SDSC3010: DIGITAL TRACE ANALYTICS

Effective Term
Semester A 2024/25

Part I Course Overview

Course Title
Digital Trace Analytics

Subject Code
SDSC - Data Science
Course Number
3010

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* and SDSC2001 Python for 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 provides students with an extensive exposure to the elements of opinion/behavioural data analytics. Topics include self-reported data, behavioural data, social science sampling, questionnaire design, offline surveys, online surveys, digital trace measurement, multi-source data analytics, and privacy protection.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Explain clearly fundamental principles and methods of digital trace analytics	20	x		
2	Classify various types and properties of opinion and behavioural data	20	x	x	
3	Evaluate prevailing practices in digital trace analytics and seek ways to improve the existing practices	30	x	x	x
4	Apply appropriate methods to solve given problems in digital trace analytics	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 lectures to gain knowledge about digital trace analytics.	1, 2, 3, 4	39 hours in total
2	Case studies	Students will describe and critique classic cases of digital trace analytics.	2, 3, 4	in or after classes

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Test	1, 2, 3, 4	20	Questions are designed for data collection methods of digital trace analytics to see how well the students have learned the fundamental concepts and methods, and applications in real world context. (20-40%)
2	Hands-in assignments	3, 4	20	These are skills based assessment to enable students to demonstrate the basic concepts, methods and algorithms of digital trace analytics, and applications of in real world context. (0-20%)

Continuous Assessment (%)

40

Examination (%)

60

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

Test

Criterion

Ability to understand and apply key concepts, methods of digital trace analytics.

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
Hands-in assignments

Criterion
Ability to learn the basic concepts, apply methods and algorithms of digital trace analytics, and develop real world applications.

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
Ability to solve learning tasks using digital trace analytics.

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

Self-reported data, behavioural data, social science sampling, questionnaire design, offline surveys, online surveys, digital trace measurement, multi-source data analytics, privacy protection

Reading List

Compulsory Readings

	Title
1	Analyzing political communication with digital trace data, by Andreas Jungherr, Springer, 2015

Additional Readings

	Title
1	Nil