NS1001: BRAIN STRUCTURE AND FUNCTION

Effective Term
Semester A 2022/23

Part I Course Overview

Course Title
Brain Structure and Function

Subject Code
NS - Neuroscience
Course Number
1001

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 serves as a fundamental introduction for undergraduate students who want to learn about how our brain works. This course will cover areas including brain structure and function, with more emphasis on the structure of the nervous

system. Students will learn and discuss about the anatomy and physiology of the brain, spinal cord, and nerves that carry environmental information, integrate and processing information, and execute motor commands to perform meaningful behaviour.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Explain the input and output connections of various brain regions	50	x		
2	Describe the cellular constituents of various brain regions	10	x	x	
3	Relate brain structure to function for various regions	20	x	x	
4	Discuss how pathology in a brain region can be involved in neurological or psychiatric disorders	10	x	x	
5	Master basic experimental skills in neuroanatomy	10	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	Knowledge transfer will be based on lectures to help students understand various neural anatomy and physiology topics	1, 2, 3, 4	
2	Tutorials	Student discussion and oral presentation will be held to improve students' ability to analyse and identify problems related to neuropsychiatric disorders and scientific presentation skills	2, 3, 4, 5	
3	Practical	Ability to perform some basic experiments in neuroanatomy	1, 2, 3, 4, 5	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Practical participation and lab report	1, 2, 3, 4, 5	10	
2	Class discussion and oral presentation	1, 2, 3, 4, 5	15	
3	Mid-term test	1, 2, 3, 4	25	

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

3

Assessment Rubrics (AR)

Assessment Task

Practical participation and lab report

Criterion

The number of correct answers and the quality of the answer.

Excellent (A+, A, A-)

Accurately answered all the questions. Well organised text and coherent logic.

Good (B+, B, B-)

Correctly answered >80% of the questions.

Fair (C+, C, C-)

Correctly answered 60% to 80% of the questions.

Marginal (D)

Correctly answered 40% to 60% of the questions.

Failure (F)

Did not hand in the assignment on time. Or correctly answered < 40% of the questions.

Assessment Task

Class discussion and oral presentation

Criterion

The content and the style of the oral presentation. Handling of questions. Active participation in class discussion.

Excellent (A+, A, A-)

Subject is well researched and the content is well organised. The presentation is logical and coherent. Very active class participation.

Good (B+, B, B-)

The content is substantial. The presentation is logical and coherent. Good class participation.

Fair (C+, C, C-)
The content is sufficient. The presentation is easy to understand, but with some logical flaws. Some class participation.

Marginal (D)
The content is correctly presented but lacks details. The presentation is not easy to understand and logic is lacking. Little to no class participation.

Failure (F)
Did not prepare presentation on time, or the subject is poorly researched. Did not participate at all in class discussion.

Assessment Task
Mid-term test

Criterion
The number of correct answers.

Excellent (A+, A, A-)
Accurately answered all the questions. Well organised text and coherent logic.

Good (B+, B, B-)
Correctly answered >80% of the questions.

Fair (C+, C, C-)
Correctly answered 60% to 80% of the questions.

Marginal (D)
Correctly answered 40% to 60% of the questions.

Failure (F)
Did not hand in the assignment on time. Or correctly answered < 40% of the questions.

Assessment Task
Examination

Criterion
The number of correct answers and the quality of the answer.

Excellent (A+, A, A-)
Accurately answered all the questions. Well organised text and coherent logic.

Good (B+, B, B-)
Correctly answered >80% of the questions.

Fair (C+, C, C-)
Correctly answered 60% to 80% of the questions.

Marginal (D)
Correctly answered 40% to 60% of the questions.

Failure (F)
Did not hand in the assignment on time. Or correctly answered < 40% of the questions.

Part III Other Information

Keyword Syllabus

Cells of the nervous system: neurons, astrocytes, microglia, oligodendrocytes, Schwann cells, ependymal cells.
Nerves, tracts, spinal cord, dermatome.
Blood-Brain and Blood–Cerebrospinal Fluid Barriers
Brainstem
Midbrain
Cerebellum
Limbic system
Basal ganglia
Thalamus
Hypothalamus

Reading List

Compulsory Readings

	Title
1	Nil

Additional Readings

	Title
1	Snell's Clinical Neuroanatomy, by Ryan Splittgerber, 8th Ed, Lippincott Williams & Wilkins, 2018.
2	Neuroscience: Exploring the Brain, by Bear, Connors & Paradiso, 4th Ed, Jones & Bartlett Learning, 2020