

**Western Kentucky University
Department of Allied Health
Doctor of Physical Therapy Program**

<u>Course Number:</u>	DPT 748
<u>Course Title:</u>	Prosthetics and Orthotics
<u>Credit Hours:</u>	2
<u>Lecture Hours:</u>	12 hours/week
<u>Weekly Schedule:</u>	Monday, Wednesday, Friday (see attached schedule for times)
<u>Office Hours:</u>	TBA
<u>Location:</u>	MCHC, Room 3341
<u>Instructor:</u>	Sonia Young, PT, DPT, EdD

Course Description:

Evaluation of medical, surgical, and prosthetic rehabilitation management of amputations. Design, fabrication, fitting, and management of individuals requiring prosthetic and orthotic devices. Prerequisite: Open only to DPT students in good standing.

Course Objectives:

At the completion of the course content, the student will be able to:

1. Describe the skills necessary to provide effective care of individuals with peripheral vascular disease.
2. Describe the skills necessary to provide effective care of individuals with ankle-foot, lower and upper extremity amputations.
3. State the general principles that should be observed when stump wrapping.
 - a. Demonstrate proper stump wrapping technique.
4. Describe the muscular activity and state the functional significance of each phase of the normal gait pattern. (CC-5.30i)
5. Identify various types of lower extremity prosthetics and discuss the function of their principle components. (CC-5.30r)
6. Compare/contrast ways in which prosthetic gait must differ from normal gait for ankle-foot, below-knee, and above-knee amputees. (CC-5.30i) (CC-5.30r)
7. Describe indications, contraindications, advantages, and disadvantages of various upper and lower extremity prosthetic devices. (CC-5.30r)
8. Compare/contrast conventional and immediate postoperative prosthetic examination and management of the amputee.
 - a. Assess and discuss normal and abnormal integumentary changes. (CC-5.30j) (CC-5.30r)
9. Discuss ways in which the prosthetic rehabilitation of juvenile amputees may differ from that of the adult amputees. (CC-5.30r)

10. Discuss the psychological and cultural concerns of the amputee and how they may impact physical rehabilitation. (CC-5.18)
11. Justify indications, contraindications, advantages, and disadvantages of various orthotic devices. (CC-5.30o)
12. Identify various types of orthotics and discuss the function of their principle components. (CC-5.30o)
13. Differentiate between materials used in the fabrication of orthotics to include the bases for selection of materials for specific purposes. (CC-5.30o)
14. Develop goals and plans for hypothetical situations for amputees in various stages of prosthetic rehabilitation. (CC-5.30r)
15. Educate patients in the maintenance procedures of orthotics and prosthetics. (CC-5.26) (CC-5.30o) (CC-5.30r) (CC-5.39b)
16. Accurately evaluate proper function and fit of lower extremity prostheses and orthoses. (CC-5.30d) (CC-5.30o) (CC-5.30r) (CC-5.31) (CC-5.39e)
 - a. Perform documentation in a timely manner, using legible and concise language. (CC-5.42)
17. Critically evaluate the literature and discuss solutions to various problems in the long-term follow-up of amputees relating to community and work reintegration. (CC-5.22) (CC-5.30x)
18. Discuss ways in which amputees are able to confront environmental, home, and work barriers. (CC-5.30g)
 - a. Implement strategies to improve a patient and or/care giver's ability to perform ADLs and IADLs. (CC-5.39c)
19. Discuss ways in which the plan of care may be safely modified in response to patient status using available resources in a timely and cost-effective manner to achieve outcomes based on analysis of individual outcome measures. (CC-5.35) (CC-5.36) (CC-5.38) (CC-5.48)
20. Appropriately determine the patient/client who requires medical care not within the scope of physical therapy practice. (CC-5.27)
 - a. Cooperates, collaborates, communicates, and integrates care with other health care practitioners as necessary to meet the patient's/client's needs. (CC-5.54) (CC-5.55)
21. Examine patients and instruct them in administration of self-care and home management of ADLs. (CC-5.30u) (CC-5.39b)
 - a. Provide effective, culturally competent patient-related instruction to patients, family members, and caregivers to achieve patient outcomes. (CC-5.41)
 - b. Provide effective, culturally competent physical therapy services for prevention and wellness to the patient/client. (CC-5.50) (CC-5.52)

Course Structure and Learning Experience:

The instructional format combines lecture and discussion with clinical application.

Evaluation Methods:

1. Attendance

Attendance and promptness to class will be monitored. Students must sign in at the beginning of each lecture/presentation and document the time of arrival. One point will be deducted each time for tardiness and 2 points for each unexcused absence.

2. Testing

a. Written Exams

There will be 2 exams given throughout the course. If any student does not or cannot take the

final due to an emergency, then plans must be made at the discretion of the professor to complete all coursework within a specified time period. Each student must take all exams.

b. Quizzes

There will be 2 quizzes worth 25 points each.

c. Check-Off

A clinical lab practical for stump wrapping will be performed during the semester to “check-off” the student on specific skills as they apply to patient care. Specific times to sign up for this practical will be announced in class. Practical exams are graded on a pass/fail basis. To pass, a student must perform all skills tested according to entry-level clinical performance standards based on the *Clinical Performance Instrument Guidelines*.

d. Assignment

Each student will do a patient care project involving a prosthetic or orthotic patient. You are expected to fully research the management and treatment of this patient. At the end of the semester you will present your findings in the class and turn in a type written report (no more than two pages). The verbal and written report will include the patient’s diagnosis and reasons for amputation or bracing, all subjective and objective information regarding this patient, type of prosthesis or orthosis, plan of care, goals, and prognosis (what can this patient expect to do? sports/ADL’s, etc.).

e. Participation and Preparation

Students will also be graded 10 points on class participation and preparation.

3. Grading

a. Course Grading

The final course grade is a letter grade. The course grade will be based on the following:

Exams (2)	200 points
Quizzes (2)	50 points
Assignment	40 points
Check-Off	Pass/Fail
Participation	<u>10</u> points
Total	300 points

b. Numeric and Letter Grade Translation

A	90-100
B	80-89
C	70-79
F	<70

Instructional Practices:

1. Teaching Methods

- a. Lecture
- b. Class discussion
- c. Student self-study

2. Teaching Aides

- a. White board
- b. Video

- c. PowerPoint

Course Policies

1. Refer to WKU DPT Student Manual for the following items:

- a. Student Responsibilities (p. 40)
- b. Student Disability Services (p. 48)
- c. Copyright (p. 42)
- d. Academic Misconduct (p. 27)
- e. Religious Holidays Notification (p. 35)
- f. WKU Writing Center (p. 48)
- g. Missed Class(es)/Student (p. 34)
- h. Professional Behaviors (p. 22)

The instructor reserves the right to make changes in the course schedule as needed to accommodate guest lecturers or to alter course content.

Required Texts:

- 1. Lusardi, M.M., Jorge, M., & Nielsen C.C. (2013). *Orthotics and Prosthetics in Rehabilitation* (3rd edition): Saunders Elsevier. ISBN: 978-1-4377-1936-9.

DPT 748
Prosthetics and Orthotics

Content Outline

- Week 1** Introduction to Prosthetics
Residual Limb Care & Wrapping techniques lab
Etiology of Amputees and Surgeries
Postoperative and Pre-Prosthetic Care (including psychological components)
Prosthetic Prescription & Component parts
Upper Extremity Prosthetics and Rehabilitation
- Week 2** Above Knee (transfemoral) Amputee Assessment and Rehabilitation
Below Knee (transtibial) Amputee Assessment and Rehabilitation
Common Gait Deviations
Prosthetic Gait Analysis
Gait Re-education
- Week 3** **Exam I**
Environmental Barriers
Lower Limb Amputee Evaluation and Treatment Plan Including Patient/family
Education/HEP
Residual Limb Wrapping Practical Exam
- Week 4** Hip Dis-articulation, Partial Foot and Bilateral Lower Limb Amputation
Sports and Leisure Activities for the Amputee
Advanced Prosthetics
Pediatric Amputees
Intro to Orthotics
Orthotics for the Upper Extremity
- Week 5** Orthotics for the Lower Extremity
Orthotics for the Spine
Orthotics for the Neurological Patient
Final Exam
Assignment Presentation