TISHK INTERNATIONAL UNIVERSITY
FACULTY OF APPLIED SCIENCE
Department of PHYSIOTHERAPHY,
2023-2024 Spring
Course Information for PT 211 Neuroscience

Course Name:	Neuroscience

Code	Regular Semester	Theoretical	Practical	Credits	ECTS
PT 211	4	2	2	3	6

Name of Lecturer(s):	Runak Tahr Ali
Teaching Assistant:	Snur Azeez
Course Language:	English
Course Type:	Main
Office Hours	2-5pm
Contact Email:	runak.tahr@tiu.edu.iq Tel:07504964534
Teacher's academic profile:	PhD
Course Objectives:	The overal objective of this course is to provide students with information about the structure and functions of the nervous system and also to equip students with necessary requisite competencies for the evaluation and management of nervous system disorders as they relate to principles and practice of physiotherapy. Hence, the specific aims of this course include: 1-Provide students with information about the structure and functions of the central nervous system 2-Provide students with information about the structure and functions of the perpheral nervous system 3-Provide students with information about the basis of neuroplasticity 4-Provide students with information about the pathology of the neurological system 5-Provide students with information about neurological rehabilitation
Course Description (Course overview):	This course provides an in-depth understanding of the nervous system, its structure and function, and introduces the student to neuroplasticity and nervous system pathology. The course describes the role of rehabilitation in promoting neuroplasticity and recovery following nervous system impairment.

COURSE CONTENT

Week	Hour	Date	Topic
1	2	28/1-1/2/2024	Overview of the nervous system: organization of the nervous system, neurons and glial cells
2	2	4-8/2/2024	Brain anatomy: structures and functions
3	2	11-15/2/2024	Spinal cord anatomy: segments and tracts
4	2	18-22/2/2024	Peripheral nervous system: nerves and ganglia
5	2	25-29/2/2024	Neuronal communication: action potentials and synaptic transmission
6	2	3-7/3/2024	Neurotransmitters and their role in motor control and sensation
7	2	24-28/3/2024	Sensory pathways: somatosensory, visual, auditory
8	2	31/3-4/4/2024	Motor pathways: corticospinal, extrapyramidal
9	2	14-18/4/2024	Midterm Exam
10	2	21-25/4/2024	Motor units and muscle contraction, Reflexes: spinal reflex arc, stretch reflex, withdrawal reflex
11	2	28/4-2/5/2024	Principles of neuroplasticity and neural adaptation - Role of neuroplasticity in rehabilitation and recovery - Techniques to promote neuroplasticity in physiotherapy practice
12	2	5-9/5/2024	Motor neurone disease: pathophysiology and rehabilitation strategies

13	2	12-16/5/2024	Stroke: pathophysiology and rehabilitation strategies
14	2	19-23/5/2024	Traumatic brain injury: assessment and treatment approaches
15	2	26-30/5/2024	Spinal cord injury: management and functional outcomes
16	2	2-6/6/2024	Final Exam

COURSE/STUDENT LEARNING OUTCOMES

1	Understand the function and organization of the nervous system
2	Identify and describe the pathology of the nervous system
3	Understand the role of neuroplasticity in rehabilitation and recovery
4	Understand the basis of neurological examination and evaluation
5	Understand the role of physiotherapy in neurological rehabilitation

COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES

(Blank : no contribution, I: Introduction, P: Profecient, A: Advanced)

	Program Learning Outcomes	**Cont.**
1	1. Demonstrate knowledge of the underlying concepts and principles associated within the context of health.	A
2	Demonstrate an ability to present, evaluate and interpret qualitative and quantitative data to develop lines of argument and make sound judgments in accordance with basic theories and concepts relevant to health.	
3	3. Evaluate the appropriateness of different approaches to solving problems related to health.	
4	4. Asses the qualities and transferable skills necessary for employment requiring the exercise of some personal responsibility.	
5	5. Apply knowledge and critical understanding of the principles of health and the way in which these have developed	I
6	Demonstrate an ability to apply underlying concepts and principles outside the context in which they were first studied.	
7	Use a range of established techniques to initiate and undertake critical analysis of information, and to propose solutions to problems arising from that analysis	I
8	8. Work as a member of the multi-disciplinary team within diverse settings providing an inter-agency and cross-boundary approach to person-centered health and social care.	
9	9. Demonstrate personal transferable key skills in problem solving, critical thinking, written and verbal communication, team working, professional autonomy.	I
10	Demonstrate knowledge and understanding of human function and dysfunction, the theory and practice of physiotherapy.	A
11	Develop clinical reasoning and problem-solving skills to assess problems and plan interventions to meet service user and career goals.	A
12	Apply therapeutic skills in response to the physical, psychological, social and cultural needs of individuals or groups using critical evaluation of the available evidence	I

Prerequisites (Course Reading List and References):	1-Laurie L (2022). Neuroscience: Fundamentals for Rehabilitation, 6th Ed, Elsevier 2- Alan R.C. and David N. (2015). Neuroanatomy> 5th Ed, Elsevier 3-Lazaro R, Reina-Guerra S, and Quiben, M (2023) Umphred's Neurological Rehabilitation, 8th Ed, Elsevier
Student's obligation (Special Requirements):	1-Attend theory classes; 2-Attend practical classes; 3-Participate in class discussion; 4-Participate in tutorials with 3D neuroanatomy learning devices; 5-Complete assignments and seminar presentations

Weekly Laboratory/Practice Plan:

Week	**Hour**	**Date**	**Topics**
1	2	28/1-1/2/2024	Organization of central nervous system
2	2	4-8/2/2024	Organization of peripheral nervous system
3	2	11-15/2/2024	Neurons and glial cells
4	2	18-22/2/2024	Brain anatomy
5	2	25-29/2/2024	Spinal cord anatomy
6	2	3-7/3/2024	Peripheral nerves organization

	7	2	24-28/3/2024	Assessment tools for neurological disorders
	8	2	31/3-4/4/2024	Evidence-based interventions for motor and sensory impairments
	9	2	14-18/4/2024	Midterm Exam
	10	2	21-25/4/2024	Multidisciplinary approach to neurological rehabilitation
	11	2	28/4-2/5/2024	Advances in neuroimaging techniques
	12	2	5-9/5/2024	Neuromodulation techniques: TENS, tDCS, etc.
	13	2	12-16/5/2024	Application of neuroscience principles to clinical cases
	14	2	19-23/5/2024	Hands-on demonstrations of assessment and treatment techniques
	15	2	26-30/5/2024	Future directions in neuroscience research and its implications for physiotherapy
	16	2	2-6/6/2024	Final Exam

Course Book/Textbook:	1-Laurie L (2022). Neuroscience: Fundamentals for Rehabilitation, 6th Ed, Elsevier 2- Alan R.C. and David N. (2015). Neuroanatomy> 5th Ed, Elsevier
Other Course Materials/References:	3-Lazaro R, Reina-Guerra S, and Quiben, M (2023) Umphred's Neurological Rehabilitation, 8th Ed, Elsevier
Teaching Methods (Forms of Teaching):	Lectures, Practical sessions, Presentation, Seminar, , ,

COURSE EVALUATION CRITERIA

Method	Quantity	Percentage (%)
Quiz	1	10
Homework	1	10
Midterm Exam	1	30
Presentation	1	10
Final Exam	1	40
Total		**100**

Examinations: Essay Questions, True-False, Multiple Choices, Short Answers, , ,

Extra Notes:

ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD

Activities	Quantity	Workload Hours for 1 quantity*	Total Workload
Theoretical Hours	16	2	32
Practical Hours	16	2	16
Final Exam	1	3	3
Quiz	1		0
Homework	1		0
Midterm Exam	1		0
Presentation	1		0
Total Workload			**51**
ECTS Credit (Total workload/25)			**2**

Peer review

Signature:	Signature:	Signature:
Name:	Name:	Name:
Lecturer	Head of Department	Dean