**the vision of the university of jordan**

A university excelling in pedagogy, research, and innovation and advancing in global standing

**The Mission of THE University OF JORDAN**

Providing students with fulfilling learning experiences, conducting knowledge-producing research, and building firm societal ties, within an environment conducive to creativity, innovation, and entrepreneurship: making efficient use of resources and forging fruitful partnerships.

**The vision of the SCHOOL of Rehabilitation Sciences**

Leadership in the creation and development of knowledge, and in the preparation of human resources aspiring for excellence regionally and internationally

**The Mission of the SCHOOL of Rehabilitation Sciences**

To excel in the preparation and training of model rehabilitation personnel, who participate in the health and community sector, and provide the local and regional community with appropriate rehabilitation services based on needs. Through educational curricula that facilitates the implementation of up to date rehabilitation services based on the best available evidence.

**THE VISION OF THE DEPARTMENT OF PHYSIOTHERAPY**

To be recognized as an outstanding educational program with high quality faculty members, staff and students

**THE MISSION OF THE DEPARTMENT OF PHYSIOTHERAPY**

To graduate professionals in the field of physical therapy who are to contribute to the health needs of society through education, scholarly activities, research, service and professional practice.

**Course Syllabus**

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| **1** | **Course title** | Neuroscience |
| **2** | **Course number** | 1801231 |
| **3** | **Credit hours** | 3 (3, 0) |
| **Contact hours (theory, practical)** | 3 (3, 0) |
| **4** | **Prerequisites/corequisites** | Anatomy of Head, Neck, and Thorax (0502107) |
| **5** | **Program title** | B.Sc. in Physiotherapy, B.Sc. in Occupational Therapy |
| **6** | **Program code** | 1801 |
| **7** | **Awarding institution**  | The University of Jordan |
| **8** | **School** | School of Rehabilitation Sciences |
| **9** | **Department** | Department of Physiotherapy |
| **10** | **Course level**  | Undergraduate |
| **11** | **Year of study and semester (s)** | 2022/ 2023 Second Term |
| **12** | **Other department (s) involved in teaching the course** | None |
| **13** | **Main teaching language** | English |
| **14** | **Delivery method** | Blended learning |
| **15** | **Online platforms(s)** | ◼Moodle ◼Microsoft Teams ☐Skype ☐Zoom ☐Others………… |
| **16** | **Issuing/Revision Date** | Feb, 2023 |

**17 Course Coordinator:**

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| --- |
| Name: Maha T. Mohammad Contact hours: Mon and Tue 3:00 – 4:00Office number: 320 Phone number: 23218Email: maha.tayseer@gmail.com Teams account: m\_mohammad |

**18 Other instructors:**

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| None |

**19 Course Description:**

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| This course aims to provide the student with neurophysiological and neuroanatomical principles, concepts and mechanisms underlying normal and pathological functioning of the individual. These principles will be illustrated by reference to normal brain functions as well as through illustrations of the effects of their disruption in diseases and other conditions that compromise the normal functioning of the nervous system. Principles and mechanisms underlying balance and postural control, mobility functions, coordination, reach grasp, and manipulation will also be introduced. At the end of this course, the student will understand the function of major brain structures and will have learned signs and symptoms of some important neurological disease processes that illustrate principles of brain function. |

**20 Course aims and outcomes:**

**A – Aims**

Neuroscience is an inter-department course that aims to:

1. Guide students to identify, describe, draw and label the major structures of the nervous system and explain the functions of the human nervous system,
2. Teach the principles of central and peripheral nervous systems’ organization and function related to rehabilitation medicine.
3. Provide students an understanding of the essential principles of neurological function, from cellular and molecular mechanisms of neural signaling and plasticity to the organization and function of sensory and motor systems and example special senses
4. Equip students in the health professions with the knowledge necessary for interpreting impairments of sensation, action and cognition that accompany neurological injury, disease or dysfunction,
5. Explain the neuroanatomical/neurophysiological basis of the fundamental methods of neurological examination and clinical problem solving in relation to common neurological disorders.

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| B- Students Learning Outcomes (SLOs): Upon successful completion of this course, students will be able to:

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SLOsSLOs of the course | SLO (1) | SLO (2) | SLO (3) | SLO (4) | SLO (5) | SLO (6) | SLO (7) | SLO (8) | SLO (9) | SLO (10) | SLO (11) |
| 1 Understand the essential principles of neurological function including: cellular mechanisms of signaling, plasticity, and organization of sensory and motor systems |  | X |  |  | X |  |  |  |  |  |  |
| 2 Utilize clinical reasoning skills to localize injury along the motor or sensory pathways |  |  |  |  |  | X | X |  |  |  |  |
| 3 understand the neurophysiology of vision and vestibular systems |  | X |  |  |  |  |  |  |  |  |  |

Program SLOs:1. Recognize, critically analyze and apply the conceptual frameworks and theoretical models underpinning physiotherapy practice
2. Demonstrate comprehension of background knowledge that informs sound physiotherapy practice
3. Demonstrate the ability to use online resources and technologies in professional development
4. Display a professional commitment to ethical practice by adhering to codes of conduct and moral frameworks that govern the practice of physiotherapy
5. Evaluate the importance of and critically appraise research findings to inform evidence-based practice such that these skills could be utilized in continuing self-development
6. Implement clinical reasoning, reflection, decision-making, and skillful application of physiotherapy techniques to deliver optimum physiotherapy management
7. Adhere to the professional standards of physiotherapy practice in terms of assessment, management, outcome measurement, and documentation
8. Display a willingness to promote healthy lifestyle and convey health messages to clients
9. Value the willingness to exercise autonomy while appreciating the challenges associated with delivering physiotherapy services
10. Display the ability to practice in a safe, effective, non-discriminatory, inter- and multi-disciplinary manner
11. Demonstrate effective oral and written communication with clients, carers, and health professionals
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**21. Topic Outline and Schedule:**

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| **Week** | **Lecture** | **Topic** | **SLO** | **Synchronous / Asynchronous Lecturing** | **Evaluation Methods** | **Resources** |
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| 1 | 1.1 |  Course intro + Cellular components of nervous system | 1 | Sync | Midterm Final | Purves, ch. 1 |
| 1.2 | Studying the nervous system | 1 | Sync | Midterm Final | Purves, ch. 1 |
| 2 | 2.1 | Electrical signals of nerve cells | 1 | Sync | Midterm Final | Purves, ch. 2&3 |
| 2.2 | Synaptic transmission | 1 | Sync | Midterm Final | Purves, ch. 5 |
| 3 | 3.1 | Synaptic plasticity | 1 | Sync | Midterm Final | Purves, ch. 8 |
| 3.2 | Synaptic plasticity | 1 | Sync | Midterm Final | Purves, ch. 8 |
| 4 | 4.1 | Somatosensory system | 1, 2 | Sync | Midterm Final | Purves, ch. 9 |
| 4.2 | Pain  | 1, 2 | Async | Quiz Midterm Final | Purves, ch. 10 |
| 5 | 5.1 | Somatosensory system | 1, 2 | Sync | Midterm Final | Purves, ch. 9 |
| 5.2 | Pain  | 1, 2 | Async | Quiz Midterm Final | Purves, ch. 10 |
| 6 | 6.1 | Vision: the eyeQuiz 1 (Pain) | 1, 3 | Sync | Midterm Final | Purves, ch. 11 |
| 6.2 | Central visual pathways | 1, 3 | Async | Quiz Midterm Final | Purves, ch. 12 |
| 7 | 7.1 | Vision: the eye | 1, 3 | Sync | Midterm Final | Purves, ch. 11 |
| 7.2 | Central visual pathways | 1, 3 | Async | Quiz Midterm Final | Purves, ch. 12 |
| 8 | 8.1 | Vestibular systemQuiz 2 (Central visual pathways) | 1, 3 | Sync | Midterm Final | Purves, ch. 14 |
| 8.2 | Vestibular system | 1, 3 | Async | Midterm Final | Purves, ch. 14 |
| 9 | 9.1 | Overview of sensory systems |  | Sync |  |  |
| 9.2 | Midterm exam |  |  |  |  |
| 10 | 10.1 | Lower motor neuron circuits | 1, 2 | Sync |  Final | Purves, ch. 16 |
| 10.2 | Upper motor neuron circuits | 1, 2 | Async | QuizFinal | Purves, ch. 17 |
| 11 | 11.1 | Lower motor neuron circuits | 1, 2 | Sync |  Final | Purves, ch. 16 |
| 11.2 | Upper motor neuron circuits | 1, 2 | Async | QuizFinal | Purves, ch. 17 |
| 12 | 12.1 | Modulation of movement by basal gangliaQuiz 3 (UMN circuits) | 1, 2 | Sync |  Final | Purves, ch. 18 |
| 12.2 | Modulation of movement by cerebellum | 1, 2 | Async |  Final | Purves, ch. 19 |
| 13 | 13.1 | Modulation of movement by basal ganglia | 1, 2 | Sync |  Final | Purves, ch. 18 |
| 13.2 | Modulation of movement by cerebellum | 1, 2 | Sync |  Final | Purves, ch. 19 |
| 14 | 14.1 | Dual tasking | 1 | Sync | Final | Provided by instructor |
| 14.2 | Course overview | 1 – 3 | Sync | Final | All content |

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Lectures on weeks 1, 2, 3, 13, and 14 will be held on campus. On all remaining weeks, Monday lectures will be held on campus and Wednesday lectures will be based on asynchronous learning. Course material will be available on elearning. In addition, Microsoft Teams will be used for announcements.

**22 Evaluation Methods:**

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| Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:

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| **Evaluation Activity** | **Mark** | **Topic(s)** | **SLOs** | **Period (Week)** | **Platform** |
| Midterm exam | 30 | 1 – 7 | 1 – 3 | TBA | On-campus |
| Quizzes | 30 | 4.2 & 5.26.2 & 7.210.2 & 11.2 | 1 – 3 | OngoingRefer to topic schedule | On-campus |
| Final exam | 40 | 1 – 15 | 1 – 3 | TBA | On-campus |

Three quizzes will be held on content covered using asynchronous learning, each quiz will be worth 10 points. Quizzes will be held on Mondays after the asynchronous topic is finished. |

**23 Course Requirements**

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| Students should have a computer/ smart phone, internet access, headset, account on e-learning and Microsoft Teams (provided by JU). Students are encouraged to create an account on Coursera and register in the Medical Neuroscience course offered by Duke University for extra resources relevant to course content. |

**24 Course Policies:**

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| A- Attendance policies:* Students are expected to be on time.
* Repeated tardiness or leaving early will be recorded as absence.
* Students who miss class (or any portion of class) are responsible for the content. All classes will be recorded and uploaded on Microsoft Stream. It is the student’s responsibility to review the material of classes they missed.
* Attendance will be taken on every class throughout the semester.
* Absence of more than 15% of all the number of classes (which is equivalent to 5 classes) requires that the student provides an official excuse to the instructor and the dean.
* If the excuse was accepted the student is required to withdraw from the module.
* If the excuse was rejected the student will fail the module and mark of zero will be assigned according to the regulations of The University of Jordan.

B- Absences from exams and submitting assignments on time:* Makeup for the midterm or quizzes may be arranged if convincing excuse is presented according to the regulations of The University of Jordan.
* Makeup for the final exam may be arranged according to the regulations of The University of Jordan.
* If a student misses an exam, it is their responsibility to contact the instructor within 24 hours of the original exam time to discuss their excuse.

C- Health and safety procedures:* This course is offered using online learning. Please bear in mind that continuous exposure to light from electronic devices could cause dryness of your eyes. Please make sure you maintain proper eye hygiene and give your eyes frequent breaks during your studies.

D- Honesty policy regarding cheating, plagiarism, misbehavior:* Students are expected to observe all University guidelines pertaining to academic misconduct.
* Any work submitted by a student for academic credit must be the student's own work. Submission of work taken directly from another source (e.g., book, journal, internet, or another student work) will be considered plagiarism and the student/group will get a zero grade on that homework. In addition, if copying occurred, both the student who copied the work and the student who gave material to be copied (if applicable) will receive a zero for the assignment.
* Students are expected to do work required for homework on their own. Asking other instructors at JU, staff, or other students to assist in or do any part of the assignment for them will negatively affect their grade on that assignment. The course instructor is the person the student needs to talk to if s/he has any difficulties pertaining to an assignment or project and is strongly encouraged to schedule an appointment with the instructor if such difficulties arise during the semester.
* Course materials prepared by the instructor, together with the content of all lectures and review sessions presented by the instructor are the property of the instructor. It is only intended for the personal use of students for their individual learning.
* Video and audio recording of lectures and review sessions without the consent of the instructor is prohibited. The permission of the course coordinator must be sought before sharing of content.
* Any forms of academic misconduct will be handled according to the University of Jordan guidelines.

E- Grading policy:* Grading for this course will be determined based upon the accumulation of points for variety of assignments and exams.
* All work will be evaluated on completeness, organization, clarity of information, and the integration and application of the material.

F- Available university services that support achievement in the course:* The University of Jordan provides many services to support social, health, and mental well-being of students in general and students with disabilities in specific. Students are advised to visit the Deanship of Students Affairs to learn more about those services.
* If you are a student with a disability for which you may request accommodations, please notify the instructor as soon as possible (via Teams or email) so the appropriate accommodations for this course can be made. Also, notify the staff of Services for Student with Disabilities (Deanship of Students Affairs) as soon as possible.
* According to University regulations, some students with disabilities can be allowed additional time during exams. This extra time is granted by an official letter from the University administration. Please discuss with the course coordinator your need for such extra time at the start of the term.
* All information provided to the course coordinator will be dealt with confidentially.
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**25 References:**

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| A- Required book(s), assigned reading and audio-visuals:Purves D et al. (2018) Neuroscience ,6th edition Medical Neuroscience online course, Coursera, Duke University, Dr. Leonard WhiteReadings provided by course instructor on lecture slidesB- Recommended books, materials and media:Bear M. et. al. (2016) Neuroscience; exploring the brain, 5th edition  |

**26 Additional information:**

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| This course builds upon knowledge students obtained in the following courses:* Biology (0304101)
* Anatomy of head, neck, and thorax (0502107)
* Physiology I (0501107)
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Name of Course Coordinator: ---maha t mohammad---Signature: ---mm-- Date: --Feb 27, 2023---

Head of Curriculum Committee/Department: ---Ibrahim Tubasi--- Signature: -----IMA------------

Head of Department: -----------Lara Al-Khlaifat--------------- Signature: ------LK-------------

Head of Curriculum Committee/Faculty: **Prof. Kamal Hadidi** Signature: KAH

Dean: **Prof. Kamal Hadidi** Signature: KAH