

## **PT 8863 Advanced Orthopedics IV**

### **Oakland University – Program in Physical Therapy Orthopedic Manual Physical Therapy Program**

#### **Catalogue Description**

This laboratory and lecture course focuses on advanced clinical decision making, patient prognostication, application of physical tests and measures and interventions for patients with complex spinal orthopedic conditions.

#### **Course pre-requisites**

Student must meet the prerequisites (PT 8960, PT 8961 and PT 8962) and be admitted to one of Oakland University's post-graduate Physical Therapy programs or have permission of department.

#### **Course Purpose:**

- 1) To provide a learning environment that encourages students to develop the advanced knowledge and skills required to manage complex orthopedic conditions in the extremities and spinal column
- 2) To develop an advanced understanding and performance of orthopedic and orthopedic manual physical therapy examination and intervention techniques including spinal and extremity manipulation,
- 3) To provide structured laboratory experiences in advanced orthopedic examination and intervention procedures including spinal manipulation for the extremities and spinal column
- 4) To interpret selected complex patient cases and develop functional and goal oriented treatment plans,
- 5) To demonstrate clinical decision making skills, including clinical reasoning, clinical judgment, and reflective reasoning and
- 6) To promote continued professional growth and development.

#### **Credit Hours**

2

#### **Instructor of Record**

John Krauss, PT, PhD, OCS, FAAOMPT

#### **Course Format**

Approximately 84 combined lab and didactic hours

#### **Course Schedule**

January	12-14
Feb	9-11
March	9-11
April	6-8

Final Exam and OSCE – Friday April 13<sup>th</sup> – 8am to 12pm

All dates scheduled 8-4 unless otherwise specified by instructor.

**Room**

5002 Human Health Building

**Office Hours**

Office number 3085 Human Health Building

Office hours - Tuesdays & Thursdays 12:00pm-1:00pm, other days and times to be arranged by appointment

**Contact Number**

(248) 364-8693

**Email**

krauss@oakland.edu

**Course Expectations**

**Performance Expectations**

- All practical examination scores must be 80.00% or higher to successfully pass this course regardless of didactic or cumulative scores. Students who do not successfully pass either practical examination will receive a 1.0 in the course.
- Unless otherwise stated, all didactic scores must comply with expected student performance as described in this course syllabus and the graduate catalogue.

**Safety Expectations**

- Proper therapist and patient safety are mandatory requirements of this course. Unsafe practice patterns or behaviors resulting in potential or actual harm are referred to as critical safety incidents as determined by course instructors and proctors. Critical safety incidents are subject to dismissal from this course regardless of academic standing, and as determined by due process.

**Methods of Student Evaluation/Grading**

Component Breakdown		Evaluation Tool	Percent
Academic Component 95%	Written Examinations	<ul style="list-style-type: none"> <li>• 2 Quizzes (10% each)</li> <li>• Final Exam (Cumulative)</li> </ul>	20% 20%
	Practical Examination	<ul style="list-style-type: none"> <li>• 2 OSCE Exams (20% each)</li> </ul>	40%
		<ul style="list-style-type: none"> <li>• Chapter Presentations</li> </ul>	10%
		<ul style="list-style-type: none"> <li>• Article Review</li> </ul>	5%
Professionalism 5%		<ul style="list-style-type: none"> <li>• Participation, Professionalism &amp; Attendance</li> </ul>	5%

### Grading Scale

Numerical Equivalent	Alphabetic Equivalent	Percentage (%)		Numerical Equivalent	Alphabetic Equivalent	Percentage (%)
4.0	A	100-97		3.0	B	80
3.9	A	96		2.9	C	79
3.8	A	94		2.8	C	78
3.7	A	92		2.7	C	77
3.6	A	90		2.6	C	76
3.5	B	89		2.5	C	75
3.4	B	88		2.4	C	74
3.3	B	86		2.3	C	73
3.2	B	84		2.2	C	72
3.1	B	82		2.1	C	71
3.0	B	80		2.0	C	70
2.9	C	79				

### Written Exams

Written and practical examinations will focus on materials presented in this class, or covered in the required readings. Students should also be prepared to answer questions relating to content covered in their entry level education as it relates to materials covered during this course. For example, if the treatment of the cervical spine is being covered and/or tested, the student should also be prepared to entertain questions related to, but not inclusive to: anatomy, kinesiology, basic evaluation, therapeutic exercise, therapeutic procedures and basic patient care skills. Integration of prior orthopedic information should be addressed through self-learning and is the responsibility of the student. The form of the written exams will be multiple choice and short answer questions. Written examinations will be taken at the University on one of the regularly scheduled class dates unless otherwise stated.

### Regarding Written Exam Content

Written examinations are considered as protected evaluation instruments and are subject to the following

Guidelines:

1. Content 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.
2. Exams may be reviewed only under supervision.
3. All exam booklets must be accounted for after an examination as well as after any review sessions.
4. All notes made during an examination should be made on the examination packet only.
5. Student found in possession of unauthorized examination content will receive a grade of 0.0 in this course and charged with academic dishonesty.
6. Any unauthorized use of resources, whether or not identified in this course syllabus, constitute academic dishonesty and are subject to actions as specified in the Oakland University "Student Due Process Policy".

Failure to comply with academic honesty standards will result in dismissal from this course and in formal recommendations for dismissal from the Program and University.

### **Practical Exams**

Two practical examinations will be given in this course. Both will be given in an OSCE (Objective Structured Clinical Examination) format. Practical examinations must be passed with a grade of 80.00% or higher. One opportunity (per OSCE) to repeat a failed practical examination is available during the semester. If a student fails to report for a remedial examination or attempts to reschedule with less than 24 hours' notice, an additional opportunity is not guaranteed and the student may forfeit their ability to continue in the course. Retakes will be taken in front of two instructors unless otherwise stated. The highest grade that can be obtained on a retake practical examination is 80.00%. Individual and combined practical examination grades must be equal to or greater than 80.00% to successfully pass this course, regardless of didactic and/or professional standing. **Failing of either OSCE will result in a 0% on the practical and subsequently will result in the student failing the course with a grade of 1.0.**

### **Practical Exam Content**

The first and second OSCEs will include spinal examination and intervention techniques as presented throughout the course.

### **Literature Review**

Each student will be responsible for identifying two peer reviewed articles addressing the use of manipulation in the spine or extremity. Articles must be approved by the instructor. Students will then submit the article in pdf format and the completed case review form in word format. The first article review is due in February and the second in March.

### **Chapter Review and In-class Presentation**

Each student will be responsible for presenting one treatment approach chapter from the Management of Low Back Pain text listed in the required text section of the syllabus. Sign-up will be performed the first weekend of class and the presentations will be given on the Friday class meeting in April. Presentations should be submitted to the instructor in PowerPoint format and will be scheduled in ½ hour blocks.

### **Attendance Policy**

Due to the voluntary nature of this program it is expected that all attendees are invested in acquiring the information provided within this course. While attendance is required for this course the instructors understand that students are adult learners and have additional family and work responsibilities which may sometimes conflict with course scheduling. With that said, it is expected that students will inform the primary instructor of scheduling conflicts and will arrange to obtain any course handouts. Students are also expected to meet with fellow classmates to review techniques taught in laboratory sessions. Students who are excused from class are expected to meet the same performance standard as other class participants, and instructors are in no way obligated to review materials taught during the normal laboratory session. Excessive absenteeism will result in dismissal from this course.

### **Dishonesty Disclaimer**

Any and all forms of cheating, plagiarism and unauthorized use of resources, whether or not identified in this course syllabus, constitute academic dishonesty and are subject to actions as specified in the Oakland University "Student Due Process Policy".

### **Feedback**

All examinations and practicals will be graded as soon as possible. If the instructors teaching 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. Student concerns with any component of this course should be addressed with a primary instructor as soon as possible.

### **Required References**

1. Krauss, Evjenth & Creighton. Translatory Spinal Manipulation for Physical Therapists. Lakeview Media, Rochester Hills, MI 2006. ISBN: 1-59975-195-X.
2. Chevan J, Clapis P. Management of Low Back Pain: A Comparison of Approaches in Physical Therapy. Burlington, MA: Jones and Bartlett Learning, 2012
3. Evjenth, O. Symptom Localization in the Spine and the Extremity Joints, Available through OPTP product number 8675.
4. Kaltenborn, Freddy. Manual Mobilization of the Joints, Vol II: The Spine, 6<sup>th</sup> Edition Olaf Norlis Bokhandel: Oslo, Norway. ISBN: 82-7054-043-9.
5. Evjenth, O. and Hamberg, J. Muscle Stretching in Manual Therapy: A Clinical Manual, Volume II. Alfta Rehab Forlag: Alfta, Sweden, 1998. ISBN: 91-85934-02-X. OPTP: 1-800-367-7393
6. Evjenth, O. and Hamberg, J. Auto Stretching. Alfta Rehab Forlag: Alfta, Sweden, 1997. ISBN: 91-85934-05-4. OPTP: 1-800-367-7393.

### **Recommended References**

1. Magee, D. Orthopedic Physical Assessment. W.B. Saunders 2003 ISBN 0-7216-9325-0
2. Brotzman, B. and Wilk, K. Clinical Orthopedic Rehabilitation, Second Edition. Mosby, St. Louis, MO, 2003. ISBN 0-323-01186-1
3. Saidoff, D. and McDonough, A. Critical Pathways in Therapeutic Intervention: Extremities and Spine, Mosby, St. Louis, MO, 2002. ISBN 0-323-00105-X
4. Jenkins, D. Hollinsheads Functional Anatomy of the Limbs and Back, Seventh Edition. W.B. Saunders 1998 ISBN 0721656560 (or other equivalent anatomy text)
5. Lederman, E. Fundamentals of Manual Therapy: Physiology, Neurology, and Psychology. Churchill Livingstone 1997 ISBN 04430527518
6. Norkin, C.C., Levangie, P.K.: Joint structure and function. A comprehensive analysis. F.A. Davis Company, 1992.
7. Kapandji, I.P.: The Physiology of Joints. Vol., 1,2,3. Churchill Livingstone, Edinburgh, London, Melbourne & New York, 1982.

### **Required Reading**

Required texts are well organized by either topic and/or sections out of the appropriate body region. Please read the text related to the body region to be covered on a given date. Additional material will be distributed as it is developed and should also be considered required reading.

Selected journal articles may also be assigned.

### **Course Packet/Handouts**

A course packet will be provided as available for on-sight laboratory sessions. Course packet(s) can be used to augment and assist in your learning of course material. However, these are not intended to replace the texts required for these courses. Please feel free to use this resource if you believe it is compatible with your learning style/methods. Content of the course packet may not be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electrical, mechanical, photocopying or otherwise, without written permission from the author.

### **Required supplies**

To be announced if required.

### **Lab Attire**

Laboratory attire consisting of shorts and tank tops are required for all on-sight sessions. Shoes that may be easily donned and doffed for frequent switching between patient and therapist are encouraged.

### **Course Objectives:**

#### **Review of Literature**

In the duration of this course, the learner will be assigned topic areas relevant to this course and will:

1. Conduct a literature search on the assigned topic and retrieve relevant peer reviewed literature.
2. Assess the importance of information relevant to a given topic.
3. Organize important aspects of the literature.
4. Develop a concise handout relevant to a given topic to assist your peers in the understanding of assigned topics.
5. Briefly present selected literature to peers and course instructors.
6. Briefly explain questions relevant to a completed literature search.

#### **Patient Positioning and Body Mechanics**

During the duration of this course the student will:

1. Demonstrate a functional awareness for your patient's position in space.
2. Demonstrate safe and functional postural habits during all laboratory and simulated patient experiences.
3. Demonstrate the ability to educate/instruct your patient in appropriate postural habits/body mechanics.

#### **Posture Examination and Evaluation**

During the duration of this course the student will:

1. Describe all common postural deviations presented in laboratory sessions.
2. Demonstrate an understanding of normal static and dynamic postures during applicable laboratory sessions.
3. Demonstrate a basic static posture examination and evaluation as presented in laboratory sessions.
4. Evaluate and understand factors that contribute to dysfunctional postural habits.

#### **Therapist and Patient/Client Safety**

In order to successfully complete this course the student will demonstrate the ability to:

1. Describe indications, contraindications and precautions for all examination procedures and interventions covered in this course.
2. Demonstrate safe and functional postural habits during laboratory and all patient examinations as determined by course instructors and proctors.
3. Demonstrate a functional awareness for your patient's position in space as determined by course instructors and proctors.

4. Demonstrate the ability to modify patient positioning, testing procedures and treatment procedures based on specific patient limitations.
5. Demonstrate the ability to educate/instruct a patient in appropriate postural habits, positioning and body mechanics.
6. Demonstrate the ability to inspect all equipment for damage prior to use.
7. Demonstrate the ability to keep treatment areas clear of all obstacles.

### **Patient Education**

During the duration of this course the student will:

1. Demonstrate the ability to instruct your patient in basic self-management skills/techniques, which will include but is not inclusive to: posture, positioning, body mechanics, basic ADL modification, basic patient/client safety, common spinal and extremity pathologies or disorders, and common spinal and extremity interventions, as determined by coursework, course instructors and proctors.

### **Communication skills, documentation and the patient interview:**

In order to successfully complete this course the student will demonstrate the ability to:

1. Demonstrate effective verbal and nonverbal communication skills.
2. Demonstrate effective communication techniques.

### **Differential diagnosis and understanding of orthopedic conditions:**

In order to successfully complete this course the student will demonstrate the ability to:

1. Generate an orthopedic differential diagnosis list relevant to a variety of extremity patient cases both in paper format and in a simulated clinical environment.
2. Effectively identify when non-musculoskeletal conditions are present in isolation or in combination with existing orthopedic conditions. Examples include visceral, central nervous system and psychogenic conditions.
3. Organize examination findings into clusters, syndromes, or categories.
4. Identify and describe specific pathological conditions/syndromes/disorders.
5. Identify involvement/disorders of the autonomic nervous system.
6. Identify when a referral to another health care professional(s) is indicated.
7. Demonstrate an understanding of the roles of other health care professionals.

### **Prognosis**

In order to successfully complete this course the student will demonstrate the ability to:

1. Identify prognostic indicators for success or failure of physical therapy intervention on a per condition and per patient basis
2. Identify relationship between physical therapy intervention type and the patient prognosis

### **Orthopedic and Orthopedic Manual Therapy:**

In order to successfully complete this course the student must demonstrate the ability to:

1. Specifically select, prioritize and implement orthopedic tests and measures based upon the patient's medical diagnosis, symptoms, clinical presentation, functional limitations, age, and ability to cooperate with the examination process.
2. Effectively perform a physical examination which will include, but is not limited to: gross observation, static posture, dynamic posture/body mechanics, gait, active range of motion, symptom localization, passive range of motion, manual muscle testing, neurological screening, task/sport specific testing, special testing, and palpation.
3. Effectively examine and describe the quantity of normal movement in each extremity joint.

4. Effectively correlate findings from the physical examination with the patient's clinical signs and symptoms.
5. Evaluate/analyze examination findings and develop a working hypothesis and orthopedic physical therapy diagnosis(es).
6. Specifically describe probable causes of current patient complaint/movement impairment based upon examination findings.
7. Establish a specific treatment plan, including, but not limited to: expected duration of treatment, frequency of treatment, manual therapy techniques, exercise techniques and/or protocols, physical agents, adaptive or assistive devices, community resources and/or support programs and referrals to be made.
8. Effectively utilize specific physical therapy tests and measures which include but are not limited to:
  - a) Anthropometric Characteristics
  - b) Circulation
  - c) Cranial and Peripheral Nerve Integrity
  - d) Ergonomics and Body Mechanics
  - e) Integumentary Integrity
  - f) Joint Integrity and Mobility
  - g) Motor Function (Motor Control and Motor Learning)
  - h) Muscle Performance (Including Strength, Power, and Endurance)
  - i) Orthotic, Protective, and Supportive Devices
  - j) Pain
  - k) Range of Motion (Including Muscle Length)
  - l) Reflex Integrity
  - m) Work, Community, and Leisure Integration or Reintegration
9. Effectively utilize specific physical therapy interventions which include but are not limited to:
  - a. Principles and techniques for massage/soft tissue mobilization and functional massage.
  - b. Principles and techniques for manual muscle stretching.
  - c. Principles and techniques for joint mobilization and select joint manipulation techniques
10. Develop and prioritize a specific problem list based on clinical findings, functional limitations, rehabilitation potential, patient goals, pre-morbid function/habitual variations of patient's age, patient's sex, patient's body type, pertinent patient history and available resources.
11. Establish a realistic physical therapy prognosis based on clinical findings, functional limitations, rehabilitation potential, patient goals, pre-morbid function/habitual variations of patient's age, patient's sex, patient's body type, pertinent patient history and available resources.
12. Describe a comprehensive home exercise/self-maintenance program.
13. Identify and discuss key concepts of the Nordic approach to manual therapy.



14. Briefly describe/discuss key concepts of the Maitland, McKenzie and Paris systems of manual therapy.
15. Effectively utilize specific physical therapy interventions which include but are not limited to:
  - a. Manual therapy principles and techniques including massage/soft tissue mobilization, functional massage, manual muscle stretching, and end-range joint mobilization and manipulation.
  - b. Therapeutic exercise principles and training techniques to enhance muscle performance and coordination for select orthopedic conditions.
16. Demonstrate a functional integration of prior curriculum through, but not limited to: patient case studies, laboratory experiences, classroom participation and both written and practical examinations.

**Re-evaluation of orthopedic conditions:**

In order to successfully complete this course the student must demonstrate the ability to:

1. Establish subjective and objective measures that will serve as dependent variables to measure initial response to treatment.
2. Establish subjective and objective measures that will serve as appropriate long-term goals and that can be assessed throughout the course of physical therapy treatment.

**Critical thinking skills:**

1. Describe age normative and transcultural expectations as they relate to examination and treatment techniques.
2. Describe abnormal and normal findings.
3. Describe possible reasons/mechanisms for variations from normal values.
4. Describe typical compensations and alternations in normal function as they relate to common pathological conditions and injuries.
5. Demonstrate clinical decision making skills, including clinical reasoning, clinical judgment and reflective reasoning.
6. Demonstrate a functional integration of prior curriculum through, but not limited to: patient case studies, laboratory experiences, classroom participation and both written and practical examinations.
7. Demonstrate the integration of specific treatment techniques across varied patient populations, pathologies and body regions.
8. Select appropriate physical therapy interventions for selected case studies.
9. Discuss progression of intervention, rationale, and expected functional outcomes for selected case studies.
10. Identify patient personality types and psychosocial overlay as it relates to potential treatment outcomes.

**Professionalism (Per student handbook)**

1. Both demonstrate and facilitate professional qualities and behaviors that are consistent with those required of a physical therapist and as described above.
2. Practice ethical decision making that is consistent with applicable professional codes of ethics, including the APTA's Code of Ethics.
3. Both demonstrate and facilitate professional qualities and behaviors that are consistent with those required of a physical therapist including the following (based on the Generic Abilities, UWM, 1996)

- a) Identifying/locating appropriate resources to complete course requirements.
- b) Demonstrating a positive attitude toward learning.
- c) Offering thoughts and ideas in class.
- d) Prioritizing information needs.
- e) Accepting that there may be more than one correct answer to a problem.
- f) Maintaining a professional demeanor in all classroom and clinical situations.
- g) Respecting cultural and personal differences of others.
- h) Communicating with others in a respectful manner.
- i) Respecting the personal space of others.
- j) Maintaining confidentiality with all clinical interactions.
- k) Assuming responsibility for one's own actions.
- l) Using existing resources effectively.
- m) Using unscheduled time effectively.
- n) Completing assignments in a timely fashion.
- o) Actively seeking feedback and help when necessary.
- p) Demonstrating a positive attitude toward feedback.
- q) Developing a plan of action in response to feedback.
- r) Assessing one's own performance accurately.
- s) Abiding by the APTA Code of Ethics and Standards of Practice.
- t) Projecting a professional image in the classroom and clinical setting.
- u) Demonstrating dependability.
- v) Accepting constructive feedback.

As the primary instructor teaching this course, I reserve the right to change components of this syllabus if needed. In the event of a global change, an addendum to the syllabus will be posted on provided.

## Tentative Course Schedule

Dates	Topics
January 12-14	Course introduction and spinal manipulation lectures
Feb 9-11	<b>Quiz 1</b> <b>Article review 1 due</b>
March 9-11	<b>OSCE 1 (content from January &amp; February classes)</b> <b>Quiz 2</b> <b>Article review 2 due</b> <b>Chapter presentations (March 9)</b>
April 6-8	<b>PT 605 In-class case presentations (April 6)</b>
April 13	<b>OSCE 2 (content from March &amp; April classes) &amp; final examination</b>