City University of Hong Kong
Course Syllabus

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

Part I   Course Overview

Course Title: Generative Artificial Intelligence for Business

Course Code: IS5542

Course Duration: One Semester (13 weeks)

Credit Units: 3

Level: P5

**Medium of
Instruction:**   English

**Medium of
Assessment:**   English

Prerequisites:
(Course Code and Title)   Nil

Precursors:
(Course Code and Title)   Nil

Equivalent Courses:
(Course Code and Title)   Nil

Exclusive Courses:
(Course Code and Title)   Nil

Part II   Course Details

1.   **Abstract**

This Master-level course explores the practical applications and implications of generative AI (e.g., ChatGPT, a state-of-the-art large language model) in the context of business. Students will learn how to leverage generative AI techniques to develop intelligent conversational agents, automate customer interactions, enhance decision-making processes, and drive value in various business domains. The course will cover theoretical foundations, hands-on practical exercises, and case studies to provide students with a comprehensive understanding of generative AI and its impact on business innovations.

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.	Design the theoretical foundations and principles of generative AI and conversational agents.	30%			
2.	Apply the potential applications of large language models (e.g. ChatGPT) in different business domains	20%	✓	✓	
3.	Apply practical skills to design, train, and evaluate generative AI models for business applications	20%	✓	✓	
4.	Analyze and assess the ethical and legal considerations associated with generative AI in business.	10%	✓	✓	
5.	Apply generative AI techniquesto automate customer interactions and support business decision-making.	10%	✓	✓	✓
6.	Critically evaluate the impact of generative AI and large language models on business strategies and customer experience.	10%	✓	✓	
		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)
(LTAsdesigned to facilitate students' achievement of the CILOs.)

Indicative of likely activities and tasks students will undertake to learn in this course.   Final details will be provided to students in their first week of attendance in this course.

Seminar   :   3 hours per week

LTA	Brief Description	CILO No.						Hours/week (if applicable)
		1	2	3	4	5	6	
LTA1: Seminars:	Students will learn and discuss the concepts, frameworks, strategies and applications of Generative AI and conversational agents.	✓	✓	✓	✓			
LTA2: Case Studies:	Students will discuss and analyze the effective use of large language models (e.g., ChatGPT) in different business domain.	✓	✓	✓	✓	✓		
LTA3: Hands-on Exercises:	Students will develop the practical skills of designing, training, and evaluating generative AI models for different applications. Students will analyze and assess the ethical and legal considerations associated with generative AI in business. Students will apply generative AI techniques to automate customer interactions and support business decision-making			✓	✓	✓		
LTA4: Project	Students would have to complete a group project to demonstrate the ability on effectively use generative AI models in different business domain.	✓	✓	✓	✓	✓	✓	

4. Assessment Tasks/Activities (ATs)

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

Indicative of likely activities and tasks students will undertake to learn in this course. Final details will be provided to students in their first week of attendance in this course.

Assessment Tasks/Activities		CILO No.						Weighting	Remarks
		1	2	3	4	5	6		
	Continuous Assessment: 50%								
AT1. Participation and Exercises 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%	
AT2. Group Project A group project, which includes a project report and/or a presentation, will be assigned to let students apply generative AI concepts and techniques to plan, develop, and/or evaluate the generative AI and large language models on a selected business domain.		✓	✓	✓	✓	✓	✓	40%	
	Examination: 50% (duration: one 2-hour exam)								
AT3. Examination 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)
AT1. Participation and Exercises	Ability to accurately describe all key generative AI concepts and conversational agents;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply large language models in different business domains;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively design, train, and evaluate generative AI models for different business applications;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to analyze and assess the ethical and legal considerations associated with generative AI in business;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply generative AI techniques to automate customer interactions and support business decision-making;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to critically evaluate the impact of generative AI and large language models on business strategies and customer experience	High	Significant	Moderate	Basic	Not even reaching marginal levels
AT2. Group Project	Ability to accurately describe all key generative AI concepts and conversational agents;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply large language models in different business domains;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively design, train, and evaluate generative AI models for different business applications;	High	Significant	Moderate	Basic	Not even reaching marginal levels

		High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to analyze and assess the ethical and legal considerations associated with generative AI in business;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply generative AI techniques to automate customer interactions and support business decision-making;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to critically evaluate the impact of generative AI and large language models on business strategies and customer experience	High	Significant	Moderate	Basic	Not even reaching marginal levels
AT3. Examination	Ability to accurately describe all key generative AI concepts and conversational agents;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply large language models in different business domains;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively design, train, and evaluate generative AI models for different business applications;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to analyze and assess the ethical and legal considerations associated with generative AI in business;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply generative AI techniques to automate customer interactions and support business decision-making;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to critically evaluate the impact of generative AI and large language models on business strategies 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)
AT1. Participation and Exercises	Ability to accurately describe all key generative AI concepts and conversational agents;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply large language models in different business domains;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively design, train, and evaluate generative AI models for different business applications;	High	Significant	Basic	Not even reaching marginal levels
	Ability to analyze and assess the ethical and legal considerations associated with generative AI in business;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply generative AI techniques to automate customer interactions and support business decision-making;	High	Significant	Basic	Not even reaching marginal levels
	Ability to critically evaluate the impact of generative AI and large language models on business strategies and customer experience	High	Significant	Basic	Not even reaching marginal levels
AT2. Group Project	Ability to accurately describe all key generative AI concepts and conversational agents;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply large language models in different business domains;	High	Significant	Basic	Not even reaching marginal levels

		High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively design, train, and evaluate generative AI models for different business applications;	High	Significant	Basic	Not even reaching marginal levels
	Ability to analyze and assess the ethical and legal considerations associated with generative AI in business;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply generative AI techniques to automate customer interactions and support business decision-making;	High	Significant	Basic	Not even reaching marginal levels
	Ability to critically evaluate the impact of generative AI and large language models on business strategies and customer experience	High	Significant	Basic	Not even reaching marginal levels
AT3. Examination	Ability to accurately describe all key generative AI concepts and conversational agents;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply large language models in different business domains;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively design, train, and evaluate generative AI models for different business applications;	High	Significant	Basic	Not even reaching marginal levels
	Ability to analyze and assess the ethical and legal considerations associated with generative AI in business;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply generative AI techniques to automate customer interactions and support business decision-making;	High	Significant	Basic	Not even reaching marginal levels
	Ability to critically evaluate the impact of generative AI and large language models on business strategies and customer experience	High	Significant	Basic	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 Generative AI for Business
    - Overview of generative AI and its applications in business
    - Definition and significance of generative AI
    - Large language models and their applications in business
    - Ethical and legal considerations in generative AI

    Understanding large language models (e.g., ChatGPT)
    - Overview of large language model architecture and capabilities
    - Comparison of generative AI models and chatbot frameworks
    - Sequence generation models (e.g., LSTM) and Reinforcement learning for generative AI
    - Limitations and challenges of using generative AI techniques in business contexts

    Designing Conversational Flows and User Experiences
    - Conversational design principles and best practices
    - Defining user intents and system responses
    - Handling complex user queries and maintaining context

    Training and Fine-tuning large language Models
    - Dataset preparation and pre processing
    - Model architecture design and training strategies
    - Evaluation metrics for generative AI models
    - Transfer learning and fine-tuning a large language model for specific business domains
    - Fine-tuning and optimization techniques

    Integrating large language models into Business Applications
    - Deployment options for chatbots in various business platforms
    - Integrating Chatbots with existing customer service systems
    - Managing scalability, security, and privacy concerns

    Ethical and Legal Considerations in Chatbot Deployment
    - Bias, fairness, and transparency in generative AI
    - Intellectual property and copyright considerations
    - Privacy and data protection issues
    - Regulatory frameworks and guidelines

    Case Studies and Industry Applications
    - Generative AI in marketing and advertising
    - Generative AI for product design and customization
    - Generative AI l in financial modeling and forecasting
    - Generative AI for personalized user experiences
    - Generative AI for decision support and knowledge management

    Innovation and Future Trends in Generative AI
    - Emerging trends and advancements in generative AI and chatbot technology
    - Implications for business innovation, customer experience, and workforce augmentation
    - Ethical and societal considerations of advanced generative AI techniques

    Practical Projects and Hands-on Exercises
    - Implementing generative AI models using popular frameworks and libraries
    - Solving business problems through generative AI projects
    - Presenting and discussing project outcomes and insights
    - Evaluating and optimizing system performance through real-world scenarios

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.	Nil

2.2 Additional Readings

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

1.	Nil

2.3 Online Resources:

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