

Oklahoma State University Institute of Technology
Face-to-Face Common Syllabus
Spring 2018

OPT 1414: UPPER EXTREMITY ORTHOTICS

This course provides a rigorous examination of the normal anatomy and biomechanics of the upper extremity. Pathological study includes various injuries and conditions affecting the upper limb and the orthoses for the management of these conditions. Students will use a combination of orthometry forms, negative impressions, models, and tracings to fabricate one metal short opponens HO, one metal long opponens WHO, one thermoplastic HO, and two thermoplastic WHOs. Hands on projects and lab time constitute 75% of the 100 hours of this course. Students will learn lab procedures and inventory management, safety protocols, inventory control, material and component choices and properties and the design and fabrication of custom upper extremity orthoses.

Course Purpose:

The purpose of Upper Extremity Orthotics is to help the learner attain the knowledge and fabrication skills required to successfully fabricate hand and wrist-hand orthoses.

Type of Course: Theory/Lab

Credit Hours: 4

Total clock hours of theory per semester: 25;

Total clock hours of lab per semester: 75;

Total clock hours of clinical per semester: 0.

Class Length: Semester (15 weeks)

Class Days and Times: T/R; 1:00p.m. - 4:20p.m.

Prerequisites: N/A

Instructor Name: Jennifer Block

Instructor Phone: (918) 293-5324

Office: Orthotics and Prosthetic Bldg., Room 132D

Instructor Email: jblock@okstate.edu

Contact: My preferred method of contact is email. Please allow 24-48 hours to return your correspondence during the normal work week.

Instructor's Office Hours: M/W/F, 8:30a.m.-10:00a.m.

School Name: Nursing and Health Sciences

School Main Phone: 918-293-5337

REQUIRED TEXT, REFERENCES, AND MATERIALS

Texts: Sieg, Kay and Sandra Adams. *Illustrated Essentials of Musculoskeletal Anatomy.*

References (Optional): Wilson Jr., Bennett. *A Primer on Limb Prosthetics.*

Salter, Robert. *Textbook of Disorders and Injuries of the Musculoskeletal System.*

Shurr, Donald and John Michael. *Prosthetics and Orthotics.*

Materials: Provided by Orthotic and Prosthetic Technologies Program

Uniform/Tools: Safety glasses

Estimated Cost for Materials: \$250

Estimated Cost for Uniform/Tools: \$5.00

Optional Resources: N/A

Upon completion of the course, students should:

Course Objectives	Assessment of Objectives
Identify anatomy of the upper extremity	Quiz, Final Exam
Identify major pathologies of the upper extremity	Quiz, Final Exam
Utilize forms to fabricate orthotic devices to correct measurements	Lab Project
Wrap demonstration models to obtain impressions	Lab Project
Repair and fill impressions with plaster	Lab Project
Modify and finish models in preparation for fabrication activities	Lab Project
Demonstrate the proper use of all machinery as described in the Machine lab Safety Manual, including use of PPE	Instructor Observation
Measure and cut material for a thermoplastic WHO	Lab Project
Thermoform plastic over a WHO model	Lab Project
Trim and finish thermoplastic orthosis to correct dimensions	Lab Project

Aspects of the course objective assessments may be used in the university's assessment of student learning. If applicable, an asterisk (*) above indicates this assignment is used in the university assessment program.

COURSE ACTIVITIES

In this course students will:

- Participate in class discussions of anatomy, biomechanics, and pathology of the upper extremity.
- Participate in class discussion on selection criteria for componentry, materials, and design of upper extremity orthoses.
- Produce and modify plaster models for the fabrication upper extremity orthoses.
- Understand the biomechanical advantages of various designs of upper extremity orthoses.
- Fabricate upper extremity orthoses for the management of various pathologies.
- Utilize orthometry forms in the fabrication of upper extremity orthoses.
- Demonstrate appropriate safety behaviors for equipment, materials, chemicals, and machinery.

EVALUATION - GRADES WILL BE BASED ON THE QUALITY AND COMPLETION OF THESE TASKS:

Grade Calculation

Your grade will be calculated in the following manner:

Your grade will be calculated in the following manner:

20%	Quizzes
40%	Fabrication Projects*
20%	Homework and/or Participation
20%	Exams*
	Mid-term
	Final

Total 100%

OSUIT Grading Scale	
A	= 90%-100%
B	= 80%-89%
C	= 70%-79%
D	= 60%-69%
F	= 59% & below

*The student's grade for this assignment will be used in the university's assessment of student learning. A 70% competency or higher receives a Pass rating. This Pass/Fail rating is independent of the student's course grade.

Daily and/or weekly quizzes, small weekly assignments and similar type projects: Normal return time to student by next class meeting or no later than one (1) week.

Extensive assignments, large lab projects, extensive quizzes, exams and similar type projects: Normal return time to students in one (1) to two (2) weeks.

RECOMMENDED STUDENT COMPETENCIES/SKILLS

Student success will be enhanced by familiarity with hand and power tools, the ability to read measurements in both imperial (inches) and metric units, and working knowledge of electronic communication programs and techniques such as Microsoft Word and file download and attachment processes.

AUTHORIZED TOOLS

Students may use any/all course materials, including books and notes, while participating in classroom activities. All quizzes and written assignments are to be completed independently; no collaboration with classmates is permitted and any instance of such will be considered academic dishonesty.

LATE WORK

All work (projects, homework and presentations) must be submitted **at the beginning of class** on the day it is due. Due dates for projects and homework are on your outline, so there should be no surprises. Late submissions of assignments and projects will be accepted within one week, with 10% deducted for each day late. No late work will be accepted after one week without prior arrangements. Work is considered late after the start of class on the day it is due unless I advise you otherwise, or you have an excused absence on the due date. I reserve the right to modify this policy depending on individual circumstances.

TESTING

Tests may be administered in person or online through D2L. Please make arrangements in advance if you know you will miss a scheduled test. The availability of make-up exams for unexcused absences will be at the instructor's discretion.

OTHER LAB AND CLASSROOM POLICIES

Punctuality

Class begins at 1:00p.m. and roll is taken at that time. If you are not in class when roll is taken, you will be counted absent in accordance with the OSUIT attendance policy. If you arrive late, it is your responsibility to check with me and make sure your presence in class has been recorded. Punctuality is a professional skill required by both employers and our program. Consequently, excessive tardiness can affect your grade. If you are tardy three times, that will be counted as an absence. Please be on time to both lectures and open laboratory work sessions.

Cell Phones

Use of cell phones in class is not allowed. This includes both lecture classes and open laboratory time. Please turn your cell phone to silent or vibrate during the entire class. Do not leave a lecture to make or receive calls unless it is an emergency. If you need to make or receive a call during laboratory time, please step outside the lab to do so.

Lab Conduct

An instructor or member of the OSUIT staff must be present when students are working in the lab. No work of any kind may occur in the labs during lunch or before/after classes unless an instructor is present. Only students in the program are allowed in the lab. Students must complete their Machine Safety Checkout before using the lab for the first time.

Students may wear scrubs or casual clothing appropriate for working in the lab. No open toed shoe wear, high heels or sandals are allowed. All shirts must have sleeves. No ties, long necklaces or any other potentially dangerous items that could cause injury to the student or others are allowed in the lab. Hair longer than the collar must be tied back while working in the lab.

Homework and Research

You will be required to conduct light research in order to complete some of the homework assignments. Please make certain that you are familiar with OSUIT's online databases and journals, and the process for conducting searches within our system. If you need help with conducting online research, please make an appointment with Jenny Duncan in the library. She is glad to help.

Dress Code

Field trips, seminars and guest speakers: Casual professional (no jeans, shirts with collars).
Lecture classroom: Scrubs or casual clothing. Shirts must have sleeves and cover the midriff.
Fabrication Lab: Scrubs or casual clothing. Shirts must have sleeves and cover the midriff.
Closed toe shoes required.

SYLLABUS ATTACHMENT

View the Syllabus Attachment, which contains other important information, by visiting http://osuit.edu/center/student_syllabus_information

COURSE OUTLINE

See attached schedule.

OPT 2414: Upper Extremity Orthotics
Tuesday/Thursday: 1:00-4:20p.m.

	<u>Topic</u>	<u>Activity</u>
1/04	Course Guidelines	Lecture
	Upper Limb Anatomy: Below Elbow	Lecture
	Planes of Motion	
	Landmarks	
	Upper Limb Model Fabrication	Lecture/demo
1/09	Upper Limb Anatomy	Lecture
	Bones and Muscles	
	Nerves	
	Upper Limb Pathology	Lecture
	UE Model Fabrication: Open Lab	Lab
1/11	Thumb Spica Rationale	Lecture
	Pathology	
	Components	
	Materials	
	UE Model Fabrication: Open Lab	Lab
1/16	Muscles of the UE Distal to Elbow	Lecture
	Prehension patterns	Lecture
	UE Model Fabrication: Open Lab	Lab
	UE Model Due	Project Due (End of Class)
1/18	WHO Resting Splint Rationale	Lecture
	WHO Resting Splint Fabrication	Lecture/demo
	WHO Resting Splint: Open Lab	Lab
1/23	UE Anatomy Quiz Review	Lecture
	WHO Resting Splint: Open Lab	Lab
1/25	UE Anatomy Quiz	Quiz
	WHO Resting Splint: Open Lab	Lab
1/30	WHO Polymer Rationale	Lecture
	Pathology	
	Types	
	Materials	
	WHO Resting Splint: Open Lab	Lab
2/01	WHO Resting Splint Due	Project Due
	WHO Polymer Model: Open Lab	Lab
2/06	WHO Polymer Model: Open Lab	Lab

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Tuesday/Thursday: 1:00-4:20p.m.

2/08	UE Pathology Quiz Review WHO Polymer: Open Lab	Lecture Lab
2/13	Sarmiento Article Assigned UE Muscles Proximal to Elbow Humeral Fracture Orthosis Rationale Pathology Biomechanics WHO Polymer: Open Lab	Lecture Lecture Lecture Lab
2/15	WHO Polymer Due UE Pathology Quiz Short Opponents HO Rationale Pathology Components Materials	Project Due Quiz Lecture
2/20	Sarmiento Article Due HO Short Opponents Measurement HO Short Opponents Measurement: Open Lab	Homework Due Lecture/Demo Lab
2/22	Elbow Orthoses HO Short Opponents Fabrication HO Short Opponents Fabrication: Open Lab	Lecture Lecture/Demo Lab
2/27	Mid-Term Exam Review HO Short Opponents Fabrication HO Short Opponents Fabrication: Open Lab	Lecture Lecture/Demo Lab
3/01	HO Short Opponents Fabrication HO Short Opponents Fabrication: Open Lab	Lecture/Demo Lab
3/06	Mid-Term Exam Splinting Article Assigned HO Short Opponents Fabrication: Open Lab	Exam Lecture Lab
3/08	HO Short Opponents Due WHO Long Opponents Rationale Pathology Biomechanics Types WHO Long Opponents Fabrication: Open Lab	Project Due Lecture Lab

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Tuesday/Thursday: 1:00-4:20p.m.

3/13	SEWH Orthoses WHO Quiz review WHO Long Opponens Fabrication	Lecture Lecture Lecture/Demo
3/15	WHO Long Opponens Fabrication: Open Lab	Lab
3/19-3/23	Spring Break	No Class
3/27	WHO Long Opponens Fabrication: Open Lab	Lab
3/29	Splinting Article Due WHO Long Opponens Fabrication: Open Lab	Homework Due Lab
4/03	WHO Quiz WHO Long Opponens Due	Quiz Project Due (End of class)
4/05	CAD/CAM for Orthotics	Lecture
4/10	Final Exam Review CAD/CAM for Orthotics	Lecture Lab
4/12	CAD/CAM for Orthotics	Lab
4/17	UE Orthotics Final Exam CAD/CAM for Orthotics	Exam Lab
4/19	CAD/CAM for Orthotics Project Breakdown and Lab Clean-up	Lab Lab