

# SDSC3010: DIGITAL TRACE ANALYTICS

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## Effective Term

Semester B 2022/23

## Part I Course Overview

### Course Title

Digital Trace Analytics

### Subject Code

SDSC - School of Data Science

### Course Number

3010

### 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

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.

### Teaching and Learning Activities (TLAs)

TLAs		Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture	Learning through teaching is primarily based on lectures.	1, 2, 3, 4	39 hours in total
2	Case studies	Describe and critique classic cases of digital trace analytics.	2, 3, 4	in or after classes
3	Take-home assignments	Learning through in-class or take-home assignments is primarily based on interactive problem solving and hands-on exercises allowing instant feedback.	2, 3, 4	in or after class

**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

**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

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**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

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**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

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## 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