

PT 615: Movement System Intervention I
Fall 2024
Time: Tuesday & Thursday 1:30pm –5:00pm
Location: E312



COURSE DESCRIPTION:

This course integrates components of the movement system as it relates to human motor performance across the lifespan. This includes principles and applications of therapeutic intervention with integration of current evidence and clinical decision making to emphasize appropriate selection, instruction, and progression of physical therapy interventions.

DEPARTMENT OFFERING THE COURSE:

UND School of Medicine and Health Sciences - Department of Physical Therapy

CREDIT HOURS: 3 credit hours

ABOUT THE PROFESSOR & CONTACT INFORMATION:

Name: Amanda Wilson, PT, DPT
Phone: (701)777-3662
Email: Amanda.k.wilson@und.edu
Office Location: UND-SMHS Suite E321, Room 334
Student Hours: *email to arrange a meeting time and location*

Name: Steve Halcrow, PT, DPT
Phone: (701)777-3857
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Student Hours: *email to arrange a meeting time and location*

Additional Instructors: Gary Schindler, Ricky Morgan, Kevin O'Brien, Nicholas Holkup, Cindy Flom-Meland, and Dave Relling.

COURSE CONTACT HOURS:

Schedule: Tuesday & Thursday, 1:30 pm-5:00 pm
Lecture and laboratory

COURSE PREREQUISITES:

Registered in the professional Physical Therapy program.

COURSE OBJECTIVES:

After successfully completing this course, you should be able to:

1. Consistently demonstrate professional attitudes and behaviors during laboratory sessions and practical examinations. (SRE: 7B, 7B1; Bloom's: Cognitive-understand and apply, Affective-characterizing; Program Goal 1; Thread: Professionalism)
2. Assess the safety risks for the health care provider and demonstrate proper body mechanics during performance of all skills to avoid personal injury. (SRE: 7D23; Bloom's: Cognitive-understand and evaluate, Psychomotor-mechanism; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)

3. Identify and apply intervention techniques with equity, respect and consideration for patients'/clients' differences/diversity, values, preferences, and expressed needs. (SRE: 7C, 7C3, 7D, 7D22; Bloom's: Cognitive-remember and apply, Affective-characterizing; Program Goal 1; Thread: Cultural Diversity)
4. Accurately assess patient outcomes following selected interventions and modify the plan of care in response to patient/client status, observing precautions and contraindications, and educating patient/client on rationale for intervention. (SRE: 7D11, 7D12, 7D13, 7D23; Bloom's: Cognitive-evaluate and create; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)
5. Explain and classify appropriate delegation of selected interventions to support personnel based on the needs of the patient as well as professional, ethical and legal requirements. (SRE: 7D7, 7D8; Bloom's: Cognitive-understand and analyze; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)
6. Correctly perform and interpret the vital sign measurements of heart rate, respiratory rate, blood pressure, pulse oximetry, and spirometry relative to resting and physical activity, health status, and safety. (SRE: 7D1, 7D2; Bloom's: Psychomotor-mechanism, Cognitive-apply; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)
7. Demonstrate knowledge of various types of isolation procedures. (SRE: 7A, 7D23; Bloom's: Cognitive-remember, understand, and apply; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)
 - a. Discuss standard precautions, identify when the procedures are utilized and demonstrate appropriate procedures.
 - b. Recognize diseases/pathogens which may be associated with and require various isolation procedures
 - c. Understand and display a knowledge of contact, airborne, and droplet isolation including specific disease examples for each level of protection
8. Demonstrate appropriate applications of passive, active-assistive, active range of motion interventions of the lower extremities. (SRE: 7D10; Bloom's: Cognitive-understand and apply, Psychomotor-mechanism; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)
9. Demonstrate appropriate examination, evaluation, prognosis, plan of care and interventions for transfers/moving and lifting. (SRE: 7D1, 7D2, 7D5, 7D6, 7D10, 7D23; Bloom's: Cognitive-understand, apply, and evaluate, Psychomotor-mechanism; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)
 - a. discuss the importance of safe transfers and the factors that a physical therapist considers in determining a correct type of transfer within a client's plan of care
 - b. demonstrate proper body mechanics, perform a selection of transfer types on peers
 - c. examine and evaluate body mechanics of peers while performing transfers
 - d. perform a hydraulic lift transfer and determine its advantages/disadvantages over a manual transfer
 - e. describe and/or demonstrate the most appropriate type of transfer for case study clients with various impairments. Provide alternatives when the most appropriate transfer technique is not feasible
10. Demonstrate appropriate examination, evaluation, prognosis, plan of care and intervention for assistive gait activities. (SRE: 7D1, 7D2, 7D5, 7D6, 7D10, 7D23; Bloom's: Cognitive-understand, apply, and evaluate, Psychomotor-mechanism; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)
 - a. demonstrate the ability to measure a client for ambulation aides
 - b. prescribe an appropriate gait pattern and assistive device for client/patient scenarios
 - c. demonstrate proper technique for assisted ambulation
 - d. demonstrate the ability to instruct clients/patients in proper gait patterns as well as use of ambulation aides for gait, transfers, and elevation activities.
 - e. demonstrate ability to examine and evaluate safe body mechanics of client and therapist
11. Demonstrate the ability to perform a fitness assessment, evaluate the findings, and develop an appropriate intervention program related to strength, endurance, body composition or flexibility. (SRE: 7D1, 7D2, 7D10; Bloom's: Cognitive-understand, apply, evaluate and create; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)
12. Incorporate understanding of bioenergetic principles into analysis and development of physical activity intervention. (SRE: 7A, 7D1, 7D2, 7D10; Bloom's: Cognitive-understand, analyze, and create; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)

13. Demonstrate ability to recognize and perform a basic food/nutrition assessment as a component of health promotion and disease prevention. (SRE: 7A, 7D1, 7D21; Bloom's Cognitive-remember, apply, and analyze; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)
14. Describe the role of warm-up, cool-down, and flexibility activities during a training session and program. Identify specific flexibility and warm-up activities relative to the activity to be performed. (SRE: 7A, 7D10; Bloom's: Cognitive-understand and apply; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)
15. Describe the process of treatment protocol development. Apply intervention protocols relative to client examination/evaluation and client needs/wants. (SRE: 7D1, 7D2, 7D10; Bloom's: Cognitive-understand and apply; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)
16. Prescribe a safe and appropriate resistance training program based on client/patient age, gender, health status, and goals. (SRE: 7A, 7D6, 7D10; Bloom's: Cognitive - understand, apply, and evaluate; Program Goal 1; Thread: Critical Inquiry/Clinical decision making and cultural diversity)
17. Implement an appropriate program based on the examination and evaluation of isokinetic results, while incorporating client/patient age, gender, health status, and goals. (SRE: 7D1, 7D2, 7D6, 7D10; Bloom's: Cognitive -apply; Program Goal 1; Thread: Critical Inquiry/Clinical decision making and cultural diversity)
18. Describe appropriate resistance training progression relative to health status, gender, age, and goals using a periodized training program. (SRE: 7A, 7D10, 7D11; Bloom's: Cognitive-understand and apply; Program Goal 1; Thread: Critical Inquiry/Clinical decision making and cultural diversity)
19. Design an appropriate and safe plyometric/agility program and intervention progression relative to age, gender, health status and goals of the client/patient. (SRE: 7A, 7D10; Bloom's: Cognitive- create; Program Goal 1; Thread: Critical Inquiry/Clinical decision making and cultural diversity)
20. Competently perform intervention techniques utilizing appropriate biomechanical and neurophysiological properties of soft tissue and joint mobilization/manipulations based on results of examination and evaluation. (SRE: 7D10; Bloom's: Cognitive-understand and apply; Psychomotor-guided response and mechanism; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)
21. Competently perform spine intervention techniques utilizing appropriate biomechanical and neurophysiological properties of soft tissue and joint mobilization/manipulations based on results of examination and evaluation. (e.g. McKenzie, Mulligan, PPIVM, PAIVM) (SRE: 7D10; Bloom's: Cognitive-understand and apply; Psychomotor-guided response and mechanism; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)
22. Select and perform therapeutic interventions designed to establish or maintain muscle control/learning, coordination, and/or patient relaxation, based on results of examination and evaluation. To demonstrate this ability, the student should be able to: (SRE: 7D10; Bloom's: Cognitive-understand, apply, analyze, evaluate; Psychomotor-set and guided response; Program Goal 1; Thread: Critical Inquiry/Clinical decision making)
 - a. Discuss application of the Kenny technique of muscle re-education of prime movers, including identification of the rationale and requirements of this type of exercise.
 - b. Identify and discuss the primary principles and perform techniques of neuro-facilitation (Traditional) approaches, including methods of:
 - Rood, Brunnstrom, Bobath/Neuro-Developmental Training (NDT), Kabat, Knott & Voss: Proprioceptive Neuromuscular Facilitation (PNF)
 - c. Identify and discuss primary principles of the Task-Oriented (Contemporary/Motor Learning) Model in treatment interventions.
 - d. Design treatment interventions (based on b and c above) for common body/structure impairments observed in patients with neurological health conditions, such as but not limited to:
 - weakness, abnormal tone, sensory/perceptual dysfunction, incoordination, balance dysfunction

COURSE SCHEDULE AND OUTLINE OF CONTENT:

- See attached course schedule

DESCRIPTION OF TEACHING METHODS AND LEARNING EXPERIENCES:

- Lecture
- Lab-practice of skills
- Discussion-large and small group discussion of cases

COURSE MODE OF DELIVERY:

- Synchronous, in-person

MATERIALS – TEXT, READINGS, & SUPPLEMENTARY READINGS:

- *Mobility in Context: Principles of Patient Care Skills, 3rd edition– Johansson/Chinworth
- ACSM’s Guidelines for Exercise Testing and Prescription, 11th ed
- Clinical Orthopaedic Rehabilitation – Giangarra/Manske/Brotzman, 4thed
- Orthopedic Joint Mobilization & Manipulation – Manske/Lehecka/Reiman/Loudon
- *Improving Functional Outcomes in Physical Rehabilitation, 3rd ed – O’Sullivan/Schmitz
- *Therapeutic Exercise: Foundations & Techniques, 7th ed – Kisner/Colby
- *(Available on Access Physiotherapy)

METHODS OF STUDENT EVALUATION:

In this course, your learning will be assessed in the following ways:

- In-class participation
- Quizzes
- Assignments
- Practicals
- Exams

GRADING SCALE:

Grading Scale		Breakdown	
A	90% to 100%	Participation, Quizzes, Assignments- 5%	Exam 1 – 13%
B	80% to 89.9%	Practical 1 – 6.25%	Exam 2 – 13%
C	76% to 79.9%	Practical 2 – 6.25%	Exam 3– 13%
F	< 76%	Practical 3 – 6.25%	Exam 4 – 13%
		Practical 4 – 6.25%	Exam 5 Comprehensive– 18%

WRITTEN EXAMS: Written examinations will require a 76% or above to avoid remediation. Remediation will include discussion with a faculty member and WILL INCLUDE a re-take of the examination at the discretion of faculty. The first attempt will be used for all grading purposes.

LAB PRACTICAL EXAMS: The student must receive a passing grade (80%) on ALL laboratory practical examinations in order to successfully complete this course. A failed lab practical examination must be repeated and a passing grade received; however the grade received on the first attempt will be used for all grading purposes. If the student fails the retake lab practical examination, procedures from the Scholastics Standards document will be initiated.

ATTENDANCE: Attendance is required for all lectures and labs. If you are aware of an upcoming absence, you must provide a written notification (email) to Amanda (Amanda.k.wilson@und.edu), prior to absence. Missed

material will be your responsibility to make up. Excessive absences may have a negative impact on your final grade. Follow PT guidelines for contacting department with acute illness or injury.

If problems occur, students are required to work through channels of communication to resolve the problem before going to the chair or dean. The channel is student, instructor, chair, dean.

For more information on grading policies, please refer to the [UND-PT Scholastic Standards Document](#)

COURSE ACCESS & TECHNICAL REQUIREMENTS:

This course was developed and will be facilitated utilizing Blackboard. For access go to: <http://blackboard.UND.edu> and log in with your NDUS.Identifier. If you do not know your NDUS Identifier or have forgotten your password, please visit [Your NDUS Account Webpage](#)

Visit the [UND Technical Requirements](#) webpage for more information. Students are expected to use their official UND email in the course. For technical assistance, please contact [UND Technical Support](#) at 701.777.2222

ARTIFICIAL INTELLIGENCE (AI)

Artificial Intelligence tools are allowed in this course as approved by the instructor(s). Students are required to disclose if they use AI-generated text or images and how they apply it in their work. Failure of students to acknowledge their use of AI or using fabricated information could result in their violation of the Academic Integrity Policy. Students must ensure the originality of their work, maintain academic integrity, and avoid any type of plagiarism. The students need to understand the material and complete assignments on their own, using AI tools as a supplement rather than a replacement for their work. Students should not use sources that are cited by AI tools without having read them because generative AI tools can either create fake citations or cite a real piece of writing, but the cited content may be inaccurate. The faculty reserves the right to use various plagiarism-checking tools in evaluating students' work, including those screening for AI-generated content, and impose consequences accordingly.

For more information on AI Policies, please visit [Artificial Intelligence Resources](#).

Nondiscrimination

It is the policy of the University of North Dakota that no person shall be discriminated against because of race, religion, age, color, gender, disability, national origin, creed, sexual orientation, gender identity, genetic information, marital status, veteran's status, or political belief or affiliation and the equal opportunity and access to facilities shall be available to all. Concerns regarding Title IX, Title VI, Title VII, ADA, and Section 504 may be addressed to Donna Smith, Assistant Vice President for Equal Opportunity and Title IX/ADA Coordinator, 401 Twamley Hall, 701.777.4171, UND.EO.TitleIX@UND.edu or the Office for Civil Rights, U.S. Dept. of Education, 230 S. Dearborn St., 37th Floor, 500 West Madison, Suite 1475, Chicago, IL 60611 or any other federal agency.

The full [Notice of Non-discrimination](#) is available online through Equal Opportunity & Title IX.

Accessibility Statement

The University of North Dakota is committed to providing equal access to students with documented disabilities. To ensure access to this class and your program, please contact Student Disability Resources to engage in a confidential discussion about accommodations for the classroom and clinical settings.

Accommodations are not provided retroactively. Students are encouraged to register with [Student Disability Resources](#) at the start of their program. More information can be obtained by email, UND.sdr@UND.edu, or by phone at 701.777.2100.

Religious Accommodations

UND offers religious accommodations, which are reasonable changes in the academic environment that enable a student to practice or observe a sincerely held religious belief without undue hardship on the University.

Examples include time for prayer or the ability to attend religious events or observe a religious holiday. To request an accommodation, complete the [student religious accommodation request form](#). To learn more, please consult UND's [Religious Accommodations Policy](#) or contact the [Equal Opportunity & Title IX Office](#).

Pregnancy Accommodations

Students who need assistance with academic adjustments related to pregnancy or childbirth may contact the [Equal Opportunity & Title IX Office](#) or Academic Affairs to learn about your options. Additional information and services may be found at [Pregnancy Resources and in UND's Protections for Pregnant and Parenting Students and Employees Policy](#).

Reporting Discrimination, Harassment, or Sexual Misconduct

If you or a friend has experienced sexual misconduct, such as sex-based harassment, domestic violence, dating violence, or stalking, please contact the [Equal Opportunity & Title IX Office](#) or UND's Title IX Coordinator, Donna Smith, for assistance at 701.777.4171 or donna.smith@UND.edu.

You may also contact the Equal Opportunity & Title IX office if you or a friend has experienced discrimination or harassment based on a protected class, such as race, color, national origin, religion, age, disability, sex, sex characteristics, sexual orientation, gender identity, genetic information, pregnancy, marital or parental status, veteran's status, or political belief or affiliation.

Faculty Reporting Obligations Regarding Discrimination, Harassment, or Sexual Misconduct

It is important for students to understand that faculty are required to share with UND's Equal Opportunity & Title IX Office any incidents of potential sexual misconduct or of discrimination or harassment based on a protected class that they become aware of, even if those incidents occurred in the past or are disclosed as part of a class assignment. This does not mean an investigation will occur if the student does not want that, but it does allow UND to provide resources to help the student continue to be successful at UND. If you have been impacted by discrimination, harassment, or sexual misconduct, you can find information about confidential support services at the [Equal Opportunity & Title IX](#) webpage.

Health and Safety

UND is committed to maintaining a safe learning environment and asks students and instructors to be flexible when necessary to promote quality learning experiences. **Please do not attend an in-person class or lab if you are feeling ill or if you have been directed by health professionals to stay home.**

- If you are not able to attend class or lab, please notify your instructor as soon as possible and discuss options for making up any missed work.
- If you will have an extended absence due to serious illness or other uncontrollable circumstances, you may request an absence notification through [Community Standards and Care Network](#).
- If your instructor is ill, they may need to cancel class or temporarily move your course to online delivery.

Please contact [Student Health Services](#) if you have health questions by calling 701.777.4500 or visiting myhealth.und.edu

PT 615: Movement System Intervention I
 Class Schedule: T/TH 1:30 – 5:00pm
 Course Coordinators: Amanda Wilson, Steven Halcrow

8/27 T	Lecture/Lab	Patient Care Skills Module: Standard & Contact Precautions; Body Mechanics	Amanda/Ricky
8/29 TH	Lecture/Lab	Mobility Module: Positioning; Bed/Mat Mobility	Amanda/Ricky
9/3 T	Lecture/Lab	Transfers	Amanda/Ricky
9/5 TH	Lecture/Lab	Locomotion (Gait/Wheelchair/Stairs)	Amanda/Ricky
9/10 T	EXAM	Written Exam 1 & Practical 1	All
9/12 TH	Lecture	Exercise Basics Module: Muscle/Exercise Physiology Foundation; Energy Systems; Health Appraisals; Nutrition; Stretching Concepts	Dave/Gary/ Nick
9/17 T	Lecture/Lab	Resistive Training; Isokinetics, Plyometrics, Aerobic Training	Gary/Nick
9/19 TH	Lecture/Lab	Treatment Protocol Development; FITT Principles	Gary
9/24 T	EXAM	Written Exam 2	
9/26 TH	Lecture/Lab	Hip Module: Principles of Joint Mobilization. Hip: Joint Mobilizations Intro	Gary/Kevin
10/1 T	Split Lab	Hip: Joint Mobilizations	Gary/Kevin
10/3 TH	Lecture/Lab	Hip: Therapeutic Exercise (ROM/Stretching/Resistive Training)	Ricky/Steve
10/8 T	Lecture/Lab	Hip: Therapeutic Exercise/Protocols	Ricky/Steve
10/10 TH	Lecture	Special populations Module: Neuro, Pediatrics, Geriatrics, Environmental.	Amanda/Nick
10/15 T		Mid-Term Exam Week	
10/17 TH	EXAM	Written Exam 3 & Practical 2	All
10/22 T	Split Lab	Knee Module: Joint Mobilization	Gary/Kevin
10/24 TH	Lecture/lab	Knee: Ther Ex (ROM/Stretching/Resistive Training)	Ricky/Steve
10/29 T	Lecture/lab	Knee: Therapeutic Exercise/Protocols	Kevin/Ricky
10/31 TH	Split Lab	Ankle/Foot Module: Joint Mobilization	Gary
11/5 T	Lecture/Lab	Ankle/Foot: Ther Ex (ROM/Stretching/Resistive Training)	Ricky
11/7 TH	Lecture/Lab	Multi-joint Exercise Module: Mini Cases	Kevin/Ricky
11/12 T	Lecture/Lab	Common Exercise; functional movement patterns (PNF)	Amanda/Cindy
11/14 TH	EXAM	Written Exam 4 & Practical 3	All
11/19 T	Lecture/Lab	Lumbar/Pelvis Module: McKenzie	Kevin
11/21 TH	Lecture/Lab	Lumbar/Pelvis: Joint mobilization and Soft Tissue mobilization (STM)	Ricky/Kevin/ Gary
11/26 T	Lecture/Lab	Lumbar/Pelvis: Sacro-Iliac	Kevin
11/28 TH	NO CLASS	THANKSGIVING BREAK	
12/3 T	Lecture/Lab	Lumbar/Pelvis: spine stabilization, review, cases	Kevin
12/5 TH	Lecture/Lab	Neuro Module: Coordination intervention/Static balance exercise	Amanda/Cindy
12/10 T	Lab	Neuro: Dynamic balance exercise	Amanda/Steve
12/12 TH	Lab	Review	Amanda
Finals wk	EXAM	Final Comprehensive Written Exam 5 & Practical 4	ALL

*syllabus and schedule are subject to change, with updates provided through Blackboard LMS