

University of Florida

College of Public Health & Health Professions

Course Title: Prosthetics & Orthotics

Course Number: PHT 6702C (Sections 7312 & 7F70)

Course Semester and Year: 2023 Summer Semester, Year 2

Course Prerequisites: Course participation is limited to the entry-level DPT student in his/her second year of the UF program.

Department: Department of Physical Therapy, University of Florida

Credit Hours: 2

Course Location: Virtual Lectures and CLC space @ CVS 2nd floor (***except for splinting on Friday, 6/2/2022, lab in HPNP*)

Course Dates and Times: Mondays & Thursdays 9am-12pm (***except for splinting lab on Friday, 6/2/2022, that will be split based on lab groups: 1:30-3pm and 3-4:30pm*)

Course Instructor: Donovan Lott PT, PhD, CSCS

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Office: 1156 of HPNP

Office Hours: By appointment

Teaching Assistant: Pratiksha Awale, PT, MS

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Preferred Course Communications: email

Course Description:

Management of patients with amputations and conditions requiring orthotics will be emphasized. The basic components of the course include types of orthotics and prosthetics, fitting, exercise programs, gait analysis, and gait training. A brief overview of upper extremity orthotics and prosthetics will be provided.

Course Objectives:

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

1. Define, discuss, and describe how the various components of orthotics control the lower extremity and impact alignment and gait.
2. Discuss and describe how orthotics are used for prevention of injury, specific conditions, and protection (i.e. after surgery, neuropathic foot, etc.).
3. Discuss and describe how dynamic and static orthoses impact movement of the upper extremity.
4. Construct a simple splint of thermoplastic materials.
5. Discuss and describe the major causes of amputation, levels of amputation, and the relationship of the amputation to expected outcome.
6. Determine appropriate pre-operative and post-operative care and education for the lower extremity amputee, including positioning, exercises, hygiene procedures for residual limb care, residual limb wrapping, home program, and psychological support based on the examination findings.
7. Differentiate between the components, biomechanics, and fitting principles of prosthetic

devices and select the appropriate prosthetic device based on a patient's diagnosis, age, life style, environmental considerations and other important examination findings.

8. Apply and discuss biomechanical principles of the gait cycle related to amputees, analyze common gait deviations for patients with lower extremity amputations, and determine possible prosthetic and amputee causes.
9. Discuss and describe how to evaluate a patient to determine possible gait deviations and a prosthetic training program that includes exercises and techniques to improve gait.
10. Identify, describe, and discuss basic levels of amputation and the basic components and control of prosthetic devices for patients with an upper extremity amputation.
11. Discuss the importance of regular communication and participation with the patient and family regarding the evaluation and treatment planning process, including goal setting and plan of care.

Teaching Methods and Learning Experiences:

The course will include virtual/online lectures/videos, small group activities and discussions, lab sessions, and problem solving case studies. Analysis of video-taped gait will be expected. Guest lectures will involve professionals in the community and persons with amputations from the community. Additionally, students will be asked to review the literature to answer questions about evidence for best practice in a group assignment.

Readings:

The course instructor will assign required voice-over recordings, videos, readings, and other online material for the synchronous and/or asynchronous Zoom sessions.

There is no textbook that is required for this course.

The following textbook is suggested:

Lusardi, MM and Nielsen, CC. *Orthotics and Prosthetics in Rehabilitation*

The following are recommended references:

May, BJ and Lockard, MA. *Prosthetics & Orthotics in Clinical Practice: A Case Study Approach.*

Edelstein, JE and Moroz, A. *Lower-Limb Prosthetics and Orthotics: Clinical Concepts*

Seymour, R. *Prosthetics And Orthotics, Lower Limb and Spinal.*

For technical support for this class, please contact the UF Help Desk at:

- Learning-support@ufl.edu
- (352) 392-HELP - select option 2
- <https://lss.at.ufl.edu/help.shtml>

Responsibilities of the student:

Students are expected to attend and be prepared for all virtual and in-person sessions.

Students are expected to log in/arrive to these sessions in a punctual manner. Required readings/review of online materials must be done *prior* to the session so that discussion of the material may take place. *Sessions with guest lecturers are required to be attended.*

Professional communication is expected to occur regarding any potential exceptions to any of these responsibilities.

Student evaluation:

Performance of the student will be evaluated by quizzes, exams, a group assignment and associated reviews, and assessment of student’s display of professionalism during course sessions and communication associated with the course. Short quizzes given during the course will be done either online or at the beginning of selected class sessions and without the assistance/input of anyone else (20% of grade). The student will be evaluated on his/her performance on two exams worth a total of 50% (exam 1 worth 20% of grade and exam 2 worth 30% of grade). The literature review group assignment will be worth 30% of grade. The student will be expected to read/watch any assigned materials **prior** to class sessions and to **participate in large group and small group discussions/break out sessions. Up to 15% may be deducted from the overall grade and/or any specific evaluation for lack of preparation, participation, and/or professionalism.**

Grading is scored according to the grading policy; University of Florida, College of Health Professions, Department of Physical Therapy, Student Handbook.

Percentage or points earned in class	93%-100%	90%-92%	87%-89%	83%-86%	80%-82%	70%-79%	60%-69%	Below 60%
Letter Grade equivalent	A	A-	B+	B	B-	C	D	E

Letter Grade	A	A-	B+	B	B-	C	D	E	WF	I	NG	S-U
Grade Points	4.0	3.67	3.33	3.0	2.67	2.0	1.0	0.0	0.0	0.0	0.0	0.0

Literature Review Group Assignment:

There will be 12 groups and each group will have a question to research.

Research the most recent literature. Each group is to select 3 articles from refereed journals, analyze the studies, case reports, etc, and report on each article to the class on Canvas via a pre-recorded video presentation **or** a detailed written summary. Each group will also post on Canvas a pdf of power point slides summarizing the material and 3 questions (in a short answer format) regarding the material. **Please use the most up-to-date publications available and follow the directions below for both the pre-recorded video or the written summary:**

- 1. Critically review each article (as learned in the EBP I and II).**
- 2. Rank the 3 articles in order of best evidence.**
- 3. Brief summary of each article (should NOT be a duplication of the abstracts).**

4. **Information about what each article provides to answer the assigned question and *how* you would use this information in clinical practice (consider reflecting on any patient(s) from your first affiliation or other experiences).**
5. **A conclusion answering the research question and describing how the 3 chosen articles provide supporting and/or conflicting information that a PT could use when seeing a patient.**

The student led group presentations using a pre-recorded video will be expected to last a **minimum of 12 minutes and a maximum of 20 minutes**. *Failure to adhere to this amount of time will result in a reduction of at least 10% in the score for the group.* There is no standard format for the presentations, but students are encouraged to use methods that appeal to a wide range of learning styles and have fun (within reason while remaining professional).

The student led group presentations using a detailed written summary will be expected to be a **minimum of 4 pages and a maximum of 7 pages (single spaced)**. Attachments that include up to 3 figures/tables and a reference list are not included in this required length. *Failure to adhere to this amount of length will result in a reduction of at least 10% in the score for the group.*

The pdf of the power point slides should contain sufficient information to include all of the 5 items mentioned in the instructions above. Appropriate use of font, pictures, spacing, etc is expected.

Students will work in groups, and each member of the group will receive the same grade for this assignment. *It is the responsibility of each group to ensure that all members are contributing to the project in a manner that the group deems appropriate and necessary.* However, there will be a peer assessment portion for each group that will count as 25% of your grade for this Group Assignment.

Another “review” group will be assigned to answer the original “posting” group’s 3 questions posted, and this “review” group will also pose 1 question that the “posting” group will answer. The “review” group will do an assessment of the “posting” group that will account for 25% of the “posting” group’s grade for this Group Assignment. See Assessment of Group Assignment at end of syllabus for details concerning these grading criteria.

The instructor will also grade each group on their work (video or written assignment, power point slides, questions posed, and response made), and his score will count as 50% of your grade for this Group Assignment.

Grading Rubric to be used for the assessment of the Group Assignment, assigned questions, and assigned groups will be forthcoming.

Course Outline – Schedule subject to change:

The course instructor can (and will) make changes to this schedule at his discretion. All changes will be announced during class time, through posting onto Canvas/e-learning, and/or by email (to UF address).

<u>Date</u>	<u>Topic</u>
May 15 th	Course Intro, Introduction Physical Stress Theory Orthotic Overview Mueller MJ and Maluf KS. Tissue Adaptation to Physical Stress: A Proposed “Physical Stress Theory” to Guide Physical Therapist Practice, Education, and Research. <i>PTJ</i> 2002;82:383-403.
May 18 th	NO SYNCHRONOUS CLASS SESSION
May 22 nd	Continuation of Orthoses (Upper/Lower extremities, Spine); considerations and application
May 25 th	Guest Lecturer Dr. Greenberg: Foot orthoses
May 29 th	NO SYNCHRONOUS CLASS SESSION
**June 2nd	**Splinting lab in OT/PT classrooms/labs in HPNP Guest Lecturer Dr. Frazer
June 5 th	Etiology/incidence, preventive and pre-operative care; overview of LE amputations; post-op care; neuropathic foot; phantom limb
June 8 th	Post-op care/dressings; residual limb wrapping; prosthetic fabrication
June 12 th	TT components and considerations
June 15 th	EXAM 1
June 19 th	NO SYNCHRONOUS CLASS SESSION
June 22 nd	Continuation of TT components and considerations
June 26 th	TF components and considerations
June 29 th	TF cases, TT & TF Checkouts, Intro to Gait Deviations
July 3 rd	NO SYNCHRONOUS CLASS SESSION
July 6 th	NO SYNCHRONOUS CLASS SESSION
July 10 th	Gait Deviations, Gait Training, Ther Ex

July 13 th	Rehabilitation considerations
July 17 th	UE prosthetics
July 20 th	Continuation of UE prosthetics
July 24 th	3D printing; Technological considerations; Pediatric considerations; Cases
July 27 th	Catch Up and Review
July 31 st or Aug 3rd	EXAM 2

Statement of University’s Honesty Policy (cheating and use of copyrighted materials)

Academic Integrity:

Professional behavior is critical for a successful transition from the classroom to the clinical setting. The faculty recognizes the importance of this by incorporating the development and evaluation of professional behavior into each academic course. Professional Behavior is described in the Student Handbook that each student receives and acknowledges reading/understanding upon beginning the DPT program. Professional behavior is expected at all times; including but not exclusively: during scheduled class, curricular and clinical activities, extracurricular professional events, community and clinical activities. *Cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.*

Furthermore, students are expected to act in accordance with the University of Florida policy on academic integrity (see Student Conduct Code, the Graduate Student Handbook or these web sites for more details:

<https://sccr.dso.ufl.edu/students/student-conduct-code/>

<https://sccr.dso.ufl.edu/process/students-rights-responsibilities/>

<http://www.graduateschool.ufl.edu/media/graduate-school/pdf-files/handbook.pdf>

Students may be referred to the Professional Development Committee if they exhibit behavior not in accordance to these standards/expectations.

Students are expected to act in accordance with the University of Florida policy on academic integrity. As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge:

“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied:

“On my honor, I have neither given nor received unauthorized aid in doing this assignment.”

It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For additional information regarding Academic Integrity, please see Student Conduct and Honor Code or the Graduate Student Website for additional details:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>
<http://gradschool.ufl.edu/students/introduction.html>

Please remember cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.

Online Faculty Course Evaluation Process

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

Policy Related to Guests Attending Class

Only registered students are permitted to attend class. However, we recognize that students who are caretakers may face occasional unexpected challenges creating attendance barriers. Therefore, by exception, a department chair or his or her designee (e.g., instructors) may grant a student permission to bring a guest(s) for a total of two class sessions per semester. This is two sessions total across all courses. No further extensions will be granted. Please note that guests are **not** permitted to attend either cadaver or wet labs. Students are responsible for course material regardless of attendance. For additional information, please review the Classroom Guests of Students policy in its entirety. Link to full policy: <http://facstaff.php.ufl.edu/services/resourceguide/getstarted.htm>

Instructor Notification (<https://care.dso.ufl.edu/instructor-notifications/>) assists students who have or will miss class due to extenuating circumstances and facilitates communication and coordination with faculty and the student to resolve absence(s) or outstanding coursework. It is a means the university uses that can provide some privacy for

circumstances when the student is requesting an excused absence. Please note the Instructor Notification *process takes up to 5 business days* to communicate back to the student and/or faculty member, so take this time into consideration if utilizing this resource.

Support Services

Accommodations for Students with Disabilities

If you require classroom accommodation because of a disability, it is strongly recommended you register with the Dean of Students Office <http://www.dso.ufl.edu> within the first week of class or as soon as you believe you might be eligible for accommodations. The Dean of Students Office will provide documentation of accommodations to you, which you must then give to me as the instructor of the course to receive accommodations. Please do this as soon as possible after you receive the letter. Students with disabilities should follow this procedure as early as possible in the semester. The College is committed to providing reasonable accommodations to assist students in their coursework.

Counseling and Student Health

Students sometimes experience stress from academic expectations and/or personal and interpersonal issues that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek help through University resources available to you.

- The **Counseling and Wellness Center** 352-392-1575 offers a variety of support services such as psychological assessment and intervention and assistance for math and test anxiety. Visit their web site for more information: <http://www.counseling.ufl.edu>. On line and in person assistance is available.
- **U Matter We Care** website: <http://www.umatter.ufl.edu/>. If you are feeling overwhelmed or stressed, you can reach out for help through the You Matter We Care website, which is staffed by Dean of Students and Counseling Center personnel.
- The **Student Health Care Center** at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: <https://shcc.ufl.edu/>
- Crisis intervention is always available 24/7 from: Alachua County Crisis Center: (352) 264-6789
<http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx>

- **University Police Department:** [Visit UF Police Department website](#) or call 352-392-1111 (or 9-1-1 for emergencies).
- **UF Health Shands Emergency Room / Trauma Center:** For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; [Visit the UF Health Emergency Room and Trauma Center website](#).

Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.

Inclusive Learning Environment

Public health and health professions are based on the belief in human dignity and on respect for the individual. As we share our personal beliefs inside or outside of the classroom, it is always with the understanding that we value and respect diversity of background, experience, and opinion, where every individual feels valued. We believe in, and promote, openness and tolerance of differences in ethnicity and culture, and we respect differing personal, spiritual, religious and political values. We further believe that celebrating such diversity enriches the quality of the educational experiences we provide our students and enhances our own personal and professional relationships. We embrace The University of Florida's Non-Discrimination Policy, which reads, "The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act." If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see your instructor or refer to the Office of Multicultural & Diversity Affairs website: www.multicultural.ufl.edu