Course Number and Title: OTA 130 Kinesiology for the OTA

Campus Location:
Georgetown, Wilmington

Effective Date:
2018-51

Prerequisite:
OTA 120, BIO 123, SSC 100 or concurrent

Co-Requisites:
none

Course Credits and Hours:
2.00 credits
1.00 lecture hours/week
2.00 lab hours/week

Course Description:
This lecture/laboratory course is the study of joint motion and muscle function. Students learn to analyze functional movement involved in occupational performance.

Required Text(s):
Obtain current textbook information by viewing the campus bookstore - https://www.dtcc.edu/bookstores online or visit a campus bookstore. Check your course schedule for the course number and section.

Additional Materials:
Campus program and policy manuals

Schedule Type:
Classroom Course

Disclaimer:
None

Core Course Performance Objectives (CCPOs):

1. Demonstrate professional behaviors in the classroom and during laboratory experiences. (CCC 3, 4; PGC 5)
2. Extrapolate how general principles of kinesiology and biomechanics relate to intervention planning in occupational therapy. (CCC 2, 6; PGC 1)
3. Discuss the functional kinesiology of the shoulder girdle. (CCC 2; PGC 1)
4. Describe the functional kinesiology of the shoulder joint. (CCC 2; PGC 1)
5. Describe the functional kinesiology of the elbow and forearm complex. (CCC 2; PGC 1)
6. Describe the functional kinesiology of the wrist and hand. (CCC 2; PGC 1)
7. Determine how posture impacts participation in occupational performance. (CCC 2; PGC 1)
8. Apply key concepts and demonstrate goniometric measurements and manual muscle testing procedures. (CCC 1, 2, 4, 6; PGC 1, 2, 3, 4)
9. Develop and provide instruction in an intervention plan incorporating preparatory methods, therapeutic exercises, and occupation-based interventions. (CCC 1, 2, 3; PGC 1, 2, 3, 4)

See Core Curriculum Competencies and Program Graduate Competencies at the end of the syllabus. CCPOs are linked to every competency they develop.

Measurable Performance Objectives (MPOs):
Upon completion of this course, the student will:

1. Demonstrate professional behaviors in the classroom and during laboratory experiences.
    1. Demonstrate appropriate classroom behaviors.
    2. Demonstrate the basic ability to self-assess.
2. Extrapolate how general principles of kinesiology and biomechanics relate to intervention planning in occupational therapy.
    1. Discuss the relationship of kinesiology to client factors and dynamics of occupation and activity as applied to the Occupational Therapy Practice Framework (OTPF).
    2. Define commonly used anatomic and kinesiologic terminology.
    3. Demonstrate the anatomical position and define the directional terms that describe the movements of the human body.
    4. Define and give examples of the planes and axes used to describe movements of the human body.
    5. Provide the name of and demonstrate the different movements that occur around the joints.
    6. Describe how force, torque, and levers affect biomechanical movements.

7. Define *active insufficiency* and *passive insufficiency*, and describe their relationship to muscle contraction.
8. Analyze how muscular lines of pull produce specific biomechanical motions.
9. Describe how muscular force vectors are used to describe movement.
10. Describe types of normal and abnormal end feels.
11. Explain and demonstrate the benefits, limitations, indications, and contraindications of various types of exercises.
12. Design and demonstrate a therapeutic exercise plan.

3. Discuss the functional kinesiology of the shoulder girdle.
    1. Describe the impact of scapula immobility on upper extremity (UE) movements.
    2. Describe the muscular interactions involved with active shoulder abduction.
    3. Describe the scapulohumeral rhythm.
    4. Explain the force-couple that occurs to produce upward rotation of the scapula.
    5. Identify the primary muscles involved with dynamic stabilization of the glenohumeral joint.
    6. Describe and demonstrate techniques to strengthen the shoulder girdle muscles.
    7. Demonstrate techniques to facilitate scapula mobility.
4. Describe the functional kinesiology of the shoulder joint.
    1. Discuss the importance of the rotator cuff muscles.
    2. Discuss how an injury might impair shoulder musculature and occupational performance.
    3. Compare and contrast stability/mobility movements within common activities of daily living (ADL) tasks.
    4. Describe the interactions between the internal and external rotators of the shoulder during a throwing motion.
    5. Describe the incidences, signs, symptoms, causes, and complications of covered conditions and pathologies.
    6. Discuss the effects that a health condition has on an individual's physical and mental health and occupational performance within the context of family and society.
5. Describe the functional kinesiology of the elbow and forearm complex.
    1. Explain the primary muscular interactions involved on performing a pushing and pulling motion.
    2. Explain the primary muscular interactions involved in completing an ADL task.
    3. Describe the incidences, signs, symptoms, causes, and complications of covered conditions and pathologies.
    4. Discuss the effects that a health condition has on an individual's physical and mental health and occupational performance within the context of family and society.
6. Describe the functional kinesiology of structure and function of the wrist and hand.
    1. Describe how compressive forces are transferred from the hand through the wrist.
    2. Explain the function of the wrist extensor muscles when grasping.
    3. List the structures involved in the carpal tunnel.
    4. Describe the symptoms and causes associated with carpal tunnel or cumulative trauma syndrome and their effects on functional performance.
    5. Explain the synergistic action between the muscles of the wrist and radial and ulnar deviation.
    6. Explain the primary muscular interactions in completing an ADL task.
    7. Describe the primary mechanism that causes an ulnar drift deformity.
    8. Describe the arches of the hand and their relationship to functional movement of the hand.
    9. Describe and demonstrate various prehension patterns and their impact on occupational performance.
    10. Identify which active motions are lost or severely weakened following a cut of the median nerve at the level of the wrist.
    11. Explain why an injury to the radial nerve would reduce the effectiveness and strength of one's grasp.
    12. Describe the incidences, signs, symptoms, causes, and complications of covered conditions and pathologies.
    13. Discuss the effects that a health condition has on an individual's physical and mental health and occupational performance within the context of family and society.
7. Determine how posture impacts participation in occupational performance.
    1. Describe the basic concepts of posture evaluation and the application of ergonomic principles.
    2. Describe the four major posture types.
    3. Describe postural issues across the life span and their impact on occupational performance.
    4. Explain the concepts and practices of postural education and exercises.
    5. Explain how one's body is dependent upon the relationship of the center of gravity with the base of support.
    6. Describe the factors that are inherent in maintaining balance.
    7. Define static and dynamic sitting and standing balance.
    8. Using the concept of occupation as a means, provide examples of treatment intended to increase static and dynamic sitting and standing balance.
8. Apply key concepts and demonstrate goniometric measurements and manual muscle testing procedures.
    1. Describe client psychological, psychosocial, environmental, and skeletal factors that influence range of motion (ROM).
    2. Describe how weakness and limitations in ROM impact performance in areas of occupation.
    3. Apply key concepts of goniometry, manual muscle testing, and edema measurement.
    4. Adhere to precautions and contraindications for measuring joint ROM and muscle strength of upper extremity (UE) muscle groups.
    5. Demonstrate goniometric measurements and manual muscle testing of the UEs in a simulated role-play scenario adhering to safety precautions.
9. Develop and provide instruction in an intervention plan incorporating preparatory methods, therapeutic exercises, and occupation-based interventions.
    1. Develop an intervention plan in collaboration with the registered occupational therapist (OTR), including descriptions, justifications, modifications, grading of activities, and therapeutic exercises and precautions.
    2. Implement the intervention plan.
    3. Describe the significance of scholarly activities (including research) and the use of literature for evidence-based practice in the

development of the intervention plan.

Evaluation Criteria/Policies:
Students must demonstrate proficiency on all CCPOs at a minimal 75 percent level to successfully complete the course. The grade will be determined using the Delaware Tech grading system:

92	–	100	=	A
83	–	91	=	B
75	–	82	=	C
0	–	74	=	F

Students should refer to the Student Handbook - https://www.dtcc.edu/handbook for information on the Academic Standing Policy, the Academic Integrity Policy, Student Rights and Responsibilities, and other policies relevant to their academic progress.

Final Course Grade:
Calculated using the following weighted average

Evaluation Measure	Percentage of final grade
Exam #1	15%
Exam #2	15 %
Exam #3	15%
3 Competencies @ 5% each	15%
Professional Behaviors	10%
Formative Assessments 2 Quizzes @ 5% each 2 graded labs @ 5% each Ther Ex presentation @ 10%	30%
TOTAL	100%

Core Curriculum Competencies (CCCs are the competencies every graduate will develop):

1. Apply clear and effective communication skills.
2. Use critical thinking to solve problems.
3. Collaborate to achieve a common goal.
4. Demonstrate professional and ethical conduct.
5. Use information literacy for effective vocational and/or academic research.
6. Apply quantitative reasoning and/or scientific inquiry to solve practical problems.

Program Graduate Competencies (PGCs are the competencies every graduate will develop specific to his or her major):

1. Demonstrate knowledge related to the occupational therapy assistant including patient/client interactions, therapeutic treatments, activity analysis, documentation, safety techniques, and therapeutic equipment.
2. Exhibit effective nonverbal, verbal and written communication in patient/client and family interventions and education and in professional relationships.
3. Perform competently a full range of occupational therapy skills with patients/clients and various populations as occupational beings.
4. Exercise independent judgment and critical thinking in performance of occupational therapy, according to the profession’s standards of practice.
5. Demonstrate professional patterns of behavior consistent with the profession's code of ethics.

Disabilities Support Statement:
The College is committed to providing reasonable accommodations for students with disabilities. Students are encouraged to schedule an appointment with the campus Disabilities Support Counselor to request an accommodation needed due to a disability. A listing of campus Disabilities Support Counselors and contact information can be found at the disabilities services - https://www.dtcc.edu/disabilitysupport web page or visit the campus Advising Center.