澳門理工大學
Universidade Politécnica de Macau
Macao Polytechnic University

FACULTY OF APPLIED SCIENCES

DOCTOR OF PHILOSOPHY IN ARTIFICIAL INTELLIGENCE DRIVEN DRUG DISCOVERY

LEARNING MODULE OUTLINE

Academic Year	2025/2026	Semester	1
Module Code	AIDD8299		
Learning Module	Thesis		
Pre-requisite(s)	None		
Medium of Instruction	Chinese and English		
Credits	21	Contact Hours	45
Instructor	* See Supervisor List	Email	* See Supervisor List
Office	MPU HQ, * See Supervisor List	Office Phone	* See Supervisor List

MODULE DESCRIPTION

The doctoral thesis aims to allow students, by tackling advanced research problems over diverse settings, to significantly contribute to the expansion of knowledge in the field of Artificial Intelligence driven Drug Discovery, especially in applied technology and produce a coherent body of work that is of scholarly value and worthy of publication. The work must be original and be the student's own. There must be evidence that the field has been thoroughly surveyed by the student with critical exposition of relevant works, clearly demonstrating the mastery of a body of knowledge in the field and strong analytical skills. Students are responsible for ensuring that the thesis is presented in a clear, accessible and consistent format. Good project management practices and effective writing and oral presentation skills are essential to the successful completion of the thesis.

MODULE INTENDED LEARNING OUTCOMES (ILOS)

On completion of this learning module, students will be able to:

M1.	To create new knowledge or originality in the application of Artificial Intelligence in widely divergent fields of drug design, including antibiotics, fungicides and agrochemicals. (AHEP4-M1. AHEP4-M2, AHEP4-M3)
M2.	To research on an advanced and contemporary drug discovery-related topic, including neurodegenerative diseases, cancer, bacterial infection and agriculture. (AHEP4-M1, AHEP4-M2, AHEP4-M3, AHEP4-M5, AHEP4-M6, AHEP4-M16)
M3.	To critically assess and analyse an advanced technical issue, upon which the mastery of a body of knowledge for a defined scholarly field is demonstrated. (AHEP4-M1, AHEP4-M2, AHEP4-M3, AHEP4-M4, AHEP4-M5, AHEP4-M7, AHEP4-M11, AHEP4-M16)
M4.	To write research proposal which captures the relevant issues and identifies research problems. (AHEP4-M1, AHEP4-M2, AHEP4-M3, AHEP4-M4, AHEP4-M5, AHEP4-M9, AHEP4-M17)
M5.	To plan, execute, and report scholarly research project. (AHEP4-M10, AHEP4-M16, AHEP4-M17)
M6.	To publish and present orally research papers. (AHEP4-M4, AHEP4-M16, AHEP4-M17)

These ILOs aims to enable students to attain the following Programme Intended Learning Outcomes (PILOs):

PILOs	M1	M2	M3	M4	M5	M6
Knowledge and Understanding						
P1. Scientific methodologies and techniques of AI in drug discovery	✓		✓	✓		
P2. Knowledge and in-depth understanding of a wide range of drug discovery-related topics		✓	✓	✓		
P3. Knowledge and hands-on experience of analysis, assessment and solutions of the drug discovery-related issues	✓	✓	✓	✓		
P4. Knowledge and application of AI-related methodologies in innovative solutions	✓			✓		
Skills and Attributes						
P5. Initiate original researches in *in silico* drug discovery, both individually and collaboratively in a team	✓	✓	✓		✓	
P6. Plan, design, execute and manage a scholarly research project				✓	✓	✓
P7. Critically assess and analyse an advanced technical issue		✓	✓			
P8. Communicate research findings, both orally to diverse audiences and in writing through publishing research papers of scholarly values					✓	✓
P9. Gather and disseminate knowledge at the postgraduate level and beyond	✓	✓	✓	✓	✓	✓
P10. To demonstrate advanced knowledge, competence and research capability in AI drived drug discovery	✓	✓	✓	✓		
P11. To illustrate a global vision on knowledge advancement and dissemination	✓	✓		✓	✓	✓
P12. To demonstrate professional integrity and the spirit of challenge			✓		✓	✓
P13. To advocate professionalism in workplaces and the society at-large			✓	✓		✓
P14. To communicate professionally and effectively both in speaking and in writing				✓	✓	✓

MODULE SCHEDULE, COVERAGE AND STUDY LOAD

TEACHING AND LEARNING ACTIVITIES

In this learning module, students will work towards attaining the ILOs through the following teaching and learning activities.

Teaching and Learning Activities	M1	M2	M3	M4	M5	M6
T1. Supervision	✓	✓	✓	✓	✓	✓

ATTENDANCE

Attendance requirements are governed by the Academic Regulations Governing Doctoral Degree Programmes of the Macao Polytechnic University. Students who do not meet the attendance requirements for the learning module shall be awarded an 'F' grade.

ASSESSMENT

In this learning module, students are required to complete the following assessment activities:

1. Each student is required to submit the semiannual report every 6 months.

2. In the 18th-24th month, each student needs to complete the doctoral thesis proposal.

3. Implementation of performance requirement and monitoring of students: All students must be compliant with the requirements specified by: 1. Macao Polytechnic University; 2. Faculty of Applied Sciences, Macao Polytechnic University; 3. Centre for Artificial Intelligence driven Drug Discovery, Faculty of Applied Sciences, Macao Polytechnic University; 4. Doctoral Thesis Supervisor(s)'s specific academic requirements.

REFERENCES

There is no required text for this module. References are suggested by Doctoral Thesis Supervisor(s).

STUDENT FEEDBACK

At the end of every semester, students are invited to provide feedback on the learning module and the teaching arrangement through questionnaires. Your feedback is valuable for instructors to enhance the module and its delivery for future students. The instructor and programme coordinators will consider all feedback and respond with actions formally in the annual programme review.

ACADEMIC INTEGRITY

The Macao Polytechnic University requires students to have full commitment to academic integrity when engaging in research and academic activities. Violations of academic integrity, which include but are not limited to plagiarism, collusion, fabrication or falsification, repeated use of assignments and cheating in examinations, are considered as serious academic offenses and may lead to disciplinary actions. Students should read the relevant regulations and guidelines in the Student Handbook which is distributed upon the admission into the University, a copy of which can also be found at www.mpu.edu.mo/student_handbook/.

SUPERVISOR LIST

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