

# SDSC3009: BEHAVIOURAL ANALYTICS

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## Effective Term

Semester A 2024/25

## Part I Course Overview

### Course Title

Behavioural Analytics

### Subject Code

SDSC - School of Data Science

### Course Number

3009

### 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

Behavioural analysis studies how psychological variables affect economic outcomes. This course introduces to students the psychological processes and biases underlying decision-making with an emphasis on how to incorporate such insights

into business, marketing, and investment strategies. It gives students a broad overview of fundamental results from various behavioural sciences that reveal how people make “irrational” decisions, in contrast to the rational expectations model underlying classical economic theories. It also provides students with practical advice about applying these findings to topics in marketing, management, and finance.

### Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if DEC-A1 DEC-A2 DEC-A3 app.)			
1	Articulate fundamental principles of behavioral science and explain specific aspects of its working mechanism in relation to decision making in business and management environment.	25	x		
2	Categorize important features of existing forms and/or core applications of behavioral analysis.	15	x	x	
3	Assess prevailing practices in behavioural analysis and identify approaches that improve the existing practices.	30	x	x	
4	Utilize suitable principles and methods to solve given practical problems in behavioral analysis.	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	Lectures and in-class discussions	Students will engage in formal lectures and participate in in-class discussions to gain knowledge about behavioural analytics.	1, 2, 3, 4	39 hours per semester
2	Tutorial and/or case studies	Students will describe and critique tutorial and case studies targets questions that may arise from the lectures, issues in the homework assignments, analysis of the case studies, etc.	2, 3, 4	In or after classes

### Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Assignments	1, 2, 3, 4	30	20%-40%
2	Test (in-class exam or project)	1, 2, 3	20	0%-20%

**Continuous Assessment (%)**

50

**Examination (%)**

50

**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**

Assignments

**Criterion**

In the form of submitted written work. Ability to understand and apply common industry practices of business analytics.

**Excellent (A+, A, A-)**

High. For all 4 CILOs, strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.

**Good (B+, B, B-)**

Significant. For at least 3 out of 4 CILOs, evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.

**Fair (C+, C, C-)**

Moderate. For at least 3 out of the 4 CILOs, evidence that student is profiting from the university experience; understanding of the subject; ability to develop solutions to simple problems in the material.

**Marginal (D)**

Basic. For at least 3 out of the 4 CILOs, sufficient familiarity with the subject matter to enable the student to progress without repeating the course.

**Failure (F)**

Not evident. Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited, or irrelevant use of literature.

**Assessment Task**

Test

**Criterion**

Either in the form of in-class exam or group project with written report and presentation. Ability to learn the basic concepts, apply methods of business analytics, and design relevant studies for industry applications.

**Excellent (A+, A, A-)**

High. For all 4 CILOs, strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.

**Good (B+, B, B-)**

Significant. For at least 3 out of 4 CILOs, evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.

**Fair (C+, C, C-)**

Moderate. For at least 3 out of the 4 CILOs, evidence that student is profiting from the university experience; understanding of the subject; ability to develop solutions to simple problems in the material.

**Marginal (D)**

Basic. For at least 3 out of the 4 CILOs, sufficient familiarity with the subject matter to enable the student to progress without repeating the course.

**Failure (F)**

Not evident. Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited, or irrelevant use of literature.

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**Assessment Task**

Examination

**Criterion**

In the form of submitted written work. Ability to solve conceptual and operational questions using social media analytics.

**Excellent (A+, A, A-)**

High. For all 4 CILOs, strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.

**Good (B+, B, B-)**

Significant. For at least 3 out of 4 CILOs, evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.

**Fair (C+, C, C-)**

Moderate. For at least 3 out of the 4 CILOs, evidence that student is profiting from the university experience; understanding of the subject; ability to develop solutions to simple problems in the material.

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**Part III Other Information**

**Keyword Syllabus**

Behavioural science,  
Loss aversion,  
Endowment effect,

Probability weighting,  
 Ambiguity aversion,  
 Mental accounting,  
 Anchoring,  
 Time inconsistency,  
 Procrastination,  
 Self-control,  
 Commitment,  
 Framing,  
 Incentives

## Reading List

### Compulsory Readings

	Title
1	Richard H. Thaler (2015). <i>Misbehaving: The Making of Behavioral Economics</i> . New York: W.W. Norton & Company, Inc.
2	Shleifer, Andrei (2000). <i>Inefficient Market: An Introduction to Behavioral Finance</i> . Oxford University Press.
3	Additionally, lecture notes and slides will be provided by the instructor.

### Additional Readings

	Title
1	Daniel Kahneman (2013), <i>Thinking, Fast and Slow</i>
2	Richard H. Thaler and Cass R, Sunstein (2008). <i>Nudge: Improving Decisions about Health, Wealth, and Happiness</i> . New York: Penguin Group.
3	Nassim Nicholas Taleb (2010). <i>The Black Swan: The Impact of the Highly Improbably</i> (2nd edition). New York: Random House.
4	Relevant online learning material will be provided by the instructor.