep learning, and other AI techniques

##### AI Techniques and Models for Business

- Machinelearning algorithms overview
- Deep learning algorithms overview
- Sequence modeling
- Reinforcement learning and its applications in business
- Natural language processing (NLP) and text analytics
- Computer vision and image recognition

##### AI Model Development and Evaluation

- Model selection and evaluation metrics
- Training and validation techniques
- Hyperparameter tuning and optimization
- Model performance assessment and interpretation

##### AI Applications in Business

- Predictive analytics for sales forecasting and demand prediction
- Customer segmentation and personalized marketing
- Recommender systems for personalized recommendations
- Fraud detection and anomaly detection
- Process optimization and supply chain management

##### Case Studies and Industry Applications

- AI in financial services
- AI for research and innovation
- AI in e-commerce and online platforms

##### Innovation and Future Trends in Applied AI

- Emerging trends and advancements in AI technologies
- Implications for business innovation and disruption

##### Practical Projects and Hands-on Exercises

- Implementing AI models using popular frameworks and libraries
- Solving business problems through AI projects
- Presenting and discussing project outcomes and insights



## 2. Reading List

### 2.1 Compulsory Readings

*(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)*

1.	Aurélien Géron, Hands-On Machine Learning with Scikit-Learn and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems, O'Reilly Media, 2017.
2.	Ian Goodfellow, Yoshua Bengio, Aaron Courville, Deep Learning, MIT Press, 2016

### 2.2 Additional Readings

*(Additional references for students to learn to expand their knowledge about the subject.)*

1.	Nil
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### 2.3 Online Resources

Course reading materials will be augmented by articles from journals, whitepapers, and other materials available on-line.