

**OAKLAND UNIVERSITY**  
**SCHOOL OF HEALTH SCIENCES**  
**PHYSICAL THERAPY PROGRAM**  
**PT 7421 Neuromuscular Interventions I**  
**Winter 2018**

**Description:**

This course emphasizes the development of problem solving and psychomotor skills necessary for successful management of the person with neurological dysfunction. Analysis of normal movement patterns allows the student to determine client deficiencies and establish a plan of care. Students design a comprehensive plan of care and apply interventions targeted to the remediation of disabilities, functional limitations, and impairments in a safe manner.

**Credit Hours:** 4 **Contact hours:** 100 hours

**Instructor:**

Jacqueline Scully PT

Phone: 248-364-8698; Cell: 248-561-4585

E-mail: [scully@oakland.edu](mailto:scully@oakland.edu)

Office hours: 3137 Human Health Building, Wednesdays and Fridays 12:00 – 1:00 or by appointment

**Class Hours:** Wednesday and Friday 8:00-12:00pm, in addition some Monday/Wednesday afternoons  
5001 Human Health Building

**Pre-requisite Courses:** PT 7522 (formerly PT 552), PT 7271 (formerly PT 627), PT 7240 (formerly PT 642), PT 7520 (formerly PT 652)

**Instructional Methods:** Lecture, class discussion, laboratories and case study problem-solving format. In addition, students will participate in Bridge the Gap, an educational service opportunity providing intervention to individuals with neurological injury thus providing the student with the opportunity to apply principles learned in class.

**Required Readings and Texts:**

- Course Handouts
- Assigned handout reading distributed or posted on Moodle

**Recommended Text**

- O'Sullivan SB, Schmitz TJ. *Improving Functional Outcomes in Physical Rehabilitation* 2010 FA Davis Co. ISBN-13 978-0-8036-2218-0
- Umphred D, Lazaro R, Roller M, Burton G. *Neurological Rehabilitation* 2012 6<sup>th</sup> edition Elsevier ISBN 9780323075862

**Evaluation and Grading:**

|     |   |
|-----|---|
| 25% | Quizzes (quizzes may include reading assigned for the date of the quiz and past readings/notes)   |
| 10% | Assignments (related to topics discussed in class/lab)  |
| 30% | Final Practical Examination (write up of treatment plan for 3-4 different case studies with demonstration of 1 during practical)  |
| 30% | Bridge the Gap Experience (satisfactory completion as rated by supervising PT), completion of all documentation and course assignments associated with BTG and patient presentation |
| 5%  | Participation/professionalism   |

Competency checks for PNF – multiple attempts allowed however must pass prior to the start of Bridge the Gap. The student must demonstrate competency with PNF techniques as outlined by the instructor prior to February 28th. If each competency item is not satisfactorily completed, the student will not be allowed to sit for the final examination and a 0% grade will be recorded for the final examination. Students are allowed multiple attempts to demonstrate competency. Competency checks may be completed at any time during the semester with the instructor or assisting TA and if further practice is recommended, rechecks cannot be assessed on the same day.

### Grading Scale

| Grade Point Numerical | Grade Letter | Percent  | Grade Point Numerical | Grade Letter | Percent | Grade Point Numerical | Grade Letter | Percent |
|-----------------------|--------------|----------|-----------------------|--------------|---------|-----------------------|--------------|---------|
| 4.0                   | A            | 100 – 96 | 3.3                   | B            | 87 - 86 | 2.6                   | C            | 76      |
| 3.9                   | A            | 95       | 3.2                   | B            | 85 - 84 | 2.5                   | C            | 75      |
| 3.8                   | A            | 94       | 3.1                   | B            | 83 - 82 | 2.4                   | C            | 74      |
| 3.7                   | A            | 93 – 92  | 3.0                   | B            | 81 - 80 | 2.3                   | C            | 73      |
| 3.6                   | A            | 91 – 90  | 2.9                   | C            | 79      | 2.2                   | C            | 72      |
| 3.5                   | B            | 89       | 2.8                   | C            | 78      | 2.1                   | C            | 71      |
| 3.4                   | B            | 88       | 2.7                   | C            | 77      | 2.0                   | C            | 70      |

### Quizzes:

Quizzes will be a combination of multiple choice, short answer questions and/or case study. Written quizzes are considered to be protected evaluation instruments and consequentially...

- May not be reproduced in part or in whole, stored in a retrieval system, or transmitted in any form or by any means, electrical, mechanical, photocopying, or otherwise.
- May be reviewed under supervision only. All examination must be accounted for after an exam as well as after review sessions
- All notes made during an examination must be on the examination or on paper provided by the instructor.
- Students found in possession of unauthorized examination content will receive a grade of 0.0 for this course.

### Feedback:

All quizzes will be graded as soon as possible and will likely be returned within 1 to 2 scheduled class periods. Assignments will be corrected and returned within 1-2 weeks. If instructors teaching or assisting in this course feel a student is in need of individual feedback regarding above average or below average performance, the student will be notified and any issues/concerns will be addressed. Students with concerns about any component of the course should contact the primary instructor as soon as possible.

**Practical:** see Student Handbook for guidelines for failure to pass practical examination with a minimum score of 80% and guidelines for re-takes.

### Classroom/Homework Assignments:

Assignments to be completed during class hours and outside of class may be given to the students. Certain assignments are done in groups where a single assignment is turned in for the group as a whole. Each participant is expected to contribute equally to each assignment. Groups may be chosen randomly, by the class or by the instructor. Certain assignments are done individually by each student. If student is not in class on day of assignment, makeup will be allowed only if the student contacted instructor prior to the start of class and the activity lends itself to independent makeup (as determined by the professor). Assignments will be turned in either electronically or in hardcopy to the instructor – instructor will identify mode at time of assignment distribution. All assignments are due by 12:00 pm on the due date unless notified by instructor differently. Late assignments will be penalized by a 1% grade reduction in overall assignment grade.

**Bridge the Gap** (BTG) is a classroom activity which includes a community service component that serves the needs of the PT students and individuals in the community. Second and third year students work in groups of 2-3 with a licensed physical therapist to provide nine sessions of therapy to individuals with a history of a neurological impairment. Students enrolled in PT 7421 perform the evaluation and examination of the client during the first session followed by 3 sessions of intervention. The fifth session is a collaborative session with the PYIIIs. With the sixth session, the students enrolled in PT 8432 begin 4 sessions of intervention. The clients complete the BTG program at the ninth session and are provided with an individualized written home exercise program. This experience provides the students with an opportunity to practice what has been learned in class on clients with true impairments.

BTG objectives for the student enrolled in PT 7421 include the following:

**At the completion of the client sessions, the student will have successfully**

1. Examined an individual with a history of a neurological injury.
2. Established a problem list and treatment goals.
3. Developed and executed an intervention plan of care under the guidance of a physical therapist using techniques learned in this class and previous classes within the DPT program.
4. Provided rationalization for intervention selection and ways to progress interventions.
5. Documented each visit including an initial evaluation note, treatment session notes and a practice letter to a physician.
6. Completed the requirements of BTG by receiving positive feedback from the supervising therapist as evidenced by acceptable marks on the final student evaluation form. Students must achieve at least a 50% marking in each area of the evaluation form. The instructor will notify the student verbally before start of the third session if it appears the student has areas which must be improved in order to have a successful completion of BTG. BTG is viewed as a 5 session practical thus follows the Practical Policy as outlined in the Student Handbook. Unsatisfactory completion of the client sessions will result in a failure of the "practical". A satisfactory evaluation is necessary to complete the course in order to be eligible for a passing grade in the course. Students with extenuating circumstances which results in failure of the practical may request for an incomplete grade (must notify instructor before session of extenuating circumstances).
7. Completed all documentation and assignments related to BTG.
8. Provided constructive feedback to partner regarding interaction with client, intervention techniques, contribution to documentation, and ability to work as a team member.
9. Reflected on involvement with BTG and identified ways to improve individual skills in the areas of client interactions, intervention techniques, contribution to documentation, and ability to work as a team member.
10. Presented client case to classmates and discussed new intervention techniques used or problems with interventions.

**Student Responsibilities for BTG**

**In addition to the responsibilities associated with the objectives above the student will**

- Assist with the set up and take down of the classrooms as needed
- Assist clients into/out of the building as needed.
- Put away all equipment used at the end of each session
- Gather the following items from the client and place in patient's chart:
  - Medical history form
  - Physician referral
  - Signed informed consent
  - Confirmation of client's address and phone
  - Confirmation of physician's address and phone number
- Be prepared for the day's activities. This includes having evaluation forms ready for the first day, an outline of interventions and progression for each of the sessions.

| Date   | Activity  | <ul style="list-style-type: none"> <li>• <b>Written documentation should be placed in the patient's chart at the due date/time. Charts are located in the file drawers in the main office.</b></li> </ul>   |
|--|---|---|
| Day 1 – Wed.<br>February 28  | Examination and evaluation  | <ul style="list-style-type: none"> <li>• Due Friday, March 2 by 9:00 am:               <ul style="list-style-type: none"> <li>○ Completed initial examination including 3 LTGs and at least 3 STGs written in correct format</li> <li>○ One functional home exercise per student to be taught to patient during upcoming session (handout required – both exercises can be on 1 handout)</li> </ul> </li> </ul>   |
| Day 2 – Mon.<br>March 5  | Functional outcome measures performed and documented in treatment note. Interventions – incorporate 2-3 interventions learned in class. Education to patient on new home exercises. | <ul style="list-style-type: none"> <li>• Due Tuesday, March 6 by 9:00 am:               <ul style="list-style-type: none"> <li>○ Treatment note in SOAP format including Functional Outcome Measures info and patient understanding of newly introduced home exercises.</li> <li>○ Single treatment goal for next session.</li> <li>○ One new functional home exercise per student (see above guidelines)</li> </ul> </li> </ul>  |
| Day 3 – Wed.<br>March 7  | Interventions – see above guidelines. Education to patient on new home exercises.   | <ul style="list-style-type: none"> <li>• Due Friday, March 9 by 9:00 am:               <ul style="list-style-type: none"> <li>○ Treatment note in SOAP format including patient understanding of newly introduced home exercises; single treatment goal +/-</li> <li>○ Single treatment goal for next session.</li> <li>○ One new functional home exercise per student (see above guidelines)</li> </ul> </li> </ul>  |
| Day 4 – Mon.<br>March 12   | Interventions – see above guidelines. Education to patient on new home exercises.   | <ul style="list-style-type: none"> <li>• Due Tuesday, March 13 by 9:00 am:               <ul style="list-style-type: none"> <li>○ Treatment note in SOAP format including patient understanding of newly introduced home exercises; single treatment goal +/-</li> <li>○ Single treatment goal for next session.</li> <li>○ One new functional home exercise per student (see above guidelines)</li> </ul> </li> <li>• Complete CI evaluation form after session and place in patient chart for 3/14 review with CI</li> </ul>  |
| "Transition Day" -<br>Wed. March 14<br>(See Transition Day Guidelines for specifics) | Demonstrate current interventions to PYIIIs. Discuss client with the PYIIIs. Education on final new home exercises.   | <ul style="list-style-type: none"> <li>• Due Friday, March 16 by 9:00 am:               <ul style="list-style-type: none"> <li>○ Treatment note in SOAP format including patient understanding of newly introduced home exercises and reassessment of single treatment goal as well as LTGs and STGs with statement of progress towards goals; results of Functional Outcome Measure(s) reassessment (if performed)</li> </ul> </li> <li>• Review CI evaluation form with CI</li> <li>• Complete peer evaluation form on partner <b>after</b> final session; review own evaluation and sign</li> <li>• Complete self-assessment <b>after</b> final session</li> </ul> |

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| Presentation day –<br>Wed. March 21/<br>Fri. March 23 | Each pair provides 10<br>minute patient<br>presentation including<br>video/pictures | <ul style="list-style-type: none"> <li>• One physician note per student pair due during class on March 21</li> <li>• See Presentation Grading Rubric for details concerning presentation expectations</li> </ul> |
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**Professionalism/Participation** is composed of behaviors presented in lecture, lab and during class discussions (either in class or on-line). It is important for the student to attend class, read assignments prior to class, contribute to class and web-based discussions, be prepared for and participate in class discussions.

Full credit for class participation/professionalism may be achieved by

1. Be prepared for class by having read assigned reading and reviewing course notes as appropriate.
2. Actively participating during lecture and laboratory classes and discussions
3. Attending all class and lab sessions.
4. Providing partner with appropriate feedback about examination and evaluation techniques and skills.
5. Wearing appropriate lab clothing that may include sport bras for the women and shorts for all students.
6. Demonstrating professional, “clinic-like” behavior during all labs as outlined below (based on the Generic Abilities, UWM, 1996):
  - a. Identify/locate appropriate resources to complete course assignments
  - b. Demonstrate a positive attitude toward learning
  - c. Offer thoughts and ideas in class
  - d. Prioritize information needs
  - e. Accept that there may be more than one answer to any problem or case study
  - f. Maintain a professional demeanor in all classes
  - g. Respect cultural and personal differences of others
  - h. Communicate with others in a respectful manner
  - i. Respect the personal space of others
  - j. Maintain confidentiality in all classroom interactions
  - k. Assume responsibilities for one’s own actions
  - l. Use existing resources and unscheduled time effectively
  - m. Complete assignments in a timely fashion
  - n. Actively seek feedback and help when necessary in a timely manner
  - o. Demonstrate a positive attitude toward feedback
  - p. Develop a plan of action in response to feedback
  - q. Assess one’s own performance accurately
  - r. Abide by the APTA Code of Ethics
  - s. Demonstrate dependability and punctuality
  - t. Accept constructive feedback in an appropriate manner
  - u. Provide constructive feedback to classmates in a diplomatic manner
  - v. Participate actively in group projects
  - w. Prompt attendance in class
  - x. Prepared for class discussions and activities

| Class Participation/Professionalism Grading Rubric |   |
|--|---|
| 5.0  | The student attends all classes unless excused by instructor; always arrives on time for class; always participates in classroom activities and discussions without being asked or prompted; is always ready for participation; is engaged during lectures and asks questions to clarify or increase depth of knowledge; displays professional behaviors at all times; answers questions/offers opinions/verbally participates in at least 75% of “whole class” discussions   |
| 4.5  | The student attends all classes unless excused by instructor; always arrives on time for class; regularly participates in classroom activities and discussions without being asked or prompted; always participates constructively when asked and is prepared for participation; is predominately engaged during lectures; displays professional behaviors at all times; answers questions/offers opinions/verbally participates in at least 50% of “whole class” discussions |

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| 4.0 | The student attends all classes unless excused by instructor; always arrives on time for class; consistently and constructively participates in classroom activities and discussions approximately 50% of the time when asked; is predominately prepared for participation; is predominately engaged during lectures; displays professional behaviors at all times; answers questions/offers opinions/verbally participates in at least 25% of "whole class" discussions          |
| 3.5 | The student has 1-3 unexcused absences and/or late arrivals; participates in classroom activities and discussions approximately 25% of the time when asked; is often not prepared for participation; appears distracted or disinterested during lectures; displays unprofessional behaviors on several occasions; rarely (<25%) answers questions/offers opinions/verbally participates in "whole class" discussions  |
| 3.0 | The student has more than 3 unexcused absences and/or late arrivals; participates in classroom activities and discussions only when required to do so or when given some form of explicit or implied request/demand and is often not prepared for participation; often appears distracted or disinterested during lectures; displays unprofessional behaviors on several occasions; never answers questions/offers opinions/verbally participates in "whole class" discussions    |
| 1-2 | The student has numerous unexcused absences and/or late arrivals; is not constructively engaged in classroom activities or discussions a majority of the time and/or displays disruptive behavior during class; is not typically prepared for discussions; is typically distracted during lectures and is disruptive to others in class; frequently displays unprofessional behaviors; never answers questions/offers opinions/verbally participates in "whole class" discussion. |
| 0   | Does not attend class; unacceptable behavior; no basis for judgment   |

## STUDENT RESPONSIBILITIES

### Attendance Policy:

Attendance is required in compliance with the departmental policies as outlined in the Student handbook. In the event of absence, the student shall notify the instructor prior to the start of class. Also, the student is responsible for obtaining the information and notes from fellow classmates. Each class day is a portion of the participation/professionalism grade thus if a student is absent it will affect the participation/professionalism grade even if the absence is excused.

Tardiness: Students should arrive for class on time. Disruption of lecture or lab after it has started will be reflected in grading of professionalism. Please note, the instructor will address large-scale tardiness on a per incident basis (e.g. traffic or weather delays).

### Academic conduct statement

Students are expected to adhere to the procedures for Academic Conduct described in the University Graduate Catalog. Please read and refer to the University Graduate Catalog, Policy on Academic Conduct. This policy states that "All members of the academic community . . . are expected to practice and uphold standards of academic integrity and honesty. Academic integrity means representing oneself and ones work honestly.

Misrepresentation is cheating since it means students are claiming credit for ideas or work not actually theirs and are thereby seeking a grade that is not actually earned." Examples of cheating include "cheating on exams, using books and/or notes when not authorized to do so, copying from someone else's work or ideas without giving that person credit . . . Both direct quotations and paraphrases must be documented. Even if students rephrase, condense, or select from another person's work, the ideas are still the other person's and failure to give credit constitutes plagiarism of another's idea." This policy will be applied in this and all courses in the Program in Physical Therapy. Students found guilty of academic misconduct by the university will be subject university sanctions and to sanctions from the program by the Physical Therapy Promotion and Honors Committee including probation, suspension or dismissal.

### Disability Assistance:

Any student with a documented disability needing academic accommodations is required to speak with the Office of Disability Support Services to make arrangements. The office is located in room 106 North Foundation Hall. For information or to make an appointment call 370-3266

**Emergency Preparedness:** All students are encouraged to become familiar with the Oakland University Emergency Preparedness Website, Policies and Procedures. See: <http://www4.oakland.edu/?id=5410&sid=188> In particular, students are strongly encouraged to:

- 1) Take the 15-minute *Violence Prevention Training Course* available on the site
- 2) Sign up to receive text message alerts in the event of a major campus emergency by visiting the Emergency Notification Web site (Grizz ID and valid OU e-mail address required)
- 3) Know how to contact the OUPD in the event of an emergency:
  - Call 911 from any campus phone
  - Call (248) 370-3333 from a cell phone
  - Text the dispatch office at 911@oakland.edu
  - E-mail the dispatch office at 911@oakland.edu
- 4) Know how to submit anonymous tips online in non-emergency situations.

### **Class Clean Up:**

Each student is responsible for clean-up of his or her work area following each class. This includes straightening desk chairs, returning mat tables to lower height or put up against the wall, returning equipment to their assigned locations, and removing any trash. During labs that require floor mats, students should be prepared to remove their shoes. Tables and equipment will be wiped down after each lab session.

### **PT 7421 COURSE OBJECTIVES:**

After attending course lectures and laboratories, completing reading and participating in class activities, the student will be able to:

1. Describe the key steps in the clinical decision-making process when treating patients with a neurological injury.
2. Describe the history of theoretical approaches and models for addressing the problems of the patient with neuromusculoskeletal impairments and analyze how these are integrated into models of contemporary practice and the International Classification of Function (ICF)
3. Compare and contrast the basic philosophical and conceptual similarities and differences between the traditional and contemporary neuromuscular theories of intervention.
4. Identify impairments and functional limitations typically seen in the neurologically injured populations.
5. Demonstrate the ability to perform, in a safe and effective manner, functional rehabilitation training and/or interventions and provide rationale for selection in the following areas:
  - a. Self-care and home management
  - b. Patient handling techniques
  - c. Postural control
  - d. Balance and coordination
  - e. Muscle performance impairments
  - f. Bed mobility
  - g. Transfers
  - h. Upper extremity recovery
  - i. Lower extremity recovery
  - j. Gait and locomotion
6. Explain the use of the developmental sequence and/or treatment sequence in the treatment of patients with a neurological injury.
7. Demonstrate the ability to position a client with neuromuscular diagnoses for pressure relief and to maintain integrity of the integumentary, gastrointestinal and respiratory system while in the acute care setting
8. Observe functional activities of persons with and without a neurological impairment through lab practice and video presentations. Analyze movement during functional activities and the effects of neurological impairments on these functional activities and develop a plan of care to meet the patient's goals for independence

9. Considering the cultural needs of the patient, perform and modify as necessary treatment procedures demonstrated and discussed in class with consideration for safety, timeliness, energy conservation, organization, preparation, sequencing, progression and setting of priorities.
10. Analyze all findings from the examination and evaluation including but not limited to, data collected from patient, family, other professionals, and test and measures and develop a plan of care that is culturally competent, patient centered and realistic
11. Given an initial evaluation findings of a patient, analyze and interpret patient/client data to
  - a. Formulate appropriate long term and short term goals
  - b. Create a plan of care that is safe, effective and takes into consideration patient's wishes
  - c. Outline a potential treatment progression
  - d. Discuss the rationalization for plan of care and progression
  - e. Identify re-evaluation needs as appropriate
  - f. Identify the need to refer to other disciplines
12. Identify appropriate actions or University protocols to follow in the event of a University or client emergency or unexpected incidence, especially during Bridge the Gap.
13. Demonstrate competency in performing techniques that incorporate PNF principles.
14. In a small group while under the supervision of a licensed PT, participate in an examination and treatment sessions with an individual with a neurological injury through Bridge the Gap (BTG). The student will...
  - a. Demonstrate professional behaviors including compassion, caring empathy and understanding in interactions with supervising therapist, client, family members, and other professionals.
  - b. Perform a system screen including an assessment of vital signs, initial examination and analyze the results.
  - c. Select and perform appropriate outcome measures and interpret the results to develop a problem list.
  - d. Develop appropriate plan of care that is safe and effective using the information gathered from examination.
  - e. With input from the patient, establish short-term and long term goals.
  - f. Provide direct intervention as determined in "d" or as directed by supervising therapist and adjust techniques according to patient's response.
  - g. Justify selection of intervention prior to application and evaluate outcomes after performance of said interventions
  - h. Instruct patient in and demonstrate appropriate safety precautions.
  - i. Demonstrate ability to provide patient-related instructions in laymen's terms adjusting according to patient's cognitive status.
  - j. In a professional manner, complete written documentation of initial evaluation and treatment sessions. This will include:
    - i. Proper use of syntax and grammar.
    - ii. Acceptable abbreviations and terminology.
  - k. Perform a self-evaluation of skills and a peer assessment of skills used during the therapy sessions.
15. Successfully complete Bridge the Gap client treatment sessions as evidenced by satisfactory evaluation from the supervising therapists.
16. Provide concise, clear instructions - written and verbal, in layman's terms to a client and to classmates who are role-playing a patient or to actual clients in the lab setting.
17. Participate in a self-assessment and peer assessment of skills in problem solving, clinical reasoning, psychomotor skills and effective behaviors during collaborative learning situations.