

SDSC8010: SPECIAL TOPICS IN DATA SCIENCE

Effective Term

Semester B 2025/26

Part I Course Overview

Course Title

Special Topics in Data Science

Subject Code

SDSC - Data Science

Course Number

8010

Academic Unit

Data Science (DS)

College/School

College of Computing (CC)

Course Duration

One Semester

Credit Units

3

Level

R8 - Research Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

Nil

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

Abstract

This course provides students with training in some special topics in data science. Through attendance, a student will (i) be exposed to recent research trends and results in the literature from different areas; (ii) be aware of and appreciate various

presentation skills and styles; (iii) come into contact with external and internal researchers. Through report writing, the student will (iv) perform an in-depth study of a research topic by conducting literature search, and practice comprehension and writing skill. Through project presentation, the student will (v) develop and practise presentation skill.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Describe various research approaches in special topics.	20	x		
2	Explain and identify the strengths and limitations of each approach by conducting a comprehensive literature search.	20	x	x	
3	Discuss and evaluate on existing research findings critically and discover possible solutions to these findings	30	x	x	x
4	Be able to report and communicate research findings effectively.	30	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	Lecture	Students will engage in formal learning through teaching is primarily based on lectures and demonstrations.	1, 2, 3, 4	39 hours in total
2	Mini-project	Students will participate in a project to study a typical data science topic and related problems. The students are expected to understand the topic and tackle the given problems, write a report and give a presentation. This learning activity will be mainly student-led but with instructor's structural guidance.	1, 2, 3, 4	After class

Assessment Tasks / Activities (ATs)

ATs		CILO No.	Weighting (%)	Remarks ("- for nil entry)	Allow Use of GenAI?
1	Test Questions are designed for the first part of the course to see how well the students have learned the topics.	1, 2, 3, 4	40	-	No
2	Mini-Project The project provides students chances to demonstrate how well they have achieved their intended learning outcomes.	1, 2, 3, 4	30	-	Yes
3	Mini-Project Presentation The project provides students chances to demonstrate how well they have achieved their intended learning outcomes.	1, 2, 3, 4	30	-	Yes

Continuous Assessment (%)

100

Examination (%)

0

Minimum Continuous Assessment Passing Requirement (%)

0

Minimum Examination Passing Requirement (%)

0

Assessment Rubrics (AR)**Assessment Task**

Test (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Ability to understand the topics and apply the theory and related algorithms.

Excellent

A+, A, A-

Good

B+, B, B-

Fair

C+, C, C-

Marginal

D

Failure

F

Assessment Task

Mini-Project Report (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Ability to demonstrate the understanding of the topics, the fundamental theory, and applications.

Excellent

A+, A, A-

Good

B+, B, B-

Fair

C+, C, C-

Marginal

D

Failure

F

Assessment Task

Mini-Project Presentation (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Ability to demonstrate how well the intended learning outcomes are achieved.

Excellent

A+, A, A-

Good

B+, B, B-

Fair

C+, C, C-

Marginal

D

Failure

F

Assessment Task

Test (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Ability to understand the topics and apply the theory and related algorithms.

Excellent

A+, A, A-

Good

B+, B

Marginal

B-, C+, C

Failure

F

Assessment Task

Mini-Project Report (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Ability to demonstrate the understanding of the topics, the fundamental theory, and applications.

Excellent

A+, A, A-

Good

B+, B

Marginal

B-, C+, C

Failure

F

Assessment Task

Mini-Project Presentation (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Ability to demonstrate how well the intended learning outcomes are achieved.

Excellent

A+, A, A-

Good

B+, B

Marginal

B-, C+, C

Failure

F

Part III Other Information

Keyword Syllabus

Research seminars, data science research, research methodology, presentations, research topics, literature search, data storing, retrieving and visualization, advanced statistics, machine learning, optimization, social media analytics, computing, artificial intelligence, data mining, data analytics, risk analysis

Reading List**Compulsory Readings**

Title	
1	Lecture slides and other related material

Additional Readings

Title	
1	Nil