

## **Course Title and Number:** PT 616 Movement System Intervention II

**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:**

Physical Therapy

**Credit Hours:** 3 credit hours

**Course Coordinators:** Amanda Wilson and Michelle LaBrecque

### **Clock Hours:**

Schedule: Tuesday & Thursday – 1:00-4:30 pm (Lecture/Lab)

### **Course Prerequisites:**

Registered in the Professional Physical Therapy curriculum

### **Course Objectives:**

Upon completion of this course, the student will be able to:

1. Consistently demonstrate professional attitudes and behaviors during laboratory sessions and practical examinations.
2. Assess the safety risks for the health care provider and demonstrate proper body mechanics during the performance of all skills to avoid personal injury.
3. Identify and apply intervention techniques with respect and consideration for patients'/clients' differences/diversity, values, preferences, and expressed needs.
4. Accurately assess patient outcomes following selected interventions and adjust the plan of care in response to patient/client status observing precautions, and contraindications, and educating patient/client on the rationale for intervention.
5. Demonstrate appropriate applications of passive, active-assistive, and active range of motion techniques of upper extremities.
6. 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.
7. Incorporate an understanding of bioenergetic principles into the analysis and prescription of physical activity.
8. Describe the process of treatment protocol development. Evaluate and implement treatment protocols relative to client examination/evaluation and client needs/wants. (SRE: 7D24, 7D30; Bloom's: Cognitive – comprehension)
9. Prescribe a safe and appropriate resistance training program based on client/patient age, gender, health status, and goals. (SRE: 7C, 7D24, 7D27i; Bloom's: Cognitive - comprehension, application and synthesis)
10. Implement an appropriate program based on the isokinetic results and incorporate client/patient age, gender, health status, and goals. (SRE: 7D19o, 7D20, 7D24, 7D27i; Bloom's: Cognitive - applying)
11. Describe appropriate resistance training progression relative to health status, gender, age, and goals using a periodized training program. (SRE: 7C, 7D27i, 7D30; Bloom's: Cognitive - comprehension and synthesis)

12. Design an appropriate and safe plyometric/agility program and progression relative to age, gender, health status, and goals of the client/patient. (SRE: 7A; Bloom's: Cognitive - knowledge)
13. Competently administer intervention techniques utilizing appropriate biomechanical and neurophysiological properties of soft tissue and joint mobilization/manipulations based on evaluation and limitations identified – pain or joint restriction. (SRE: 7D19k, 7D19q, 7Dd19v, 7D27f; Bloom's: Cognitive – comprehension and application; Psychomotor – complex overt response and guided response)
14. Competently administer spine assessment and intervention techniques utilizing appropriate biomechanical and neurophysiological properties of soft tissue and joint mobilization/manipulations (e.g. McKenzie, Mulligan, PPIVM, PAIVM) (SRE: 7D19k, 7D19q, 7D19v; 7D27f; Bloom's: Cognitive – comprehension and application; Psychomotor – complex overt response and guided response)
15. Demonstrate lymphatic massage techniques.
16. Determine appropriate physical therapy diagnosis, prognosis, intervention, and outcomes regarding the purpose and functions of bandages and other forms of support for the integumentary and musculoskeletal systems based on examination and evaluation findings, including:
  - a. demonstrate appropriate basic bandaging based on a clinically relevant problem.
  - b. safe and effective plan of care developed with client goals and outcomes within available resources and expected time constraints.
17. Describe and demonstrate appropriate acute care examination, evaluation, prognosis, diagnosis, intervention, and expected outcomes for postoperative limb amputation in preparation for a prosthesis. To demonstrate this ability the student will be able to:
  - a. discuss appropriate examination and evaluation testing.
  - b. discuss underlying primary or secondary systems pathology in relation to prognosis and outcomes.
  - c. discuss the various postoperative dressings available to influence residual limb shaping
  - d. discuss & demonstrate proper positioning of the client and residual limb to prevent joint restrictions which may adversely affect prosthesis fitting and use
  - e. demonstrate proper wrapping of the residual limb to provide the best shape of the residual limb for prosthetic fitting
18. Perform and teach the patient, when applicable, specific therapeutic interventions designed to establish or maintain muscle control/learning, coordination, and/or patient relaxation. To demonstrate this ability, the student should be able to: (SRE: 7D10, 7D27i; Bloom's: Cognitive – comprehension, analysis, application, synthesis; Psychomotor – set, guided response)
  - a. Discuss the 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

**Outline of Contents and Assigned Instructor:**

See attached course syllabus.

**Description of Teaching Methods and Learning Experiences:**

Lecture – traditional lecture

Lab – practice of skills

Discussion – large and small group discussion of cases

**Grading:**

|                           |     |
|---------------------------|-----|
| Assignments/Participation | 5%  |
| Check-offs(1,2,&3)        | 15% |
| Practicals (1&2)          | 20% |
| Exams                     | 40% |
| Final Exam                | 20% |

**Grading Scale:**

|     |           |
|-----|-----------|
| A   | 90-100%   |
| B   | 80-89.9%  |
| C   | 76%-79.9% |
| D/F | <76%      |

**Texts: \*(Available on AccessPhysiotherapy)**

1. \*Mobility in Context: Principles of Patient Care Skills, 3rd– Johansson/Chinworth
2. ACSM's Guidelines for Exercise Testing and Prescription, 11<sup>th</sup> ed
3. Clinical Orthopaedic Rehabilitation – Giangarra/Manske/Brotzman, 4<sup>th</sup>ed
4. Orthopedic Joint Mobilization & Manipulation – Manske/Lehecka/Reiman/Loudon
5. \*Improving Functional Outcomes in Physical Rehabilitation, 3<sup>rd</sup> ed – Bezkor, O'Sullivan/Schmitz
6. \*Therapeutic Exercise: Foundations & Techniques, 8th ed – Kisner, Borstad, Colby

**Academic Integrity:**

In accordance with the rules concerning scholastic dishonesty in the Code of Student Life\* at the University of North Dakota, I affirm that I understand these rules and I agree to comply with them.

I will not:

- a) receive any additional information or assistance for any exam other than what was provided during class or approved tutor sessions
- b) copy from another student's test
- c) collaborate with or seek aid from another student who may have previously taken the exam
- d) knowingly use, buy, sell, steal, or solicit in whole or in part the contents of any exam
- e) bribe another person to obtain information about any exam

**Department of Physical Therapy Honor Code Pledge:**

*"Upon my honor as a professional student in the physical therapy program at the University of North Dakota, I pledge that I will not give nor receive unauthorized aid on written examinations, laboratory*

**practical examinations, written assignments, take home assignments or clinical assignments.”**  
**Examination disclaimer: “I affirm that I have adhered to the Honor Code in this assignment”**

**Forms of Academic Dishonesty.** Academic dishonesty includes, but is not limited to:

1. Copying or distributing examination items
2. During testing, using crib notes or various forms of technology not authorized by faculty
3. Copying another student’s written paper or examination, with or without their knowledge
4. Helping someone else cheat on a test
5. Communicating or collaborating during a test by electronic means such as instant messaging, telephone, texting, smart watches, or social media.
6. Discussing test items or answers (written or laboratory) with students who have not yet taken the examination
7. Cutting and pasting text from any source without giving proper citation to that source
8. Plagiarism of any materials
9. Fabricating or falsifying written materials
10. Falsely reporting information or actions in clinical or classroom laboratories
11. Submitting the same paper, or a substantially similar paper, for the requirements of more than one course without the approval of the instructor(s) concerned
12. Submitting term papers or assignments written by another person
13. Consenting to having one’s work used by another student as his or her own
14. Collaborating on a project (in person or via electronic means) when the instructor asked for individual work
15. Using a false excuse to obtain an extension on a due date or delay an examination
16. Depriving other students of necessary course materials by stealing books, periodicals, or other materials from libraries, AV centers, etc.

***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, associate dean health sciences, and dean. rev 8/19***

### Notice of 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, 102 Twamley Hall, 701.777.4171, [UND.EO.TitleIX@UND.edu](mailto: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.

### 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 [Accessibility for Students](#) 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 Accessibility for Students at the start of their program.

More information can be obtained by email, [UND.accessibilityforstudents@UND.edu](mailto:UND.accessibilityforstudents@UND.edu), or by phone at 701.777.2664.

### 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 [student religious accommodation request form](#) . If you have any questions, you may 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](#).

## Reporting Discrimination, Harassment, or Sexual Misconduct

If you or a friend has experienced sexual misconduct, such as sexual 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](mailto: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, sex, age, disability, 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

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## PT 616: Movement System Intervention II

Class Schedule: T/TH 1:00 – 4:30 pm

Course Coordinators: Amanda Wilson and Michelle LaBrecque

|         |             |   |                       |
|---------|-------------|---|-----------------------|
| 1/9 T   | Lecture/Lab | Class time reserved for Anatomy lecture   | Gary                  |
| 1/11 TH | Lecture/Lab | Class time reserved for anatomy lab and biomechanics lecture                      | Gary; Ricky           |
| 1/16 T  | Lecture/Lab | Cervical – Ther ex: ROM/stretching, resistive training                            | Ricky                 |
| 1/18 TH | Lecture/Lab | Cervical – McKenzie, joint mobilizations  | Gary, Kevin           |
| 1/23 T  | Lecture/Lab | Exercise Psychology (motivational interviewing; patient buy-in; adherence) 1.5hrs | Dave                  |
| 1/25 TH | Lecture/lab | Shoulder - Jt. Mobs, (split lab), soft tissue                                     | Gary, Kevin           |
| 1/30 T  | Lecture/Lab | Shoulder - Ther Ex: ROM/stretching, resistive training                            | Ricky                 |
| 2/1 TH  | Lecture/Lab | Review and Case Application   | Kevin                 |
| 2/6 T   | Lecture/Lab | Elbow - joint mobs (split lab)  | Gary, Kevin           |
| 2/8 TH  | Exam        | Written Exam #1 / Check-off #1 Cervical & Shoulder                                | ALL                   |
| 2/13 T  | Lecture/lab | Elbow/Wrist/Hand-Therex: ROM/stretching, resistive exercises, protocols.          | Ricky                 |
| 2/15 TH |             | No Class  |                       |
| 2/20 T  | Lecture/lab | Wrist/hand - joint mobs; Multi-joint Exercise in function                         | Gary, Kevin           |
| 2/22 TH | Lecture/lab | Review and Case Application   | Kevin                 |
| 2/27 T  | Exam        | Written Exam #2/Check-off #2 Elbow/Wrist/hand                                     | ALL                   |
| 2/29 TH | Lecture/lab | Graded Exercise Concepts (1-hour lecture)   | Gary                  |
| 3/5 T   |             | SPRING BREAK  |                       |
| 3/7 TH  |             | SPRING BREAK  |                       |
| 3/12 T  | Lecture/lab | Wheelchair Basics and Fitting   | Amanda                |
| 3/14 TH | Lecture/lab | Lymphatic massage and other STM techniques, practical review                      | Kevin and Amanda      |
| 3/19 T  | Exam        | Mid-term week   | All                   |
| 3/21 TH |             | Mid-Term Exam Week (Written-comprehensive Exam #3 and Practical #1)               |                       |
| 3/26 T  | Lecture/Lab | Intro to Amputation - limb wrapping (UE and LE)                                   | Cindy                 |
| 3/28 TH | Lecture/Lab | Residual limb wrapping continued  | Cindy                 |
| 4/2 T   | Lecture/lab | Taping and bracing UE/LE  | Amanda                |
| 4/4 TH  | Lecture/Lab | Upper Extremity: PNF Patterns, NM Facilitation                                    | Cindy/Amanda/Michelle |
| 4/9 T   | Exam        | Exam #4 Wrapping/taping/bracing/PNF and Check-off #3                              | ALL                   |
| 4/11 TH | Lecture/lab | Bed mobility/pelvis/side lying  | Cindy/Amanda/Michelle |
| 4/16T   | Lecture/Lab | Lower trunk rotation/hook lying   | Cindy/Michelle        |
| 4/18 TH | Lecture/Lab | Prone-on-elbows; quadruped activities   | Amanda/Michelle/Cindy |
| 4/23 T  | Lecture/lab | Bridging; upright/kneeling  | Cindy/Amanda/Michelle |
| 4/25 TH | Lecture/lab | Upright sitting/sit-to-stand/transfers  | Amanda/Michelle/Cindy |
| 4/30 T  | Lecture/lab | Modified plantigrade/standing/gait  | Cindy/Michelle        |
| 5/2 TH  | Lecture/lab | Review / Case Application   | Amanda                |

|          |      |                                       |     |
|----------|------|---------------------------------------|-----|
| May 6-10 | EXAM | Final exam-Comprehensive/Practical #2 | ALL |
|----------|------|---------------------------------------|-----|

*\*syllabus/schedule subject to change, will update in blackboard.*