

SDSC6002: RESEARCH PROJECTS FOR DATA SCIENCE

Effective Term

Semester A 2025/26

Part I Course Overview

Course Title

Research Projects for Data Science

Subject Code

SDSC - Data Science

Course Number

6002

Academic Unit

Data Science (DS)

College/School

College of Computing (CC)

Course Duration

One Semester

Credit Units

3

Level

P5, P6 - Postgraduate 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 offers the student ample opportunity to demonstrate innovative abilities and initiatives in his/her independent treatment of data analytics problems, develop the capability to integrate and apply data science knowledge and data analytical skills in practical scenarios and explore considerations regarding the ethical and privacy implication of data collection and management. The course also serves as a platform for presenting and sharing novel investigations of real problems in data science among students.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Formulate a data science problem independently and state the importance of solving it.	20	x		
2	Apply machine learning and statistical learning techniques to analyze real data.	20	x	x	
3	Evaluate the effectiveness of data analytics methods and examine ethical concerns in addressing real data science problems.	20	x	x	
4	Interpret data analysis results to discover novel insights in conducted data analytics studies.	20	x	x	
5	Write well-structured report and present completed studies professionally.	20		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	Consultation	Students will consult the project supervisor in a number of consultation sessions to obtain advice and feedback on their work for their chosen project, which includes problem formulation, data analysis, consideration of the effectiveness of selected data analysis methods and ethical issues, interpretation of data analysis results, and report writing.	1, 2, 3, 4	26 hours/sem
2	Peer discussion	Each student will engage in discussion with his/her group members to formulate the data science problem for his/her project, determine how needed data can be obtained, analyze acquired data, interpret data analysis results, and write the report.	1, 2, 3, 4, 5	13 hours/sem

Assessment Tasks / Activities (ATs)

ATs		CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1	Project Proposal	1, 2, 3	20	-	Yes
2	Project Milestone Meetings	1, 2, 3, 4	30	-	Yes
3	Final Report and Poster Presentation	2, 3, 4, 5	50	-	Yes

Continuous Assessment (%)

100

Assessment Rubrics (AR)**Assessment Task**

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

Criterion

20%

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

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

Criterion

30%

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

Final Report and Poster Presentation (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

50%

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

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

Criterion

20%

Excellent

(A+, A, A-) High

Good

(B+, B) Moderate

Marginal

(B-, C+, C) Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

Project Milestone Meetings (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

30%

Excellent

(A+, A, A-) High

Good

(B+, B) Moderate

Marginal

(B-, C+, C) Basic

Failure

(F) Not even reaching marginal levels

Assessment Task

Final Report and Poster Presentation (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

50%

Excellent

(A+, A, A-) High

Good

(B+, B) Moderate

Marginal

(B-, C+, C) Basic

Failure

(F) Not even reaching marginal levels

Part III Other Information

Keyword Syllabus

This is a project-based course. It should include substantial academic content and requires the student to apply his/her intellect through a wide variety of activities to arrive at a practical and implementable solution. Guest lectures on practical applications of data science as well as data ethical and privacy issues may be arranged.

Reading List**Compulsory Readings**

Title	
1	NIL

Additional Readings

Title	
1	NIL