

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

OPT 1214 Spinal Orthotics

Spinal Orthotics is a close examination of the normal anatomy of the human spine with concentration on biomechanics relating to technical design. Pathological study includes the effects of disease, injury and malformation of the spine and identification of those specific pathologies as related to functional loss and orthotic management. Fabrication techniques, including material selection, design, adjustment and repair are covered, as well as lab safety procedures.

Type of course: (Theory/Lab).

Credit Hours: 4; Total hours of theory per semester: 25;
Total hours of lab for the semester: 75; Total hours of clinical per semester: 0.

Class length - Full Semester

Class days and times: Monday/Wednesday 1:00 p.m. – 4:20 p.m.

Prerequisites: None

Instructor Name: Michael P. Madden

Instructor Phone: (918) 293-5320

Office: HTED; Lab

Instructor email: mike.madden@okstate.edu

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

Instructor's Office Hours: Monday – Friday 8:00 a.m. – 12:00 a.m.; 1:00 p.m. - 4:00 p.m.

School Name: Nursing and Health Sciences

Schools Main Phone: 918-293-5337

REQUIRED TEXT, REFERENCES, AND MATERIALS

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

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

References: Goldberg, Bertam and John Hsu. *Atlas of Orthoses and Assistive Devices.*

Visible Body: <http://www.visiblebody.com>

Materials: N/A

Uniforms/Tools (*optional*)

Upon completion of the course, students should:

Objectives	Assessment Method
Students will be able to:	OPT 1214
1.1 Identify bones of the skeletal system	Quiz, Final Exam (F)
1.2 Identify major muscles of the skeletal system	Quiz, Final Exam (F)
1.3 Identify major pathologies of the musculoskeletal system	Quiz, Final Exam (F)
2.1 Utilize forms to modify models to correct measurements	Lab Project (F)
2.2 Utilize forms to assemble orthotic and prosthetic devices to correct measurements	Lab Project (F)
3.1 Wrap demonstration models to obtain impressions	Lab Project (F)
3.2 Repair and fill impressions with plaster	Lab Project (F)
3.3 Modify and finish models in preparation for fabrication activities	Lab Project (F)
4.1 Demonstrate the proper use of all machinery as described in the Machine Lab Safety Manual	Instructor Observation (F)
4.2 Wear safety glasses while using hand and power tools	Instructor Observation (F)
4.3 Utilize the appropriate personal protective equipment while using hazardous materials	Instructor Observation (F)
5.1 Identify standard trim lines for an LSO	Mid-Term Exam (F)
5.2 Identify standard trim lines for a TLSO	Mid-Term Exam (F)
5.3 Explain the biomechanical principles utilized in LSO and TLSO designs	Final Exam (F)
6.1 Thermoform plastic over a foam liner	Lab Project (F)
6.2 Trim a posterior opening TLSO to correct dimensions	Lab Project (F)
6.3 Fabricate a butted overlap bivalve TLSO	Lab Project (F)

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

(Please asterisk the assignment above if utilized for the assessment assignment.)

COURSE ACTIVITIES

In this course students will:

- Develop communication skills required to function within a professional facility
- Participate in lectures and class discussions
- Participate in guest lecture discussions
- Participate in oral presentations

- Participate in reading and research assignments
- Understand and implement ALL safety procedures within O/P lab
- Consider lab and machinery safety in relation to fabrication of spinal orthoses
- Demonstrate professional behavior in lab situations
- Complete spinal fabrication projects safely and expediently
- Construct spinal orthoses in keeping with techniques and principles of fabrication presented
- Give attention to differing designs, materials and components available in orthotic fabrication
- Demonstrate ability to select appropriate material and components for different spinal orthoses
- Understand appropriate spinal alignment in relation to specific pathologies
- Understand properties of materials and components relating to patient size and activity levels
- Use bending irons and associated tools to complete metal orthoses
- Demonstrate competency in thermoforming
- Prepare and complete negative mold into positive model.
- Modify positive plaster models as dictated by specific criteria.
- Demonstrate ability to determine appropriate materials in spinal orthosis construction
- Practice appropriate modification, adjustment and repair techniques to spinal orthoses
- Demonstrate knowledge appropriate spinal fitting parameters
- Demonstrate appropriate inventory control of the lab

EVALUATION - GRADES WILL BE BASED ON THE QUALITY AND COMPLETION OF THESE TASKS: *(NOTE-Please indicate the course specific evaluations.)*

- 40% Quizzes/Tests
 Spinal Anatomy/Pathology
 LSO
 TLSO
- 60% Fabrication Projects*
 Straps
 LSO Sagittal Control (metal)
 LSO Bivalve
 TLSO Posterior Opening
 TLSO Bivalve
 TLSO Soft Frame

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

*Grades include adherence to safety procedures and cleaning up after each lab day.

*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.

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, reports and presentations) must be submitted by 4:20 p.m. on the day it is due. Due dates for work are on your outline, so there should be no surprises. Late work will be penalized 5% for every day it is late. Work is considered late after 4:20 p.m. on the day it is due unless I advise you otherwise, or you have an excused absence on the due date. No tests, assignments, presentations or papers will be accepted after 3 days of original due dates. 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.

CLASSROOM AND LAB CONDUCT

An instructor or member of the OSUIT staff must be present when students are working in the lab. Only students in the program are allowed in the lab. Use of the machine labs is not allowed until students complete the Lab and Machine Safety Checkout. Professional behavior is expected in the classroom and the labs at all times. Use of profane and sexually based language will not be tolerated.

Students may wear scrubs or casual clothing appropriate for working in the lab. No open toed shoes, 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.

DRESS CODE (REQUIRED)

Field trips, seminars and guest speakers: Casual Professional

For women, this means blouses and pants, skirts or dresses. The hemlines of dresses and skirts must fall below the knee. Blouses must have sleeves and cover the midriff (no tube tops, t-shirts, tank tops or transparent fabrics). For men, this means slacks and sport shirts (no sleeveless shirts

or t-shirts). For both sexes, casual dress shoes are required (no sandals). No head covers are allowed.

Lab: Scrubs or casual clothing. Shirts must have sleeves. Closed toe shoes required. No head covers.

Lecture classroom: Scrubs or casual clothing. No head covers.

Internship: Scrubs or dress as dictated by your internship site.

UNIVERSITY & COURSE EXPECTATIONS

It is the responsibility of each OSUIT student to read, abide by and maintain a copy of the syllabus for this course. Syllabi are available on the OSUIT website.

Students understand that excerpts or portions of their work may be utilized for institutional assessment purposes. The purpose of institutional assessment is for verification of student learning and program improvement. Every effort will be made to keep this information confidential.

AMERICANS WITH DISABILITIES ACT (ADA)

According to the Americans with Disabilities Act, each student with a disability is responsible for notifying the University of his/her disability and requesting accommodations. If you think you have a qualified disability and need special accommodations, you should notify the instructor and request verification of eligibility for accommodations from the Office of Academic Accommodations/LASSO Center. Please advise the instructor of your disability as soon as possible, and contact The LASSO Center, located in the Noble Center for Advancing Technology – NCAT, top floor, and 918-293-4855 to ensure timely implementation of appropriate accommodations. Faculty have an obligation to respond when they receive official notice of a disability but are under no obligation to provide retroactive accommodations. To receive services, you must submit appropriate documentation and complete an intake process during which the existence of a qualified disability is verified and reasonable accommodations are identified. (Fall 2013)

ACADEMIC DISHONESTY

Academic dishonesty or misconduct is neither condoned nor tolerated at OSUIT. Any student found guilty of academic dishonesty or misconduct shall be subject to disciplinary action. Academic dishonesty and/or misconduct includes, but is not limited to, the following actions: (1) Plagiarism: the representation of previously written, published, or creative work as one's own; (2) Unauthorized collaboration on projects; (3) Cheating on examinations; (4) Unauthorized advance access to exams; (5) Fraudulent alteration of academic materials; (6) Knowing cooperation with another person in an academically dishonest undertaking. Students are required to actively protect their work against misuse by others. For details, refer to The OSUIT Student Handbook (Student Rights and Responsibilities Governing Student Behavior) available online at http://www.osuit.edu/academics/forms/student_rights_responsibility.pdf.

ATTENDANCE POLICY FOR FACE-TO-FACE COURSES

A primary component of OSUIT's Mission is "to prepare and sustain a diverse student body as competitive members of a world-class workforce." Regular and consistent attendance not only aids in academic success, dependable attendance is a requirement in today's real-world employment; therefore, regular and consistent attendance is a requirement in all OSUIT courses.

Definitions: Absent: Failing to attend all or a significant portion of a class or lab session.

A. Students may not be marked as absent if missing class for situations such as, but not limited to

1. participating in a required university activity such as a field trip;
2. fulfilling a military obligation;
3. a mandatory court appearance;
4. death in the immediate family;
5. extreme illness or accident to oneself or immediate family. Instructors, at their discretion, may require proof of such events.

B. It is the responsibility of the student to contact and inform the instructor and/or department in advance of such excused absences whenever possible.

Tardy: Arriving late to class as defined by the individual class instructor. Faculty, at their discretion, may equate three tardies to equal one absence.

Procedures:

Early Intervention

A. Any student who misses 10% of an individual course (or earlier at faculty discretion) during a regular fifteen-week semester, or the equivalent portion of time in a shorter session, will have their name submitted by that course instructor to the OSUIT Early Alert System for retention intervention.

B. At the point the Early Alert is issued, the student *must* meet with their assigned faculty advisor or designated faculty/staff member within seven (7) academic calendar days for counseling on how to improve their attendance and academic success.

Excessive Absences

A. The University reserves the right to administratively withdraw any student from an individual course who misses 20% of that course, whether excused or unexcused, and, in the opinion of the instructor, the student does not have a reasonable opportunity to be successful in the course.

B. Students should be aware any of the following may impact their financial aid:

1. being administratively withdrawn from a course
2. dropping a course
3. their last date of attendance in a course

Please see OSUIT Policy 2-021 for full details and procedures

OPT 1214: Spinal Orthotics
M/W: 1:00 p.m. – 4:20 p.m.

	<u>Topic</u>	<u>Activity</u>
1/8	Course Guidelines Machine Checkout Cast Spinal Models	Lecture Lab
1/10	Spinal Anatomy Structures Landmarks Planes and Directions Cast/Modify Spinal Models	Lecture Lab
1/15	MLK Holiday	
1/17	Superficial Back Muscles Spinal Pathology Cast/Modify Spinal Models	Lecture Lab
1/22	TLSO Rationale Biomechanics Types Pathology	Lecture
1/24	TLSO Posterior Opening Biomechanics Pathology TLSO Posterior Opening Impression Cast modification TLSO Model Fabrication: Open Lab	Lecture Lecture/demo Lab
1/29	Spinal Anatomy/Pathology quiz TLSO Model Fabrication: Open Lab	Quiz Lab
1/31	TLSO Model Due TLSO Fabrication Thermoforming Finishing TLSO Fabrication: Open Lab	Project Due Lecture/Demo Lab
2/5	TLSO Quiz TLSO Fabrication: Open Lab	Quiz Lab
2/7	TLSO Fabrication: Open Lab	Lab
2/12	TLSO Fabrication: Open Lab	Lab

Spinal Orthotics
T/R: 8:30 a.m. – 11:50 a.m.

2/14	TLSO Posterior Opening due TLSO Bivalve Rationale Biomechanics Pathology TLSO Bivalve Thermoforming Finishing TLSO Fabrication: Open Lab	Project due Lecture Lecture/demo Lab
2/19	TLSO Fabrication: Open Lab	Lab
2/21	TLSO Fabrication: Open Lab	Lab
2/26	Mid-term Exam Review LSO Bivalve	Lecture Lecture/demo
2/28	TLSO Bivalve due LSO Bivalve: Open Lab Mid-term Exam LSO Bivalve Due	Project due Lab Exam Project Due (end of class)
3/5	TLSO Scoliosis Rationale Biomechanics Pathology TLSO Scoliosis Impression Cast modification Thermoforming Finishing TLSO Scoliosis Fabrication: Open Lab	Lecture Lecture/demo Lab
3/7	TLSO Fabrication: Open Lab	Lab
3/12	TLSO Scoliosis Fabrication: Open Lab	Lab
3/14	TLSO Fabrication: Open Lab	Lab
3/19	Spring Break	
3/21	Spring Break	

Spinal Orthotics
T/R: 8:30 a.m. – 11:50 a.m.

3/26	TLSO Scoliosis due CTLSO Pathology and Rationale Biomechanics Types	Project due Lecture
3/28	LSO Metal Rationale Biomechanics Types Pathology LSO Fabrication: Open Lab	Lecture Lab
4/2	LSO Sagittal Control Components Fabrication LSO Fabrication: Open Lab	Lecture/demo Lab
4/4	LSO Quiz LSO Sagittal Control Fabrication LSO Fabrication: Open Lab	Quiz Lecture/demo Lab
4/9	LSO Leather Work LSO Fabrication: Open Lab	Lecture Lab
4/11	LSO Fabrication: Open Lab	Lab
4/16	Spinal Orthotics Final Exam Review LSO Sagittal Control due	Lecture Project due (end of class)
4/18	Spinal Orthotics Final Exam Project break-down and cleaning	Lab

**** Schedule is subject to change at the instructor's discretion ****