SDSC2003: HUMAN CONTEXTS AND ETHICS IN DATA SCIENCE

Effective Term
Semester A 2024/25

Part I Course Overview

Course Title
Human Contexts and Ethics in Data Science

Subject Code
SDSC - Data Science
Course Number
2003

Academic Unit
Data Science (DS)

College/School
College of Computing (CC)

Course Duration
One Semester

Credit Units
3

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

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
SDSC1001 Introduction to Data Science

** Pre-requisite SDSC1001 will be exempted for students who are enrolled in Minor in Data Science

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract

This course delves into social and legal issues surrounding data analysis, including issues of privacy and data ownership. It equips students with an understanding of the human and social structures, formations, and practices that shape data science activity (such as data collection and analysis, data stewardship and governance, work to ensure privacy and security, deployment of data in societal or organizational settings, decision-making with data, engagements of data with justice, practices of data ethics) and to allow them to gain experience and practice with modes of critical thinking, reflection, and engagement with these experiences and the choices involved. This course provides students access to structured forms of academic inquiry in the humanities, social sciences, or related professional fields and engage them in some form of reflective inquiry, writing, analysis, project work, or practice that surfaces questions of individual or societal choices and supports making reasoned ethical choices in complex situations.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Identify and articulate basic ethical and policy frameworks	20	x		
2	Critically assess one's own work and education in data science	20	x	x	
3	Understand the relationship between one's own work and ethical frameworks and legal obligations	30	x	x	x
4	Establish a human, social, and ethical context in which data analytics and computational inference play a central role.	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	Learning through teaching is primarily based on lectures.	1, 2, 3, 4	3 hours

2	Case Studies	Students will be provided with different scenarios on data legal issue and are required to identify the ethical topics on data, evaluate and critically analyse the case examples.	2, 4	in and after class

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Participation	1, 2, 3, 4	30	
2	Midterm Quizzes	1, 2, 3	10	
3	In-class Debate	1, 2, 3, 4	20	
4	Group Presentation/ Report	1, 2, 3, 4	25	

Continuous Assessment (%)

85

Examination (%)

15

Examination Duration (Hours)

2

Additional Information for ATs

Note: To pass the course, apart from obtaining a minimum of 40% in the overall mark, a student must also obtain a minimum mark of 30% in both continuous assessment and examination components.

Assessment Rubrics (AR)

Assessment Task

Coursework

Criterion

Test and hands-on exercises to assess the students' understanding and analysis of the different types of human societal, ethic, legal issues related to data Students are required to generate reports to summarize their findings.

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
Examination

Criterion
The exam will include questions to assess the student’ s overall ability to understand the course material.

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
This course blends social and historical perspectives on data with ethics, law, policy, and case examples to help students understand current ethical and legal issues in data science and machine learning. Legal, ethical, and policy-related concepts addressed include: research ethics; privacy and surveillance; bias and discrimination; and oversight and accountability. These issues will be addressed throughout the lifecycle of data--from collection to storage to analysis and application. The course emphasizes strategies, processes, and tools for attending to ethical and legal issues in data science work. Course assignments emphasize researcher and practitioner reflexivity, allowing students to explore their own social and ethical commitments.

Reading List

Compulsory Readings

	Title
1	Lecture notes

Additional Readings

	Title
1	Nil