

**City University of Hong Kong
Course Syllabus**

**offered by Department of Information Systems
with effect from Semester A 2024 / 2025**

Part I Course Overview

Course Title:	Large Language Model with Prompt Engineering for Business
Course Code:	IS6620
Course Duration:	One semester (13 weeks)
Credit Units:	3
Level:	P6
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: <i>(Course Code and Title)</i>	Nil
Precursors: <i>(Course Code and Title)</i>	Nil
Equivalent Courses: <i>(Course Code and Title)</i>	Nil
Exclusive Courses: <i>(Course Code and Title)</i>	Nil

Part II Course Details

1. Abstract

This Master-level course in the College of Business focuses on the utilization of large language models and prompt engineering techniques for enhancing business applications. Students will explore the capabilities of state-of-the-art language models, such as ChatGPT, and learn how to effectively tailor prompts to generate desired outputs. The course will cover topics including natural language processing, text generation, sentiment analysis, and language model fine-tuning. Through a combination of theoretical lectures, hands-on exercises, and real-world case studies, students will develop the skills to leverage large language models for various business use cases, such as customer service, content creation, and market research.

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 principles and fundamentals of large language models.	10%			
2.	Analyze the concept of prompt engineering and its importance in achieving desired language model outputs.	20%	✓	✓	
3.	Gain proficiency in utilizing large language models for text generation and natural language processing tasks.	20%	✓	✓	
4.	Apply skills in fine-tuning language models for specific business applications.	20%	✓	✓	
5.	Apply large language models to solve real-world business challenges, such as customer sentiment analysis and content generation.	10%	✓	✓	✓
6.	Analyze ethical considerations and potential biases associated with large language models in business applications.	10%	✓	✓	
7.	Relate critical thinking and problem-solving abilities through hands-on projects and case studies.	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)

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

Seminar : 39 hours

LTA	Brief Description	CILO No.							Hours/week (if applicable)
		1	2	3	4	5	6	7	
LTA1: Seminars:	Students will learn the concepts, frameworks and strategies of large language models, its applications in business, and achieving desired language model outputs.	✓	✓	✓	✓	✓	✓	✓	
LTA2: Case Studies:	Students will discuss and analyze the effective use of large language models (e.g., ChatGPT) to solve real-world business challenges.	✓	✓	✓		✓			
LTA3: Hands-on Exercises:	Students will develop the practical skills of fine-tuning language models for specific business applications, utilize large language models for text generation and natural language processing tasks, and analyze ethical considerations and potential biases associated with large language models in business applications		✓	✓	✓		✓		
LTA4: Project	Students would have to complete a group project to demonstrate the ability on effectively use large language model with prompt engineering for real-world business challenges.	✓	✓	✓	✓	✓	✓	✓	

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	6	7		
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 large language model and prompt engineering concepts and techniques to plan, develop, and/or evaluate the business solution for some real-world business challenge.	✓	✓	✓	✓	✓	✓	✓	40%	
Examination: 50% (duration: one 2-hour exam)									
AT3: Final 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 concepts and principles of large language models;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to accurately describe the concept of prompt engineering and its importance in achieving desired language model outputs;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively use large language models for text generation and natural language processing tasks;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively fine-tuning language models for specific business applications;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply large language models to solve real-world business challenges;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to accurately analyze ethical considerations and potential biases associated with large language models in business applications;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability on critical thinking and problem-solving	High	Significant	Moderate	Basic	Not even reaching marginal levels
AT2. Group Project	Ability to accurately describe all key concepts and principles of large language models;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to accurately describe the concept of prompt engineering and its importance in achieving desired language model outputs;	High	Significant	Moderate	Basic	Not even reaching marginal levels

	Capability to creatively and effectively use large language models for text generation and natural language processing tasks;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively fine-tuning language models for specific business applications;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply large language models to solve real-world business challenges;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to accurately analyze ethical considerations and potential biases associated with large language models in business applications;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability on critical thinking and problem-solving	High	Significant	Moderate	Basic	Not even reaching marginal levels
AT3. Examination	Ability to accurately describe all key concepts and principles of large language models;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to accurately describe the concept of prompt engineering and its importance in achieving desired language model outputs;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively use large language models for text generation and natural language processing tasks;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively fine-tuning language models for specific business applications;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply large language models to solve real-world business challenges;	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to accurately analyze ethical considerations and potential biases associated with large language models in business applications	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 concepts and principles of large language models;	High	Significant	Basic	Not even reaching marginal levels
	Ability to accurately describe the concept of prompt engineering and its importance in achieving desired language model outputs;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively use large language models for text generation and natural language processing tasks;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively fine-tuning language models for specific business applications;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply large language models to solve real-world business challenges;	High	Significant	Basic	Not even reaching marginal levels
	Ability to accurately analyze ethical considerations and potential biases associated with large language models in business applications;	High	Significant	Basic	Not even reaching marginal levels
	Ability on critical thinking and problem-solving	High	Significant	Basic	Not even reaching marginal levels
AT2. Group Project	Ability to accurately describe all key concepts and principles of large language models;	High	Significant	Basic	Not even reaching marginal levels
	Ability to accurately describe the concept of prompt engineering and its importance in achieving desired language model outputs;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively use large language models for text generation and natural language processing tasks;	High	Significant	Basic	Not even reaching marginal levels

	Capability to creatively and effectively fine-tuning language models for specific business applications;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply large language models to solve real-world business challenges;	High	Significant	Basic	Not even reaching marginal levels
	Ability to accurately analyze ethical considerations and potential biases associated with large language models in business applications;	High	Significant	Basic	Not even reaching marginal levels
	Ability on critical thinking and problem-solving	High	Significant	Basic	Not even reaching marginal levels
AT3. Examination	Ability to accurately describe all key concepts and principles of large language models;	High	Significant	Basic	Not even reaching marginal levels
	Ability to accurately describe the concept of prompt engineering and its importance in achieving desired language model outputs;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively use large language models for text generation and natural language processing tasks;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively fine-tuning language models for specific business applications;	High	Significant	Basic	Not even reaching marginal levels
	Capability to creatively and effectively apply large language models to solve real-world business challenges;	High	Significant	Basic	Not even reaching marginal levels
	Ability to accurately analyze ethical considerations and potential biases associated with large language models in business applications;	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 large Language Models

- Overview of large language models and their significance in business
- Deep dive into ChatGPT and other prominent language models
- Ethical considerations and biases in large language models

Prompt Engineering for Desired Outputs

- Importance of prompt engineering in achieving desired results
- Techniques for crafting effective prompts and instructions
- Strategies for refining and iterating prompts

Natural Language Processing with Large Language Models

- Sentiment analysis using language models
- Named entity recognition and information extraction
- Text classification and clustering

Text Generation and Content Creation

- Text completion and expansion with large language models
- Generating product descriptions and marketing copy
- Automated content creation for social media and blogs

Language Model Fine-Tuning for Business Applications

- Overview of fine-tuning techniques
- Domain-specific language model customization
- Fine-tuning for sentiment analysis and other business tasks

Business Use Cases for Large Language Models

- Customer service and chatbot applications
- Market research and consumer insights
- Content moderation and filtering

Case Studies and Real-World Applications

- Analysis and discussion of successful business applications of large language models
- Hands-on projects applying large language models to business challenges
- Ethical considerations and potential risks in business applications

Future Directions and Emerging Trends

- Exploration of advancements in large language models
- Implications of emerging models and technologies on business applications
- Opportunities and challenges for large language models in the future

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.	Lecture notes in class
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2.2 Additional Readings

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

1.	Nil
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