

## **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.

1	Course title	Neuromuscular Physiotherapy II
2	Course number	1801334
3	Credit hours	4 (2, 1, 1)
	Contact hours (theory, practical, clinical)	10 (2, 4, 4)
4	Prerequisites/corequisites	Neuromuscular Physiotherapy I (1801339)
5	Program title	B.Sc. in Physiotherapy
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)	2023/2024 – Second Semester
12	Other department (s) involved in teaching the course	None
13	Main teaching language	English
14	Delivery method	<input checked="" type="checkbox"/> Face to face learning <input type="checkbox"/> Blended <input type="checkbox"/> Fully online
15	Online platforms(s)	<input checked="" type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....
16	Issuing/Revision Date	February, 2024

#### 17 Course Coordinator:

Name: Maha Mohammad, PT, PhD

Office number: 320

Phone number: 5355000-ext. 23218

Office hours: Sunday and Tuesday 1:00 – 2:00

Email: [maha.tayseer@gmail.com](mailto:maha.tayseer@gmail.com)

Teams account: m\_mohammad

### 18 Other instructors:

Name: Mayis Aldughmi, PT, PhD

Office number: 108 or 309

Phone number: 5355000-ext. 23244/23222

Office hours: Tuesday and Wednesday 12:00 – 1:00; or by appointment through email

Email: [m.aldughmi@ju.edu.jo](mailto:m.aldughmi@ju.edu.jo) / Teams account: Mayis Aldughmi

### Lab and clinical instructors

Ms. Yara Qa'qa'	Ms. Dua' Alsalaheen	Ms. Asma' Kasasbeh
-----------------	---------------------	--------------------

### 19 Course Description:

This four-credit course follows the integration of the principles of neurological rehabilitation as applied to complex neurological conditions (such as SCI, MS, PD, and TBI). Emphasis is on evidence-based practice, interdisciplinary and client-centered care as well as health promotion and prevention of secondary complications. This practical and problem-based course promotes clinical reasoning skills for the PT assessment and treatment of complex problems and multiple handicaps encountered by patients with neurological conditions.

### 20 Course aims and outcomes:

#### A- Aims:

This course aims to introduce students to the most common neurological conditions encountered by physiotherapists and to teach students the skills required to assess and manage those conditions.

## B- Students Learning Outcomes (SLOs):

Upon successful completion of this course, students will be able to:

SLOs  SLOs of the course	SL O (1)	SL O (2)	SL O (3)	SL O (4)	SL O (5)	SL O (6)	SL O (7)	SL O (8)	SL O (9)	SLO (10)	SLO (11)
1 Identify evidence-informed assessments and treatments and develop the clinical skills to apply them in selected movement disorders and neuromuscular conditions.	X					X			X		
2 Describe the pathophysiology of different neurological conditions relative to the physiotherapy practice.		X									
3 Deliver effective treatment techniques and encourage patients to apply home programs and lead healthy life-style.								X	X		
4 Demonstrate professional and ethical practice and effective communication skills (verbal, non-verbal, and written) with clients, colleagues, instructors, and other health care professionals.				X			X			X	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

## 21. Topic Outline and Schedule:

Theoretical Lectures:				
Week	Lecture	Topic	SLO	Resources
1 – 2	1.1-2.2	Stroke	1 – 4	Lennon, 7 Lecture slides
3 – 5	3.1 - 5.2	Spinal Cord Injury (SCI)	1 – 4	O'Sullivan, 20 Lecture slides
6	6.1-6.2	Vestibular Disorders	1 – 4	Lennon, 21 Lecture slides
7	7.1-7.2	Motor Neuron Disease	1 – 4	Lennon, 13 Lecture slides
8	8.1-8.2	Traumatic Brain Injury (TBI)	1 – 4	O'S., S., & F: 19, Umphred:24 Lecture slides
9	9.1	Traumatic Brain Injury (TBI)	1 – 4	O'S., S., & F: 19, Umphred:24 Lecture slides
	Midterm Exam			
10 – 11	10.1-11.2	Parkinson's Disease (PD)	1 – 4	Umphred:21 Lecture slides
12 – 13	12.1-13.2	Multiple Sclerosis (MS)	1 – 4	O'S., S., & F: 16, Umphred:19 Lecture slides
14	14.1-14.2	Cerebellar Disorders	1 – 4	O'S., S., & F: 18, Umphred:20 Lecture slides/ lecture recording
15	Final Exam			

- Learning methods: all theoretical lectures will be held on-campus face-to-face.
- Platform: all course content will be posted on e-learning, Microsoft Teams will be used for announcements.
- Evaluation methods: content learned during theoretical lectures and practical labs will be evaluated during written exams; midterm and final.
- Two guest speakers will be hosted during the term to present lectures related to physiotherapy for patients with neurological conditions. Dates of lectures with guest speakers are to be determined.

### Practical Sessions:

Week	Topic	SLO	Resources
1	<b>SCI: ASIA motor and sensory exam</b>	1, 3	O'Sullivan, 20 Videos/ recorded material Online sources
2	<b>SCI: early medical management and physical therapy examination</b> <b>ISNCSCI</b>	1, 3	O'Sullivan, 20 Videos/ recorded material Online sources
3	<b>SCI: early physical therapy interventions</b> <b>Bed mobility skills</b>	1, 3	O'Sullivan, 20 Videos/ recorded material Online sources
4	<b>SCI: active rehabilitation physical therapy examination</b> <b>Interventions to improve transfer</b>	1, 3	O'S & S: 6 Videos/ recorded material Online sources
5	<b>SCI: active rehabilitation physical therapy management</b> <b>Wheelchair skills and gait training</b>	1, 3	O'Sullivan, 20 Videos/ recorded material Online sources
6	<b>Vestibular rehabilitation</b>	1, 3	Stokes, 13 Videos/ recorded material Online sources
7	<b>Traumatic Brain Injury (TBI)</b>	1, 3	Umphred: Chapter 24 Videos/ recorded material Online sources
8	<b>Midterm Practical Exam</b>		
9	Midterm Theoretical Exam – no lab		
10-11	<b>Parkinson's Disease (PD)</b>	1, 3	Umphred: Chapter 20 Videos/ recorded material Online sources
12	<b>Multiple Sclerosis (MS)</b>	1, 3	Umphred: Chapter 19 Videos/ recorded material

			Online sources
13	<b>Cerebellar Disorders</b>	1, 3	Umphred: Chapter 21 Videos/ recorded material Online sources
14	<b>Final Practical Exam</b>		

- All labs will be held face-to-face on campus using blended learning; students will be asked to review content before coming to lab to learn and apply skills. Content is available on the instructor's YouTube channel.
- Evaluation methods: content learned during practical labs will be evaluated during practical exams (midterm and final)

### Clinical Sessions:

Students will attend supervised clinical training at Jordan University Hospital. During training, students will work in groups with patients with neurological disorders. Students will be expected to perform detailed assessment of the patient's condition, create short- and long-term goals that are patient-centered, prepare and apply treatment interventions, and document the process. **Appendix A** provides the neurological documentation sheet that students should use.

Week	Note on Clinical Session
7	No clinical – Eid Fitr – students are required on attend labs during this 3-day week
9	No clinical – per JUH request due to Quality Assurance work

### Summary of term schedule:

Week	Note
1 – 6	Regular weeks
7	Eid Fitr – only practical labs, no clinical
8	Midterm practical exam and regular clinical
9	Midterm theory exam – no practical labs and no clinical
10 – 13	Regular weeks
14	Final practical exam and no clinical

Detailed outline for labs on traumatic spinal cord injury:

Week	Videos on YouTube	Content from chapter
1	SCI exam	Early medical management – emergency care and fracture stabilization – page 869
2	ISNCSCI	Immobilization – page 869 Physical therapy management early after injury – examination – page 870
3	Bed mobility	Physical therapy interventions – page 872
4	Transfers	Active rehabilitation – physical therapy examination – page 877
5	Wheelchairs and gait training	Physical therapy interventions – page 887

## 23 Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements: **(Refer to Appendices B, C and D for practical, clinical, and documentation grading rubrics)**

Evaluation Activity	Mark	Topic(s)	SLOs	Period (Week)	Platform
Midterm – theory	30%	Theoretical and practical material covered during weeks 1-7	1 – 4	Week 9 April 25 <sup>th</sup> 12:00 – 1:00 pm	On-campus Rehab and Engineering computer labs
Midterm – practical	10%	Practical material covered during Weeks 1-7	1, 3	Week 8	On-campus, in the lab
Clinical evaluation	10%	Students will be assessed on a patient in the hospital (5%) and on properly filling neurological patient evaluation and treatment sheet (5%)	1, 3, 4	Anytime during the clinical starting the fourth week	In the hospital
Final – practical	10%	All practical material covered in the semester	1, 3	Week 15	On-campus, in the lab
Final – theory	40%	All theoretical and practical material covered in the semester	1 – 4	TBA by registrar	On-campus

Midterm and final theoretical exams will be inclusive of all content covered during theoretical lectures and practical labs.

Appendix B demonstrates the practical exam grading rubric. And Appendices C & D demonstrate clinical and evaluation sheet grading rubrics, respectively.

## 24 Course Requirements

Each student is expected to bring to the lab and clinic any relevant PT tools such as: assessment tools, reflex hammer, tape measure, goniometer, etc.



Each student is expected to have a computer, good internet connection, and valid accounts on e-learning and Microsoft Teams

## 25 Course Policies:

### A- Attendance policies:

- Attendance will be taken on every class throughout the semester.
- Students are expected to attend and actively participate in all classes and practical sessions.
- Students are expected to be on time.
- When the student is unable to attend class, or a practical session, it is a courtesy to notify the instructor in advance using either e-mail or phone.
- Repeated tardiness or leaving early will not be accepted.
- Students who miss class (or any portion of class) are responsible for the content. Any student who misses a class has the responsibility for obtaining copies of notes, handouts, assignments, etc. from class members who were present. If additional assistance is still necessary, an appointment should be scheduled with the instructor. Class time is not to be used to go over material with students who missed class (es).
- An absence of more than 15% of all the number of classes, which is equivalent to (6) classes, labs, and clinicals, 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 as suggested by the laws and regulations of the University of Jordan.

### B- Absences from exams and submitting assignments on time:

- The instructor will not do any make-up exams.
- Exceptions for make-up exams and late submission of class assignments will be made on a case-by-case basis for true personal emergencies that are described as accepted by the regulations of UJ (e.g., documented medical, personal, or family emergency).
- It is the student's responsibility to contact the instructor within 24 hours of the original exam time to schedule a make-up exam.
- Makeup for the final exam may be arranged according to the regulations of The University of Jordan.

### C- Health and safety procedures:

- Students will deal with patients during the clinical part of this course.
- Students are not expected to use any heavy tools or equipment that might impose health and safety issues during this course.
- Students should work safely, including being able to select appropriate hazard control and risk management, reduction or elimination techniques in a safe manner in accordance with health and safety legislation.
- Students should understand the importance of and be able to maintain confidentiality.
- Students should understand the importance of and be able to obtain informed consent.
- Students should know the limits of their practice and when to seek advice or refer to another professional.

**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, clinic forms, or another student work) will be considered plagiarism and the student/group will get a zero grade for that work if part of an assignment. 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 assignments on their own. Asking other instructors at the JU clinic or the 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. Video and audio recording of lectures and review sessions without the consent of the instructor is prohibited.
- 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 Faculty 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 staff of Services for Student with Disabilities (Faculty of Students Affairs) as soon as possible.
- Please also contact the instructor as soon as possible (email is acceptable) so the appropriate accommodations for this course can be made.

**26 References:**

**A- Required book(s), assigned reading and audio-visuals:**

- 1) Lennon, S., Ramdharry, G., and Verheyden G. (2018). Physical Management for Neurological Conditions (4<sup>th</sup> ed.)
- 2) O'Sullivan, S.B., Schmitz, T.J., Fulk, G.D. (2019). Physical Rehabilitation (7<sup>th</sup> ed.). Philadelphia, Pennsylvania: FA Davis
- 3) Umphred, D. A. (2013). Neurological Rehabilitation (6th edition): Elsevier/Mosby

**B- Recommended books, materials and media:**

- 4) O'Sullivan, S. & Schmitz, T. (2017). Improving Functional Outcomes in Physical Rehabilitation (2nd ed.). Philadelphia, Pennsylvania: FA Davis.

5) Petty, N. (2011) Principles of Neuromusculoskeletal Treatment and Management (2nd ed.).

## 27 Additional information:

**LAB ATTIRE** Students are expected to dress appropriately for each lab. Casual dress is acceptable for in-class lab experiences (e.g., scrubs, t shirts, sneakers). For most of the labs, sandals, high-heeled shoes, and dresses are not acceptable.

**CLINIC/ HOSPITAL ATTIRE** and other requirements: Students are expected to dress appropriately in each hospital visit. Only Scrubs or lab coats with casual dress are required. Sandals, high-heeled shoes, loose hair, long fingernails, and dresses are not acceptable. Students are also expected to wear a name tag and attend to all infection control procedures during their presence in the hospital.

This course builds on the following courses that the student had previously taken: Anatomy, Physiology, Tests and Measures, Biomechanics, Therapeutic Exercise, Neuroscience, and Neuromuscular Physiotherapy I.

Students with disabilities:

- If you are a student with disability, please contact the course coordinator at the beginning of the term to inform them of any needs or adjustments you might have.
- 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 you provide to the course coordinator will be dealt with confidentially.

Course material and copy rights:

- All material prepared by the course instructors for the purposes of this course are the intellectual property of the course instructors. It is only intended for the personal use of students for their individual learning.
- Sharing of course content with other people or via different platforms other than those used by the course coordinator is prohibited. The permission of the course coordinator must be sought before sharing of content.
- Course content and materials will be posted on e-learning website so make sure you have access to the website and can download the materials and access the online assignment.
- This course builds on the knowledge that you have obtained in the internal medicine, musculoskeletal, neuromuscular and cardiopulmonary courses. Please make sure you revise main pathologies and assessment tools.

Name of Course Coordinator: ---maha mohammad---Signature: ---mm--- Date: -28/2/2024----

Head of Curriculum Committee/Department: Dr. Ibrahim AlTobasi Signature: Ibrahim AlTobasi

Head of Department: Dr. Ibrahim AlTobasi Signature: Ibrahim AlTobasi

Head of Curriculum Committee/Faculty: ----- Signature: -----

Dean: ----- Signature: -----

## APPENDIX A

### Neurological Evaluation and Treatment Sheet

**Student Name** \_\_\_\_\_

**Setting** In-patient/Out-patient

#### Demographic information

Patient Initials \_\_\_\_\_

Age \_\_\_\_\_

Gender \_\_\_\_\_

Handedness (R/ L)

#### History

Diagnosis \_\_\_\_\_

Date of onset \_\_\_\_\_

Circumstances of occurrence/History of present condition

Previous medical history

Prior functional status

Equipment or assistive technology

Social situation (home, school/ employment, family support)

Prior intervention

Review of systems

Goals of the patient

#### General

Vital signs at rest (note position)

Vital signs with activity

Observation

#### Higher cognitive functions

Consciousness

Orientation (person, place, date)

Memory deficit (3 item recall)

Communication dysfunction

## Sensation

Tactile (superficial)

Deep sensation

Perception (stereognosis)

## Motor exam

Muscle tone

ROM

Strength

Motor control (stability, movement, coordination)

## Cranial nerves

Nerve	Right	Left

## Equilibrium/ balance

	Sensory	Motor	Cognitive
Sitting			
Standing			

Standardized balance assessment tools such as PASS, SATCo, or BB

Tool	Score

Objective measures

Timed up-and-go	
Functional reach test – sitting	
Functional reach test – standing	

**Functional skills – analyze components of movement and grade level of assistance, assist devices used, and deviations noted**

Bed mobility	
Transfers	
Sit-to-stand	
Gait	

Stairs	
Wheelchair handling	

Standardized functional outcome measures such as Barthel Index, Fugl-Meyer, or FIM

Tool	Score

Objective measures

Gait velocity	
Three-minute walk test	
DGI/ FGA	
Five times sit-to-stand	

	Functional problem list (prioritize)	Underlying impairments (link to activity limitations)
1.		
2.		
3.		
4.		

**Long term goal**

---

**Short term goals**

---



---

**Plan of care**

**Home exercise program**

## APPENDIX B

### Practical Grading Rubric

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Points	Criteria
2	Excellent performance or answer
1	Needs prompting/ or missing important aspects
0	Provide no answer/ or major mistakes

Student demonstrates appropriate clinical skills, including:

- |  |   |   |   |
|--|---|---|---|
| • Verbal cues, therapist body mechanics and patient safety         | 0 | 1 | 2 |
| • Choice of examination/ treatment technique                       | 0 | 1 | 2 |
| • Application of technique   | 0 | 1 | 2 |
| • Rationale for treatment activity or interpretation of assessment | 0 | 1 | 2 |
| • Answering questions about assessment or treatment                | 0 | 1 | 2 |

**Total out of 10:** \_\_\_\_\_

## APPENDIX C

### Clinical Grading Rubric

Criteria	3	2	1	0
<b>Assessment/ Treatment Skills</b>				
Assessment	Able to choose appropriate assessment method and apply it correctly	Unable to choose appropriate assessment method but able to apply requested one correctly	Unable to choose appropriate assessment method and applies requested one with considerable hesitancy	Unable to choose or apply appropriate assessment method
Treatment	Able to choose appropriate treatment strategy and apply it correctly	Unable to choose appropriate treatment strategy but able to apply requested one correctly	Unable to choose appropriate treatment strategy and applies requested one with considerable hesitancy	Unable to choose or apply appropriate treatment strategy
Adhering to principles of patient and therapist safety	Keeps patient safety of concern at all times and considers proper therapist body mechanics	Keeps patient safety of concern at all times but fails to consider proper therapist body mechanics	Fails to monitor patient safety at all times but considers proper therapist body mechanics	Fails to monitor patient safety at all times and to consider proper therapist body mechanics
<b>Clinical Reasoning</b>				
Clinical reasoning	Shows sufficient clinical reasoning skills while discussing assessment and/or treatment options	Shows acceptable clinical reasoning skills while discussing assessment and/or treatment options	Needs prompting for clinical reasoning skills while discussing assessment and/or treatment options	Shows no reasoning skills while discussing assessment and/ or treatment options
<b>Professional Behavior</b>				
Professionalism	Exhibits noticeable communication skills with patient and all team members and conforms to professional behavior and appearance	Exhibits acceptable communication skills with patient and all team members and conforms to professional behavior and appearance	Has poor communication skills with patient and team members or does not conform to professional behavior and appearance	Has poor communication skills with patient and team members and does not conform to professional behavior and appearance



## APPENDIX D

### Neurological Evaluation and Treatment Sheet Grading Rubric

Criteria	3	2	1	0
History	Proper and clear documentation of all relevant history information	Few history information not clear or missing	Several history information missing	History missing several information that makes drawing a picture of the patient difficult
Assessment	Able to choose and clearly document appropriate assessment methods, including sufficient objective outcome measures. Choice reflects good clinical reasoning	Unable to choose or clearly document sufficient objective outcome measures reflecting poor clinical reasoning	Unable to choose or clearly document appropriate assessment methods	Unable to choose or clearly document assessment methods or objective outcome measures
Long- and short-term goals	Choice of SMART goals appropriate to the patient that reflect excellent clinical reasoning and consideration of timeframe	Choice of SMART goals appropriate to the patient that reflect good clinical reasoning but poor consideration of timeframe	Choice of SMART goals that may be appropriate to the patient	Goals determined are not SMART
Treatment	Able to choose appropriate treatment strategy and home exercise program that are clearly tied to the long- and short-term goals	Able to choose appropriate treatment strategy and home exercise program but unable to cover all goals	Able to choose appropriate treatment strategy but unmatching home exercise program	Treatment strategy and home exercise program do not match patient status or goals