

NS4003: PRACTICAL ARTIFICIAL INTELLIGENCE INTERNSHIP IN LIFE SCIENCES AND BIOTECH

Effective Term

Semester A 2025/26

Part I Course Overview

Course Title

Practical Artificial Intelligence Internship in Life Sciences and Biotech

Subject Code

NS - Neuroscience

Course Number

4003

Academic Unit

Neuroscience (NS)

College/School

College of Biomedicine (BD)

Course Duration

Two Semesters

Credit Units

6

Level

B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

Nil

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

Abstract

The course offers a comprehensive, hands-on experience designed to bridge the gap between theoretical AI concepts and their real-world applications in the life sciences and biotech industries. Students will have the opportunity to work on cutting-edge projects, using AI tools and techniques to tackle complex biological and medical challenges. Through collaboration with industry professionals and researchers at the Hong Kong Science and Technology Parks, participants will develop practical skills in projects including genomic analysis, medical imaging, drug discovery, personalized medicine, and epidemiological modeling. By the end of the course, students will have the knowledge and experience needed to contribute to innovative solutions in the rapidly evolving fields of life sciences and biotechnology.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	To gain hands-on experience with various AI tools and techniques, including machine learning, deep learning, and data analysis, specifically tailored to life sciences and biotechnology applications.	70	x	x	x
2	To gain experience in project management skills, such as managing and executing projects from start to finish, including defining objectives, designing experiments, analyzing results, and presenting findings.	15	x	x	x
3	To understand the ethical considerations and responsibilities, including data privacy, bias mitigation, and the societal impact of AI technologies.	15	x	x	x

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.

Learning and Teaching Activities (LTAs)

LTAs	Brief Description	CILO No.	Hours/week (if applicable)	
1	Internship	hands-on AI experience in life science research labs and biotech industries	1, 2, 3	2.5

2	Research Seminars	Bi-weekly seminar with invited speakers from experts from academic labs and industrial companies, and from all participants of the internship	1, 2, 3	0.5
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Assessment Tasks / Activities (ATs)

ATs	CILO No.	Weighting (%)	Remarks ("- " for nil entry)	Allow Use of GenAI?	
1	One page seminar report every two weeks	1, 2, 3	30	-	No
2	End-of-internship report and presentation	1, 2, 3	70	GenAI is allowed for coding but forbidden for writing.	Yes

Continuous Assessment (%)

100

Examination (%)

0

Examination Duration (Hours)

0

Assessment Rubrics (AR)**Assessment Task**

Seminar reports

Criterion

Based on the submitted reports, evaluate whether the students can understand cutting-edge AI applications

Excellent (A+, A, A-)

The student attends all seminars. Their reports demonstrate excellence in writing clarity, originality, critical thinking, and ethical consideration.

Good (B+, B, B-)

The student attends >90% of the seminars. Their reports demonstrate excellence in a majority of the criteria of writing clarity, originality, critical thinking, and ethical consideration.

Fair (C+, C, C-)

The student attends 75%-90% of lectures and tutorials. Their reports demonstrate excellence in a number of the criteria of writing clarity, originality, critical thinking, and ethical consideration.

Marginal (D)

The student attends 60%-75% of lectures and tutorials. Their reports demonstrate excellence only in a minority of the criteria of writing clarity, originality, critical thinking, and ethical consideration.

Failure (F)

The student attends <60% of lectures and tutorials. Their reports demonstrate excellence in none of the criteria of writing clarity, originality, critical thinking, and ethical consideration.

Assessment Task

End-of-internship report (Oral presentation and written report)

Criterion

To evaluate the student's progress in AI skills in real-world applications.

Excellent (A+, A, A-)

The student can adapt and collaborate with the host research lab or biotech companies, identify a suitable problem for AI application, collect a clean dataset, and apply the correct AI models independently. In addition, they should be able to present and critique their project plans and answer all relevant questions.

Good (B+, B, B-)

The student can adapt and collaborate with the host research lab or biotech companies, identify a suitable problem for AI application, collect a clean dataset, and apply the correct AI models with guidance. In addition, they should be able to present their project plans in presentations and answer most questions.

Fair (C+, C, C-)

The student can adapt and collaborate with the host research lab or biotech companies, identify a suitable problem for AI application, collect a clean dataset, and apply the correct AI models with guidance. The project plans and AI applications have minor issues but can deliver the standard AI analysis workflow.

Marginal (D)

The student made little contribution to the internship projects, and their project plans and AI applications have pitfalls.

Failure (F)

The student made no contribution to the internship projects, and their project plans and AI applications had major pitfalls.

Part III Other Information

Keyword Syllabus

Artificial intelligence
Deep learning
Industrial internship
Biotechnology
Disease Diagnostics

Reading List**Additional Readings**

	Title
1	Artificial intelligence in healthcare industry Jyotismita Talukdar, Thipendra P. Singh, Basanta Barman (2023)