NS2001: COGNITION AND BEHAVIOR

Effective Term
Semester A 2023/24

Part I Course Overview

Course Title
Cognition and Behavior

Subject Code
NS - Neuroscience
Course Number
2001

Academic Unit
Neuroscience (NS)

College/School
Jockey Club College of Veterinary Medicine and Life Sciences (VM)

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 aims at teaching the principles of the mental processes for sensing and storing of information and how it is used to guide human behaviors. The topics include (1) neural activity and perception, sensation, object recognition,

language and attention, (2) basic behaviors such as motivation (e.g., appetitive drive), decision making and producing proper responses, and (3) higher-level cognitive function such as working memory and emotions. In addition to provide students the general concepts, this course will include practical sessions in the tutorials, to help students gain hands-on experience in processing neuroimaging (functional magnetic resonance imaging, fMRI) and electroencephalography (EEG) data. In all topics, special attention will be paid towards their relationship with human health and diseases such as neurodevelopmental and neurodegenerative disorders.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Learn the neural basis of psychological concepts related to cognition and behavior	20		x	
2	Explore different patterns of anatomical and functional connectivity underlying emotion, thought, and characters	30	x	x	
3	Apply in-depth knowledge of Technological approaches to measure the different levels of cognition and behavior	20	x	x	
4	Understand the behaviour consequence of malfunctioned brain	20		x	x
5	Critically discuss the abstract terminologies in the cognition world	10		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	Lectures	Lectures deliver in-depth knowledge of the neural basis of cognition and behavior	1, 2, 3, 4, 5	
2	Tutorials	Tutorial sessions will allow the students to explore the latest advancement in the related scientific research and participate in group discussions.	3, 4	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Mid-term exam	1, 2, 3, 4	30	
2	Oral presentation	3, 4, 5	20	
3	Attendance and participation in group discussion	1, 2, 3, 4, 5	10	

Continuous Assessment (%)

60

Examination (%)

40

Examination Duration (Hours)

3

Additional Information for ATs

"Minimum Passing Requirement" for this course:
A minimum of 40% in the continuous assessment as well as the final examination.

Assessment Rubrics (AR)

Assessment Task

Mid-term Exam

Criterion

To test students' application of materials taught in the half of class and evaluate their performance on the exam

Excellent (A+, A, A-)

Demonstrates highly developed knowledge and understanding concerning cognition and behaviour.

Good (B+, B, B-)

Demonstrates well-developed knowledge and understanding of cognition and behaviour.

Fair (C+, C, C-)

Demonstrates basic knowledge and understanding of cognition and behaviour.

Marginal (D)

Demonstrates minimal knowledge and understanding of cognition and behaviour.

Failure (F)

Not even reaching the marginal level

Assessment Task

Oral presentation

Criterion

(1) Can clearly present their ideas in English with well-structured slides.
(2) Can answer to questions comfortably and actively raise questions in others' presentations.

Excellent (A+, A, A-)

Outstanding performance on all 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-)

Substantial performance on all 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-)

Sufficient performance on all CILOS. Some evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.

Marginal (D)

Sufficient performance on all CILOS. Some evidence of grasp of subject, limited evidence of critical capacity and analytic ability; understanding the general concepts in the discussed issues; lack of evidence of familiarity with literature.

Failure (F)

Unsatisfactory performance on a number of CILOS. Failure to meet specified assessment requirements, little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of literature.

Assessment Task

Attendance and participation in group discussion

Criterion

To evaluate the class attendance and the level of participation in the class discussions

Excellent (A+, A, A-)

100% attendance in lectures and tutorials. Actively contribute to the group discussion and demonstrate clear understanding of the class materials.

Good (B+, B, B-)

100% attendance in lectures and tutorials. Actively contribute to the group discussion and demonstrate reasonable understanding of the class materials.

Fair (C+, C, C-)

>90% and <100% attendance in lectures and tutorials. Can contribute to the group discussion and demonstrate reasonable understanding of the class materials.

Marginal (D)

>70% and <90% attendance in lectures and tutorials. Can contribute to the group discussion but show poor understanding of the class materials.

Failure (F)

<70% attendance in lectures and tutorials. Do not participate in group discussion.

Assessment Task

Final Exam

Criterion

To test students' application of materials taught in the last half class and evaluate their performance on the exam

Excellent (A+, A, A-)
Demonstrates highly developed knowledge and understanding concerning cognition and behaviour.

Good (B+, B, B-)
Demonstrates well-developed knowledge and understanding of cognition and behaviour.

Fair (C+, C, C-)
Demonstrates basic knowledge and understanding of cognition and behaviour.

Marginal (D)
Demonstrates minimal knowledge and understanding of cognition and behaviour.

Failure (F)
Not even reaching the marginal level

Part III Other Information

Keyword Syllabus

Structure and function of the nervous system
Methods of cognitive neuroscience
Hemispheric specialization
Sensation and perception
Object recognition
Attention
Action
Memory
Emotion
Language
Cognitive control
Social cognition

Reading List

Compulsory Readings

	Title
1	Cognitive Neuroscience: The Biology of the Mind, 5th edition, Michael S. Gazzaniga, Richard B. Ivry, George R. Manun.
2	Neuroscience, sixth edition, Editor Dale Purves, George J. Augustine, David Fitzpatrick, William C. Hall, Anthony-Samuel LaMantia, Richard D. Mooney, Michael L. Platt, Leonard E. White.

Additional Readings

	Title
1	Brain and Behavior: A Cognitive Neuroscience Perspective, David Eagleman, Jonathan Downar