



Course Syllabus

OTHA 1409 - Human Structure and Function in OT

Catalog Description: Study of the biomechanics of human motion. Emphasis on the musculoskeletal system including skeletal structure, muscles and nerves, and biomechanical assessment procedures.

Prerequisites: OTHA 1405, 1360, 1415, 1341, and 2360

Corequisites: OTHA 2335

Semester Credit Hours: 4

Lecture Hours per Week: 2

Lab Hours per week: 5

Extended hours: 0

Contact Hours per Semester: 112

State Approval Code: 51.0803

Class section meeting times: As per course schedule.

Alternate Operations During Campus Closure: In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Panola College to move to altered operations. During this time, Panola College may opt to continue delivery of instruction through methods that include but are not limited to an online learning management system (CANVAS), online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor Panola College's website (www.panola.edu) for instructions about continuing courses remotely, CANVAS for each class for course-specific communication, and Panola College email for important general information.

Instructional Goals and Relationship to Curriculum: In this course, students learn about the person subsystem and specific client factors that influence occupational performance. Through team-based learning instruction, students collaboratively develop the clinical reasoning skills required to demonstrate activity analysis in areas of occupation, performance skills, performance patterns, context(s) and environments, and client factors, including accurately assessing muscle strength and range of motion, to implement targeted interventions to improve occupational performance. Students learn about body mechanics required to perform safe and effective basic patient transfers. Through role-playing, students demonstrate therapeutic use of self, the ability to describe the unique nature and benefits of OT, and how to manage patient interactions safely.

Learning Outcomes:

1. Identify human skeletal structure by bones, boney landmarks, and muscles.
2. Analyze human motion by related muscle function, innervation, and kinetics related to functional outcomes.
3. Identify normal and abnormal human movement.
4. Evaluate human joint range of motion and muscle strength.

Specific Course Objectives (includes SCANS):

After studying all materials and resources presented in the course, the student will be able to:

1. Demonstrate knowledge and understanding of the structure and function of the human body by being able to: **B.1.1**
 - a. locate anatomical landmarks/prominences
 - b. identify joint classifications and types
 - c. identify the bones and muscles involved
 - d. identify motions and prime movers

- e. identify the axis and planes of movement involved
- f. determine the action of each muscle controlling the joint
2. Apply biomechanical and kinesiology concepts required to complete activities and occupations, including muscle length and tension, muscle contractions, and other joint forces. **B.1.1**
3. Analyze activities in specific areas of occupation and identify related client factors including: **B.3.6**
 - a. joint(s) involved in the movement or position
 - b. prime movers and synergists for all joints involved
 - c. the axis and plane associated with each joint motion or position
 - d. the type(s) of muscle contractions required to complete the activity/occupation
 - e. changes in body position and other biomechanical methods of grading the activity
4. Identify and explain types of muscle contraction and select the appropriate type for patient intervention.
5. Demonstrate the ability to estimate and measure joint range of motion using a goniometer.
6. Demonstrate the ability to safely evaluate and document the strength of UE muscle groups.
7. Demonstrate the ability to identify appropriate methods, occupations, or activities to improve muscle strength.
8. Explain the rationale, indications, contraindications, and basic principles associated with manual muscle testing, evaluation of ROM, and performing PROM and AAROM.
9. Demonstrate cooperative learning, self-directed learning, and interpersonal skills required to function as a productive team member.
10. Demonstrate proper UE PROM techniques to preserve joint integrity and maximize occupational performance.
11. Demonstrate proper AAROM techniques to improve strength in each UE muscle group.
12. Identify basic wheelchair parts and features. **B.4.13**
13. Demonstrate the ability to operate the parts of a wheelchair required to transfer a patient safely. **B.4.13**
14. Demonstrate safe and effective basic patient transfer and handling skills to proficiency. **B.4.13**

*Bold numbers refer to the 2018 Educational Standards for the OTA established by the Accreditation Council for Occupational Therapy Education.

SCANS	
Basic Skill Competencies	Workplace Competencies
A. i, iii, iv,	A. i, iii
B. ii, iii, iv,v	B. I, ii, v, vi
C. I, ii, iii, iv, v	C. I, ii, iii,iv
	D.

Course Content:

A general description of lecture/discussion topics included in this course are listed in the Learning Outcomes / Specific Course Objectives sections of this syllabus.

Students in all sections of this course will be required to do the following:

1. Understand and comply with all instructional policies and procedures in the most current Panola College OTA Student Policy Manual and The Pathfinder.
2. Have access to a computer with high-speed internet service, printer, and scanning device with necessary compatible software for course content retrieval and document submissions.

It is the student’s responsibility to understand and comply with all instructional policies and procedures in the most current Panola College OTA Student Policy Manual (attendance, assignment submission, makeup exams, professional and ethical behaviors, and others).

Methods of Instruction/Course Format/Delivery:

OTHA 1409 utilizes a web-enhanced course format with instructional principles rooted in the Team-Based Learning™ framework. According to the Team-Based Learning™ Collaborative (TBLC), “Team-Based Learning is an evidence-based collaborative learning teaching strategy designed around units of instruction, known as “modules,” that are taught in a three-step cycle: preparation, in-class readiness assurance testing, and application-focused exercise. A class typically includes one module.”

Students must complete preparatory materials before class, including text readings, voice-over PowerPoint presentations, reflection papers, discussion postings, videos, and other materials. Digital content presentation

occurs in Canvas, SoftChalk, Intedashboard, EHRgo, Simucase, ICE videos, and other online technologies/learning modalities. At the start of each in-person class, students participate in Readiness Assurance Testing (RAT) as individuals (iRAT) and as a team (tRAT). In-class clarification lectures follow the RAT process to improve student comprehension, and the rest of the class time is spent performing application-focused activities/exercises/labs. Major exams cover content from multiple related modules.

Objective	Method of Measurement
5,6,8,12,13,14	Practical Patient Skills Exams
1,2,3,4,7,8,9,10,11,12,13,14	Quizzes, Assignments, Exams, iRATs, tRATs, Application and Lab Activities
1,2,3,4,5,6	Practical Content Exams

Major Assignments / Assessments:

The following items will be assigned during the semester and used to calculate the student's final grade:

Assignments	Weight
Individual Assignments	80%
Practical Content Exams	
Written Exams	
*Practical Patient Skills Exams	
Individual Readiness Assessment Tests	
Individual Assignments & Application Axs	
Team Assignments	20%
Team Readiness Assessment Tests	
Team Labs & Application Axs	

COURSE GRADING:

% Score	Letter Grade
90-100	A
80-89	B
75-79	C
60-74	D
Below 60	F

Note 1: No scores will be rounded.

Note 2: All rules and regulations printed in the College catalog, *The Pathfinder* and the OTA Student Policy Manual will be reinforced throughout this course.

***Note 3:** Technical skills must be mastered to progress in the OTA curriculum. **Students must demonstrate a basic level of proficiency by earning at least 75% on practical patient skills exams. Not achieving this level of mastery results in automatic failure of this course.** Students have three attempts to earn a passing grade for each practical patient skills exam. Maximum scores decrease by 10% each re-take (for example, skill test #1 max score = 100%, skills test #2 max score = 90%, skill test #3 max score = 80%). If a student does not pass a practical patient skills exam by their third attempt, the final course grade will reflect the non-passing score of the final attempt.

Students are required to:

1. Comply with all Instructional Policies and Procedures in the Panola OTA Student Policy Manual (attendance, late submission, make-up exams, professional and ethical behaviors, and others).
2. Complete all pre-class assignments before class.
3. Actively participate in class discussions and experiences.
4. Take the initiative to obtain all materials missed due to absence.
5. Take the initiative to schedule any additional practice or instruction time needed with the course instructor.

Texts, Materials, and Supplies:

1. **Required:** Lippert, Lynn. (2017). Clinical Kinesiology and Anatomy (Sixth Edition). Philadelphia, PA: F.A. Davis Co.
2. **Optional:** Patnaude, M.E. (2021). Early's Physical Dysfunction Practice Skills for the Occupational Therapy for the Occupational Therapy Assistant (Fourth Edition). Philadelphia, PA: Mosby, Inc.

*Both books will be used throughout the curriculum.

Other:

- Courses conducted via video conferencing may be recorded and shared for instructional purposes by the instructor.
- For current texts and materials, use the following link to access bookstore listings:
<http://www.panolacollegestore.com>
- For testing services, use the following link: <http://www.panola.edu/elearning/testing.html>
- If any student in this class has special classroom or testing needs because of a physical learning or emotional condition, please contact the ADA Student Coordinator in Support Services located in the Charles C. Matthews Student Center or go to
<http://www.panola.edu/student-success/disability-support-services/> for more information.
- Withdrawing from a course is the student's responsibility. Students who do not attend class and who do not withdraw will receive the grade earned for the course.
- Student Handbook, *The Pathfinder*: <http://www.panola.edu/student-success/documents/pathfinder.pdf>

SCANS CRITERIA

- 1) **Foundation skills are defined in three areas: basic skills, thinking skills, and personal qualities.**
 - a) **Basic Skills:** A worker must read, write, perform arithmetic and mathematical operations, listen, and speak effectively. These skills include:
 - i) Reading: locate, understand, and interpret written information in prose and in documents such as manuals, graphs, and schedules.
 - ii) Writing: communicate thoughts, ideas, information, and messages in writing, and create documents such as letters, directions, manuals, reports, graphs, and flow charts.
 - iii) Arithmetic and Mathematical Operations: perform basic computations and approach practical problems by choosing appropriately from a variety of mathematical techniques.
 - iv) Listening: receive, attend to, interpret, and respond to verbal messages and other cues.
 - v) Speaking: Organize ideas and communicate orally.
 - b) **Thinking Skills:** A worker must think creatively, make decisions, solve problems, visualize, know how to learn, and reason effectively. These skills include:
 - i) Creative Thinking: generate new ideas.
 - ii) Decision Making: specify goals and constraints, generate alternatives, consider risks, and evaluate and choose the best alternative.
 - iii) Problem Solving: recognize problems and devise and implement plan of action.
 - iv) Visualize ("Seeing Things in the Mind's Eye"): organize and process symbols, pictures, graphs, objects, and other information.
 - v) Knowing How to Learn: use efficient learning techniques to acquire and apply new knowledge and skills.
 - vi) Reasoning: discover a rule or principle underlying the relationship between two or more objects and apply it when solving a problem.
 - c) **Personal Qualities:** A worker must display responsibility, self-esteem, sociability, self-management, integrity, and honesty.
 - i) Responsibility: exert a high level of effort and persevere toward goal attainment.
 - ii) Self-Esteem: believe in one's own self-worth and maintain a positive view of oneself.
 - iii) Sociability: demonstrate understanding, friendliness, adaptability, empathy, and politeness in group settings.
 - iv) Self-Management: assess oneself accurately, set personal goals, monitor progress, and exhibit self-control.
 - v) Integrity and Honesty: choose ethical courses of action.
- 2) **Workplace competencies are defined in five areas: resources, interpersonal skills, information, systems, and technology.**
 - a) **Resources:** A worker must identify, organize, plan, and allocate resources effectively.
 - i) Time: select goal-relevant activities, rank them, allocate time, and prepare and follow schedules.

- ii) **Money:** Use or prepare budgets, make forecasts, keep records, and make adjustments to meet objectives.
- iii) **Material and Facilities:** Acquire, store, allocate, and use materials or space efficiently.
Examples: construct a decision time line chart; use computer software to plan a project; prepare a budget; conduct a cost/benefits analysis; design an RFP process; write a job description; develop a staffing plan.

b) **Interpersonal Skills:** A worker must work with others effectively.

- i) **Participate as a Member of a Team:** contribute to group effort.
- ii) **Teach Others New Skills.**
- iii) **Serve Clients/Customers:** work to satisfy customer's expectations.
- iv) **Exercise Leadership:** communicate ideas to justify position, persuade and convince others, responsibly challenge existing procedures and policies.
- v) **Negotiate:** work toward agreements involving exchange of resources, resolve divergent interests.
- vi) **Work with Diversity:** work well with men and women from diverse backgrounds.
Examples: collaborate with a group member to solve a problem; work through a group conflict situation, train a colleague; deal with a dissatisfied customer in person; select and use appropriate leadership styles; use effective delegation techniques; conduct an individual or team negotiation; demonstrate an understanding of how people from different cultural backgrounds might behave in various situations.

c) **Information:** A worker must be able to acquire and use information.

- i) **Acquire and Evaluate Information.**
- ii) **Organize and Maintain Information.**
- iii) **Interpret and Communicate Information.**
- iv) **Use Computers to Process Information.**
Examples: research and collect data from various sources; develop a form to collect data; develop an inventory record-keeping system; produce a report using graphics; make an oral presentation using various media; use on-line computer data bases to research a report; use a computer spreadsheet to develop a budget.

d) **Systems:** A worker must understand complex interrelationships.

- i) **Understand Systems:** know how social, organizational, and technological systems work and operate effectively with them.
- ii) **Monitor and Correct Performance:** distinguish trends, predict impacts on system operations, diagnose deviations in systems' performance and correct malfunctions.
- iii) **Improve or Design Systems:** suggest modifications to existing systems and develop new or alternative systems to improve performance.
Examples: draw and interpret an organizational chart; develop a monitoring process; choose a situation needing improvement, break it down, examine it, propose an improvement, and implement it.

e) **Technology:** A worker must be able to work with a variety of technologies.

- i) **Select Technology:** choose procedures, tools or equipment including computers and related technologies.
- ii) **Apply Technologies to Task:** understand overall intent and proper procedures for setup and operation of equipment.
- iii) **Maintain and Troubleshoot Equipment:** Prevent, identify, or solve problems with equipment, including computers and other technologies.
Examples: read equipment descriptions and technical specifications to select equipment to meet needs; set up and assemble appropriate equipment from instructions; read and follow directions for troubleshooting and repairing equipment.