SDSC4116: DATA SCIENCE CAPSTONE

Effective Term
Semester A 2024/25

Part I Course Overview

Course Title
Data Science Capstone

Subject Code
SDSC - School of Data Science
Course Number
4116

Academic Unit
School of Data Science (DS)

College/School
School of Data Science (DS)

Course Duration
Two Semesters

Credit Units
0-6

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

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Completed at least 30 CUs (24 CUs for Advanced Standing II students) of the student's major courses; students are recommended to take this course in penultimate year.

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract

The aim of this course is to enable a student to lay the necessary foundations of a selected research topic or theme within Data Science study. Capstone Project is the first leg of a student's journey of discovery and innovation in Data Science. It will prepare such a student for challenges in experiencing the complete process of conducting a project in the Data Science field. The student is to be guided (either individually or as a group) by a supervisor, who will be responsible for the design, delivery and assessment of the proposed Capstone Project.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Define the scope of the intended research topic or theme	10	x	x	x
2	Explain the significance of the intended research topic or theme as well as perform the literature review	10	x	x	
3	Propose the methodology or solution for the formulated problem in the project	30	x		
4	Perform computational experiments or field testing to validate the proposed methodology or solution	30	x	x	x
5	Present the project content orally and in writing	20	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	Each student shall define, under the guidance and direction of a supervisor, the nature, aim, scope and significance of a selected research topic or theme related to his/her major.		1, 2	
2	Each student shall review and critique the available body of knowledge and background information related to the intended research topic or theme.		3	

3	Each student shall formulate the appropriate methodology and develop a capstone project with clearly stated elements of discovery or innovation.		4	
4	Present the Capstone Project Proposal orally and in writing (a detailed proposal and a well designed poster)		5	

Additional Information for LTAs

Each student taking this course will be required to undertake a series of guided studies as assigned by the supervisor which will include reading and critique of selected literature related to the intended research topic or theme. The student may be directed to attend certain lecture or seminar as deemed appropriate by the supervisor.

The content of this directed study course must be submitted to the course leader of the Capstone Projects by Week 4 of Semester A for endorsement.

The student is required to submit and present a detailed Capstone Project proposal to complete the course. The proposed Capstone Project must have clearly stated elements of discovery or innovation.

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Continuous assessment (interim report and presentation)	1, 2, 3, 4	30	
2	Written Report	4	30	
3	Poster Presentation	4	40	

Continuous Assessment (%)

100

Examination (%)

0

Assessment Rubrics (AR)

Assessment Task

Coursework

Criterion

Continuous assessment
(interim report and presentation)

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
Coursework

Criterion
Written Report

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
Coursework

Criterion
Poster Presentation

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Part III Other Information

Keyword Syllabus

The course is flexible, and has no specific syllabus.

Reading List

Compulsory Readings

	Title
1	Nil

Additional Readings

	Title
1	Nil