

<b>Course Title</b>	:	Project for Artificial Intelligence and Business Analytics
<b>Course Code</b>	:	CDS529
<b>Recommended Study Year</b>	:	1
<b>No. of Credits/Term</b>	:	3
<b>Mode of Tuition</b>	:	Lectures
<b>Class Contact Hours</b>	:	42 hours (3 to 6 hours per week*)
<b>Category</b>	:	Elective course
<b>Discipline</b>	:	-
<b>Prerequisite(s)</b>	:	Nil
<b>Co-requisite(s)</b>	:	Nil
<b>Exclusion(s)</b>	:	Nil
<b>Exemption Requirement(s)</b>	:	Nil

### **Brief Course Description:**

The integrated use of AI techniques and business analytics for solving the real-world problems is a critical ability. This course aims to provide an opportunity for students to integrate their knowledge obtained in other courses that involves the preparation, analysis, reflection and dissemination of data in a chosen research or application setting. The emphasis is on the management and execution of a well-defined project of a suitable scale. The projects may involve either real-world or experimental data and students may engage in such projects in groups. Some example of the projects will be “Convolutionary Neural Networks for Object Detection in Supply Chain Management”, “Financial News Analysis for Stock Market Prediction”, “User perceptions and Opinion Mining from Social Media Data”, “Personalized Recommendations from E-Commerce based on Matrix Factorization” and so on.

### **Aims:**

This course aims to:

1. Provide an opportunity for students to integrate their AI and business analytics skills and knowledge that involves the preparation, analysis, reflection and dissemination of data in a chosen research or application setting.
2. Enable students to solve various business problems with huge datasets using AI, machine learning, deep learning, data analytics or business analytics techniques.
3. Equip students communication skills for presenting and delivering their AI and business solutions for business problems to different stakeholders.

### **Learning Outcomes:**

Upon successful completion of this course, students will be able to:

1. Develop a solution framework which uses the principles and practical applications of cutting-edge artificial intelligence and business analytics techniques in the domain of business;
2. Formulate real-world problems by integrating advanced artificial intelligence, business analytics and other IT tools and techniques for problem solving;
3. Analyze the business problems and/or sub-problems critically and integrate advanced business analytic skills and artificial intelligence techniques creatively for decision-making;

4. Visualize and present the integrated solutions and findings from the project to different stakeholders with a variety of diverse backgrounds.

**Indicative Contents:**

1. Selection of Project Topics
2. Problem Formulation
3. Literature Review
4. Methodology Development
5. Project Implementation
6. Evaluation
7. Conclusion and Limitation

**Teaching Method:**

Each student will be allocated to a project supervisor. The supervisor will have regular meetings with students to provide detail instructions about the project. Specifically, the supervisor will provide scaffolding for students in terms of how to develop the framework, how to search and identify the relevant projects and research papers, how to analyze the business problems by using AI techniques and business analytic skills, and how to visualize and present the solutions.

**Measurement of Learning Outcomes:**

<b>Learning Outcome</b>	<b>Project Proposal</b>	<b>Project Report</b>	<b>Project Presentation</b>
1. Develop a solution framework which uses the principles and practical applications of cutting-edge artificial intelligence and business analytics techniques in the domain of business	✓	✓	✓
2. Formulate real-world problems by integrating advanced artificial intelligence, business analytics and other IT tools and techniques for problem solving	✓	✓	✓
3. Analyze the business problems and/or sub-problems critically and integrate advanced business analytic skills and artificial intelligence techniques creatively for decision-making	✓	✓	✓
4. Visualize and present the integrated solutions and findings from the project to different stakeholders with a variety of diverse backgrounds		✓	✓

### **Assessment:**

1. **30% Project Proposal:** Project proposal requires students to develop a framework which uses the principles and practical applications of cutting-edge artificial intelligence and business analytics techniques in the domain of business, formulate the real-world business problems and analyze the business problems and/or sub-problems critically. Students will write a proposal including introduction, literature review, preliminary solution and so on for their projects.
2. **50% Group Project:** A project requires students to integrate and apply advanced artificial intelligence, business analytics and other IT tools and techniques to solve some business problems. They need to implement their solutions by using AI platforms and/or business software. Students will write project reports based on their proposals including introduction, literature review, detail solution, experimental results and so on for their projects.
3. **20% Group Presentation:** Students will present and visualize their rationale, solutions and findings about the rationale and procedures for developing project solutions for business problems. This is to verify their communication skills and critical thinking on how to deliver and visualize their deep learning solutions for business problems for different stakeholders with a variety of diverse backgrounds.

### **Required/Essential Readings:**

N/A

### **Recommended/Supplementary Readings:**

1. Steven Finlay, *Artificial Intelligence and Machine Learning for Business: A No-Nonsense Guide to Data Driven Technologies*, 3rd Edition, Relativistic, 2018.
2. McKinney, Wes, *Python for Data Analysis: Data Wrangling with Pandas, NumPy and IPython*. 2nd Edition, O'Reilly Media, 2017.
3. Russell, Stuart J., and Norvig, Peter. *Artificial Intelligence: A Modern Approach*. 3rd Edition. Pearson Education India, 2015.
4. Bernard Marr, Matt Ward. *Artificial Intelligence in Practice: How 50 Successful Companies Used AI and Machine Learning to Solve Problems*. Gildan Media, 2019.
5. Anand Deshpande. *Artificial Intelligence for Big Data: Complete guide to automating Big Data solutions using Artificial Intelligence techniques (English Edition)*. Packt Publishing, 2018.
6. Denis Rothman. *Artificial Intelligence By Example: Develop machine intelligence from scratch using real artificial intelligence use cases (English Edition)*. Packt Publishing, 2018.
7. Patterson, Josh, and Gibson, Adam. *Deep Learning: A Practitioner's Approach*. O'Reilly Media, 2017.

### **Important Notes:**

- (1) Students are expected to spend a total of 9\* hours (i.e. 3\* hours of class contact and 6\* hours of personal study) per week to achieve the course learning outcomes.
- (2) Students shall be aware of the University regulations about dishonest practice in course work, tests and examinations, and the possible consequences as stipulated in the Regulations Governing University Examinations and Course Work. In particular, plagiarism, being a kind of dishonest practice, is “the presentation of another person’s work without proper acknowledgement of the source, including exact phrases, or summarised ideas, or even footnotes/citations, whether protected by copyright or not, as the student’s own work”. Students are required to strictly follow university regulations governing academic integrity and honesty.
- (3) Students are required to submit writing assignment(s) using Turnitin.
- (4) To enhance students’ understanding of plagiarism, a mini-course “Online Tutorial on Plagiarism Awareness” is available on <https://pla.ln.edu.hk/>.

*\* Numbers of hours per week are subject to different modes of teaching.*