

# SDSC4010: PROJECTS IN DATA SCIENCE (RESEARCH)

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## Effective Term

Semester A 2024/25

## Part I Course Overview

### Course Title

Projects in Data Science (research)

### Subject Code

SDSC - School of Data Science

### Course Number

4010

### Academic Unit

School of Data Science (DS)

### College/School

School of Data Science (DS)

### Course Duration

One Semester

### Credit Units

3

### 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

This course enables students to apply the knowledge and methods gained in the programme to research topics by writing a project report and making a presentation. It develops students' problem-based learning ability, research and presentation skills and report writing ability.

### Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if DEC-A1 DEC-A2 DEC-A3 app.)			
1	Conduct independent study for identifying, formulating, and solving project-based problems.	20	x		
2	Apply the data science knowledge and computation techniques in the selected topic(s) to create and analyze models of research problems	30	x	x	
3	Evaluate critically appropriateness of the applied methods and assess the research output	20		x	x
4	Complete a well-structured written report and deliver coherent presentation of research methodology and results	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	Consultation and supervision	Students will engage in the consultation and supervision sessions to identify appropriate research problems in data science, acquire knowledge and techniques of specific topics from supervisors as well as improve quality of written work (such as presentation of results in reports)	1, 2, 3, 4	15 hours in total

2	Individual work	Students will conduct individual work, independently or collaboratively, to investigate the problem, methods, and potential solutions. Students will execute the associated works to deliver the innovative solutions.	1, 2, 3, 4	60 hours in total
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**Assessment Tasks / Activities (ATs)**

ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)	
1	Research proposal	1, 2, 3	20	Each student is required to submit a research proposal which outlines principal question(s) of investigation, suggested methodology and relevance of the research to data science
2	Continuous research progress	2, 3	30	Student' s research progress is monitored regularly so as to identify any problems encountered in the research and ensure he/ she is likely to complete the research target timely in a satisfactory manner
3	Report	1, 2, 3, 4	30	It should include student' s own account of investigations and research findings, with a systematic and critical exposition of knowledge in the literature. The student is also required to present materials coherently, with all the necessary references stated
4	Oral presentation	1, 2, 3, 4	20	Each student is also assessed on the ability to communicate research aims, methodology and investigations/findings effectively

**Continuous Assessment (%)**

100

**Examination (%)**

0

**Assessment Rubrics (AR)**

**Assessment Task**

Research proposal

**Criterion**

Ability to formulate research problems

**Failure (F)**

Not even reaching marginal levels

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**Assessment Task**

Continuous research progress

**Criterion**

Research skills, problem solving skills

**Failure (F)**

Not even reaching marginal levels

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**Assessment Task**

Report

**Criterion**

Writing skills, presentation skills

**Failure (F)**

Not even reaching marginal levels

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**Assessment Task**

Oral presentation

**Criterion**

Oral presentation skills, ability to answer questions

**Failure (F)**

Not even reaching marginal levels

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## **Part III Other Information**

### **Keyword Syllabus**

The project must be of an appropriate intellectual level to an honour' s degree. It should include substantial research content and require the student to apply his/her intellect through a wide variety of activities to arrive at satisfactory solutions to the research problems.

### **Reading List**

**Compulsory Readings**

Title	
1	Nil

**Additional Readings**

Title	
1	Nil