

## Four-Year Study Plan of Artificial Intelligence Programme (2021 cohort)

Rev 20231214

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| Course Code                                      | Course Title                                                                                                                                                                                          | Year One |        |       |        | Year Two |       | Year Three |       | Year Four |       |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|-------|--------|----------|-------|------------|-------|-----------|-------|
|                                                  |                                                                                                                                                                                                       | Sem 1    | Winter | Sem 2 | Summer | Sem 1    | Sem 2 | Sem 1      | Sem 2 | Sem 1     | Sem 2 |
| I. Major Required Courses (54 Units)             |                                                                                                                                                                                                       |          |        |       |        |          |       |            |       |           |       |
| AI1003                                           | Python Programming                                                                                                                                                                                    | 3        |        |       |        |          |       |            |       |           |       |
| MATH1003                                         | Linear Algebra                                                                                                                                                                                        | 3        |        |       |        |          |       |            |       |           |       |
| MATH1123                                         | Calculus for Science and Engineering                                                                                                                                                                  | 3        |        |       |        |          |       |            |       |           |       |
| AI1013                                           | Object-Oriented Programming                                                                                                                                                                           |          |        | 3     |        |          |       |            |       |           |       |
| AI1023                                           | Database Management Systems                                                                                                                                                                           |          |        | 3     |        |          |       |            |       |           |       |
| AI1033                                           | Introduction to Computer Systems                                                                                                                                                                      |          |        | 3     |        |          |       |            |       |           |       |
| AI2003                                           | Data Structures and Algorithm Analysis                                                                                                                                                                |          |        |       |        | 3        |       |            |       |           |       |
| AI2013                                           | Introduction to Artificial Intelligence                                                                                                                                                               |          |        |       |        | 3        |       |            |       |           |       |
| AI2033                                           | Probability and Statistics                                                                                                                                                                            |          |        |       |        | 3        |       |            |       |           |       |
| MATH2003                                         | Discrete Structures                                                                                                                                                                                   |          |        |       |        | 3        |       |            |       |           |       |
| AI2023                                           | Artificial Intelligence Workshop                                                                                                                                                                      |          |        |       |        |          | 3     |            |       |           |       |
| AI2043                                           | Operating Systems                                                                                                                                                                                     |          |        |       |        |          | 3     |            |       |           |       |
| AI3013                                           | Machine Learning                                                                                                                                                                                      |          |        |       |        |          | 3     |            |       |           |       |
| AI3003                                           | Neural Networks and Deep Learning                                                                                                                                                                     |          |        |       |        |          |       | 3          |       |           |       |
| AI3023                                           | Machine Learning Workshop                                                                                                                                                                             |          |        |       |        |          |       | 3          |       |           |       |
| AI3043                                           | Bayesian Networks                                                                                                                                                                                     |          |        |       |        |          |       |            | 3     |           |       |
| AI4003                                           | Optimization for Machine Learning                                                                                                                                                                     |          |        |       |        |          |       |            | 3     |           |       |
| AI4004                                           | Final Year Project I (AI) <sup>③</sup>                                                                                                                                                                |          |        |       |        |          |       |            |       | 3         |       |
| AI4005                                           | Final Year Project II (AI) <sup>④</sup>                                                                                                                                                               |          |        |       |        |          |       |            |       |           | 3     |
| II. Major Elective Courses (21 Units)            |                                                                                                                                                                                                       |          |        |       |        |          |       |            |       |           |       |
| ME01 ME02 ME03 ME04 ME05 ME06 ME07               |                                                                                                                                                                                                       |          |        |       |        |          |       | 6          | 9 6   | 6         | 3     |
| III. University Core Courses (36 Units)          |                                                                                                                                                                                                       |          |        |       |        |          |       |            |       |           |       |
| UCLC1003                                         | University Chinese                                                                                                                                                                                    | 3        |        |       |        |          |       |            |       |           |       |
| UCLC1013                                         | English for Academic Purposes I                                                                                                                                                                       | 3        |        |       |        |          |       |            |       |           |       |
| UCLC1023                                         | English for Academic Purposes II                                                                                                                                                                      |          |        | 3     |        |          |       |            |       |           |       |
| UCLC1033                                         | English for Academic Purposes III                                                                                                                                                                     |          |        |       |        |          | 3     |            |       |           |       |
| CH1103                                           | Introduction to Modern Social Theories                                                                                                                                                                |          | 3      |       |        |          |       |            |       |           |       |
| CH11203                                          | Morality and Foundations of Law                                                                                                                                                                       |          |        |       |        | 3        |       |            |       |           |       |
| CH11063                                          | Chinese Culture and Modern China                                                                                                                                                                      |          |        |       |        |          | 3     |            |       |           |       |
| CH11073                                          | Contemporary Chinese Society and Thoughts (Theories)                                                                                                                                                  |          |        | 3     |        |          |       |            |       |           |       |
| CH11183                                          | Contemporary Chinese Society and Thoughts (Social Practice)                                                                                                                                           |          |        |       | 2      |          |       |            |       |           |       |
| CH11193                                          | Contemporary World and China <sup>①</sup>                                                                                                                                                             |          |        |       |        |          | 2     |            |       |           |       |
| MT1003                                           | Military Training                                                                                                                                                                                     |          | 2      |       |        |          |       |            |       |           |       |
| WPEX1013                                         | Emotional Intelligence                                                                                                                                                                                |          |        | 1     |        |          |       |            |       |           |       |
| WPEX2013                                         | Experiential Arts <sup>②</sup>                                                                                                                                                                        |          |        |       |        |          | 1     |            |       |           |       |
| WPEX2023/<br>WPEX2033                            | Voluntary Service <sup>②</sup> , or Environmental Awareness <sup>②</sup>                                                                                                                              |          |        |       |        | 1        |       |            |       |           |       |
| UCL1XX3                                          | Healthy Lifestyle <sup>②</sup>                                                                                                                                                                        | 1        |        | 1     |        |          | 1     |            |       |           |       |
| IV. General Education Courses (18 Units)         |                                                                                                                                                                                                       |          |        |       |        |          |       |            |       |           |       |
| Level 1                                          | History and Civilization <sup>②</sup>                                                                                                                                                                 |          |        |       |        | 3        |       |            |       |           |       |
| Foundational Courses                             | Quantitative Reasoning <sup>②</sup>                                                                                                                                                                   | 3        |        |       |        |          |       |            |       |           |       |
|                                                  | Values and the Meaning of Life <sup>②</sup>                                                                                                                                                           |          |        | 3     |        |          |       |            |       |           |       |
| Level 2<br>Interdisciplinary<br>Thematic Courses | Culture, Creativity and Innovation <sup>②</sup> , or Science,<br>Technology and Society <sup>②</sup> , or Sustainable Communities <sup>②</sup>                                                        |          |        |       |        |          | 3     | 3          |       |           |       |
| Level 3<br>GE Capstone<br>Courses                | Service-Learning Course <sup>②</sup> , or Service Leadership<br>Education Course <sup>②</sup> , or Experiential Learning Course <sup>②</sup> ,<br>or Interdisciplinary Independent Study <sup>②</sup> |          |        |       |        |          |       |            |       |           | 3     |
| V. Free Elective Courses (18 Units)              |                                                                                                                                                                                                       |          |        |       |        |          |       |            |       |           |       |
| FE01 FE02 FE03 FE04 FE05 FE06                    |                                                                                                                                                                                                       |          |        |       |        |          |       | 6          | 6     | 6         |       |
| Total Units: 147                                 |                                                                                                                                                                                                       | 19       | 5      | 20    | 2      | 19       | 22    | 21         | 18    | 15        | 6     |

<sup>①</sup> This 2-unit course requires student to attend at least 10 lectures within his/her first two years of study.

<sup>②</sup> This denotes a course category in which a list of courses may be developed for students' selection. Students are expected to refer to the Online Course Selection System for courses available under each category.

<sup>③</sup> If students select a specific concentration, they must complete the final year's project for the specific concentration, i.e., students from AI in Business and Finance Concentration are required to complete a project using AI to solve a problem in Business and Finance, students from AI in Multimedia Concentration are required to complete a project using AI to solve a problem in Multimedia.

## ME Course List of AI (2021 cohort)

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| Code                | Course Title                                              | Units        |
|---------------------|-----------------------------------------------------------|--------------|
| AI2053              | Introduction to Cognitive Science                         | 3            |
| AI2063              | Game Theory                                               | 3            |
| <del>AI2073</del>   | <del>Perception</del>                                     | <del>3</del> |
| AI3033              | Introduction to Robotics                                  | 3            |
| <del>AI3043</del>   | <del>Bayesian Networks</del>                              | <del>3</del> |
| AI3053              | Intelligent Agent Technology                              | 3            |
| AI3063              | Neuroscience in Artificial Intelligence                   | 3            |
| AI3073              | Introduction to Bioinformatics                            | 3            |
| <del>AI3083</del>   | <del>Artificial Intelligence Project</del>                | <del>3</del> |
| AI3093              | Decision Theory                                           | 3            |
| AI3103              | Regression Analysis                                       | 3            |
| AI3113              | Speech Processing and Recognition                         | 3            |
| AI3123              | Digital Image Processing                                  | 3            |
| AI3133              | Natural Language Processing                               | 3            |
| AI3143              | Computer Vision                                           | 3            |
| AI3153              | Human-Computer Interaction                                | 3            |
| <del>AI4005</del>   | <del>Final Year Project II (AI)<sup>#</sup></del>         | <del>3</del> |
| AI4013              | Knowledge Graph Engineering                               | 3            |
| AI4023              | Deep Reinforcement Learning                               | 3            |
| AI4033              | Large-Scale Distributed Multi-Agent Systems               | 3            |
| <del>AI4043</del>   | <del>Artificial Intelligence Internship</del>             | <del>3</del> |
| AI4053              | Fintech                                                   | 3            |
| AI4063              | Pattern Recognition                                       | 3            |
| AI4083              | Multimedia Mining and Analytics                           | 3            |
| AI4093              | Design and Implementation of Intelligent Vision System    | 3            |
| <del>COMP3023</del> | <del>Design and Analysis of Algorithms</del>              | <del>3</del> |
| COMP3263            | Intelligent Internet of Things                            | 3            |
| COMP3273            | 5G Networks and Mobile Computing                          | 3            |
| COMP4003            | Theory of Computation                                     | 3            |
| COMP4043            | Data Mining and Knowledge Discovery                       | 3            |
| COMP4153            | Quantum Finance and Intelligent Financial Trading Systems | 3            |
| <del>COMP4243</del> | <del>Mathematical and Computing Methods</del>             | <del>3</del> |
| <del>COMP4253</del> | <del>AI-Generated Content</del>                           | <del>3</del> |
| DS4073              | Introduction to Data Visualisation                        | 3            |
| DS4083              | Big Data Analytics                                        | 3            |
| DS4093              | Introduction to Recommender System                        | 3            |
| MATH1153            | Applied Linear Algebra and Linear Dynamics                | 3            |
| MATH1163            | Advanced Calculus                                         | 3            |
| MATH3153            | Advanced Probability                                      | 3            |
| PHYS2003            | Principles of Physics                                     | 3            |
| STAT4013            | Multivariate Analysis                                     | 3            |

<sup>#</sup> Students who continue with the final year project in the second semester of Year 4 should register AI4005 Final Year Project II (AI) as a major elective during the Online Course Selection (or Course Add/Drop) period.