



**Physical Therapist Assistant Program**  
**Functional Anatomy**  
**PTHA 1413**  
**Fall 2013**  
**M, W: 8:30-10:30, Th: 12:30 – 2:30**  
**CT 105/108**

**Instructor:** Tana Pipes  
**Email:** [tpipes@odessa.edu](mailto:tpipes@odessa.edu)  
**Office:** CT 103

**Office Phone:** 432-335-6836, **Cell Phone:** 432-413-3890  
**Office Hours:** Monday, Wednesday 10:30 – 11:30, 1:00 – 3:00  
Tuesday: 1:00 – 3:00, Thursday: 2:30 – 4:30

**Course Description:**

The course explains and correlates the relationship of the musculoskeletal and neuromuscular systems to normal and abnormal movement. Provides the student with a working knowledge of the human musculoskeletal and neuromuscular systems and an understanding of how these systems interact to produce efficient human movement.

**Required Texts:**

1. Clinical Kinesiology and Anatomy, 5<sup>th</sup> Edition; by Lippert; F.A. Davis, 2011
2. An Illustrated Atlas of the Skeletal Muscles, 3<sup>rd</sup> Edition; by Bowden; Morton Publishing, 2010
3. Course packet optional. The course packet will be posted on BlackBoard

**Description of Institutional Core Objectives (ICO's)**

Given the rapid evolution of necessary knowledge and skills and the need to take into account global, national, state, and local cultures, the core curriculum must ensure that students will develop the essential knowledge and skills they need to be successful in college, in a career, in their communities, and in life. Therefore, with the assistance of the Undergraduate Education Advisory Committee, the Coordinating Board has approved guidelines for a core curriculum for all undergraduate students in Texas.

Through the application and assessment of objectives within the institution's core curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world; develop principles of personal and social responsibility for living in a diverse world; and advance intellectual and practical skills that are essential for all learning. Appropriate Odessa College faculty periodically evaluates all of the courses listed in the descriptions on the following pages of this catalog and keys them to Odessa College's Institutional Core Objectives (ICOs), as defined by the Texas Higher Education Coordinating Board (THECB). (Source: *Odessa College Catalog of Courses 2012-2013*, page 73)

**Odessa College's Institutional Core Objectives (ICOs):**

- 1) *Critical Thinking Skills* - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- 2) *Communication Skills* - to include effective development, interpretation and expression of ideas through written, oral and visual communication
- 3) *Empirical and Quantitative Skills* - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- 4) *Teamwork* - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
- 5) *Personal Responsibility* - to include the ability to connect choices, actions and consequences to ethical decision-making
- 6) *Social Responsibility* - to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities

**Learning Outcomes for PTHA 1413 (Source: *Odessa College Catalog of Courses*)**

Outcome	ICO
	<i>Critical Thinking Skills</i> - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
	<i>Communication Skills</i> - to include effective development, interpretation and expression of ideas through written, oral and visual communication
	<i>Empirical and Quantitative Skills</i> - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
	<i>Teamwork</i> - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
	<i>Personal Responsibility</i> - to include the ability to connect choices, actions and consequences to

	ethical decision-making
	<i>Social Responsibility</i> - to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities

<b>Grade Compilation:</b>	Labs	10%
	Quizzes	10%
	Lab Practicals	15%
	Unit Exams	40%
	Final Exam	25%

**Course Requirements:** In order to receive credit for this course, all students must:

1. Complete all lab assignments.
2. Complete all lab practicals.
3. Complete all unit exams.
4. Complete the final exam.
5. Watch videos for each section in LRC. Signature required.

<b>Grading Scale:</b>	90 – 100 = A
	80 – 89 = B
	70 – 79 = C
	60 – 69 = D
	Below 60 = F

**Note:** Students must make a minimum grade of C in each PTA course in order to remain in the program.

## Odessa College Policies

### **Academic Policies**

Note that the OC Student Handbook states (page 32) that “[i]n cases of academic dishonesty, the instructor has the authority to impose appropriate scholastic penalties. Complaints or appeals of disciplinary sanctions may be filed in accordance with the college due process procedure. Copies of the college due process procedure are available in the office of The Director of Student Life (CC104).” For more information on your rights and responsibilities as a student at Odessa College, please refer to the following: *The 411 of OC: Student Handbook 2012-2013; Student Rights & Responsibilities*  
<http://www.odessa.edu/dept/studenthandbook/handbook.pdf>

### **Scholastic Dishonesty**

Scholastic dishonesty shall constitute a violation of these rules and regulations and is punishable as prescribed by board policies. Scholastic dishonesty shall include, but not be limited to, cheating on a test, plagiarism and collusion.

**"Cheating on a test" shall include:**

- Copying from another student's test paper
- Using test materials not authorized by the person administering the test.

- Collaborating with or seeking aid from another student during a test without permission from the test administrator.
- Knowingly using, buying, selling, stealing or soliciting, in whole or in part, the contents of an unadministered test.
- The unauthorized transporting or removal, in whole or in part, of the contents of the unadministered test.
- Substituting for another student, or permitting another student to substitute for one's self, to take a test.
- Bribing another person to obtain an unadministered test or information about an unadministered test.
- "Plagiarism" shall be defined as the appropriating, buying, receiving as a gift, or obtaining by any means another's work and the unacknowledged submission or incorporation of it in one's own written work.
- "Collusion" shall be defined as the unauthorized collaboration with another person in preparing written work for fulfillment of course requirements. (Source: *Odessa College Student Handbook 2012-2013, page 29-30*)

### **Special Populations/Disability Services/Learning Assistance**

Odessa College complies with Section 504 of the Vocational Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. If you have any special needs or issues pertaining to your access to and participation in this or any other class at Odessa College, please feel free to contact me to discuss your concerns. You may also call the Office of Disability services at 432-335-6861 to request assistance and accommodations.

Odessa College affirms that it will provide access to programs, services and activities to qualified individuals with known disabilities as required by **Section 504 of the Rehabilitation Act of 1973 and Title II of the Americans with Disabilities Act of 1990 (ADA)**, unless doing so poses an undue hardship or fundamentally alters the nature of the program or activity. Disabilities may include hearing, mobility or visual impairments as well as hidden disabilities such as chronic medical conditions (arthritis, cancer, diabetes, heart disease, kidney disorders, lupus, seizure disorders, etc.), learning disabilities or psychiatric or emotional disabilities. A student who comes to Odessa College with diagnosed disabilities which may interfere with learning may receive accommodations when the student requests them and submits proper documentation of the diagnosis. A Request for Accommodations form and guidelines for beginning the request process are available in the OC Help Center or on the Odessa College web site at [www.odessa.edu/dept/counseling/disabilities.htm](http://www.odessa.edu/dept/counseling/disabilities.htm). The college strives to provide a complete and appropriate range of services for students with disabilities such as assistance with testing, registration, information on adaptive and assistive equipment, tutoring, assistance with access and accommodations for the classroom where appropriate. For information regarding services, students with disabilities should contact the Office of Disability Services in the OC Help Center located in Room 204 of the Student Union Building or call 432-335-6433. (Source: *Odessa College Catalog of Courses 2012-2013, page 52*)

### **Dropping a Course or Withdrawing from College**

Students wishing to drop a non-developmental course may do so online using WebAdvisor, at the Wrangler Express, or Registrar's Office. A student wishing to drop a developmental course or withdraw from college should obtain a drop or withdrawal form from the Wrangler Express or the Registrar's Office. Students are encouraged to consult with instructors prior to dropping a class. Students may not completely withdraw from the college by use of the Web. Students must drop a class or withdraw from college before the official withdrawal date stated in the class schedule. Students who are part of the Armed Forces Reserves may withdraw with a full refund if the withdrawal is due to their being ordered into active duty. A copy of the student's orders must be presented to the Registrar's Office at the time of the withdrawal. For details, please contact the Office of the Registrar. **No longer attending class does not automatically constitute withdrawal from that class, nor does a student's notification to an instructor that the student wishes to be dropped. Failure of a student to complete the drop/withdrawal process will result in a grade of "F."** (Source: *Odessa College Catalog of Courses 2012-2013, page 36*)

### **Learning Resource Center (LRC; Library)**

The Library, known as the Learning Resources Center, provides research assistance via the LRC's catalog (print books, videos, e-books) and databases (journal and magazine articles). Research guides covering specific subject areas, tutorials, and the "Ask a Librarian" service provide additional help.

## Student Success Center (SCC)

Located in the LRC, the Student Success Center (SSC) provides assistance to students in meeting their academic and career goals. We strive to provide new and updated resources and services at no charge to OC students. Academic support services include tutoring, study skills training, workshops, and the mentoring program. Tutoring is available for a variety of subjects including college mathematics, English, government, history, speech, chemistry, biology, and all developmental coursework. Appointments are preferred, but walk-ins will be served as soon as possible. Smarthinking online tutoring is also available. All computers in the center have Internet access, Microsoft Office, and software resources to assist OC students in improving their reading, writing and mathematical skills. The center also offers special assistance to students preparing for the THEA/COMPASS test. Computer lab assistants are available to assist students with student email, Blackboard, OC portal, Course Compass and more. For more information or to make an appointment, please call 432-335-6673 or visit [www.odessa.edu/dept/ssc/](http://www.odessa.edu/dept/ssc/) (Source: *Odessa College Catalog of Courses 2012-2013, page 54*)

## Student E-mail

Please access your Odessa College Student E-mail, by following the link to either set up or update your account: <http://www.odessa.edu/gmail/>. **Correspondence will be submitted using your Odessa College email as an alternative method to contact you with information regarding this course.**

## Technical Support

For Blackboard username and password help and for help accessing your online course availability and student email account contact the Student Success Center at 432-335-6878 or online at [https://www.odessa.edu/dept/ssc/helpdesk\\_form.htm](https://www.odessa.edu/dept/ssc/helpdesk_form.htm).

## Expectations for Engagement – Face to Face Learning

To help make the learning experience fulfilling and rewarding, the following Expectations for Engagement provide the parameters for reasonable engagement between students and instructors for the learning environment. Students and instructors are welcome to exceed these requirements.

### *Reasonable Expectations of Engagement for Instructors*

1. As an instructor, I understand the importance of clear, timely communication with my students. In order to maintain sufficient communication, I will
  - provided my contact information at the beginning of the syllabus;
  - respond to all messages in a timely manner through telephone, email, or next classroom contact; and,
  - notify students of any extended times that I will be unavailable and provide them with alternative contact information (for me or for my supervisor) in case of emergencies during the time I'm unavailable.
2. As an instructor, I understand that my students will work to the best of their abilities to fulfill the course requirements. In order to help them in this area, I will
  - provide clear information about grading policies and assignment requirements in the course syllabus, and
  - communicate any changes to assignments and/or to the course calendar to students as quickly as possible.
3. As an instructor, I understand that I need to provide regular, timely feedback to students about their performance in the course. To keep students informed about their progress, I will
  - return classroom activities and homework within one week of the due date and
  - provide grades for major assignments within 2 weeks of the due date or at least 3 days before the next major assignment is due, whichever comes first.

### *Reasonable Expectations of Engagement for Students*

1. As a student, I understand that I am responsible for keeping up with the course. To help with this, I will
  - attend the course regularly and line up alternative transportation in case my primary means of transportation is unavailable;
  - recognize that the college provides free wi-fi, computer labs, and library resources during regular campus hours to help me with completing my assignments; and,
  - understand that my instructor does not have to accept my technical issues as a legitimate reason for late or missing work if my personal computer equipment or internet service is unreliable.
2. As a student, I understand that it is my responsibility to communicate quickly with the instructor any issue or emergency that will impact my involvement with or performance in the class. This includes, but is not limited to,
  - missing class when a major test is planned or a major assignment is due;
  - having trouble submitting assignments;
  - dealing with a traumatic personal event; and,
  - having my work or childcare schedule changed so that my classroom attendance is affected.
3. As a student, I understand that it is my responsibility to understand course material and requirements and to keep up with the course calendar. While my instructor is available for help and clarification, I will
  - seek out help from my instructor and/or from tutors;
  - ask questions if I don't understand; and,
  - attend class regularly to keep up with assignments and announcements.

## **Institutional Calendar Fall 2013 (8/26-12/12)**

<http://www.odessa.edu/college-calendar12-13.pdf>

### **Registration:**

On the Web (5 am to Midnight, 7 days a week).....	Apr 15-Aug 25
In Person (See Business Hours Above).....	Apr 15-Aug 23
FOR TUITION AND FEE SCHEDULES & PAYMENT INFORMATION, PLEASE CHECK ONLINE AT <a href="http://www.odessa.edu">www.odessa.edu</a>	
Classes Begin.....	Aug 26 (Mon)
<b>Late Registration &amp; Schedule Changes (Add/Drop):</b>	
On the Web (5 am to Midnight, 7 days a week).....	Aug 26-27 (Mon-Tues)
In Person (See Business Hours Above).....	Aug 26-27 (Mon-Tues)
Holiday (Labor Day – Offices closed except for Wrangler Express – No Classes).....	Sep 2 (Mon)
Census Day.....	Sep 11 (Wed)
Last Day to Drop or Withdraw with a “W” (1st eight week courses).....	Oct 4 (Fri)
First Eight Weeks End.....	Oct 18 (Fri)
Second Eight Weeks Begin.....	Oct 21 (Mon)
Deadline for Fall Degree Application.....	Nov 1 (Fri)
Last Day to Drop or Withdraw with a “W” (full semester length courses).....	Nov 12 (Tues)
Last Day to Drop or Withdraw with a “W” (2nd eight week courses).....	Nov 26 (Tues)
Student Evaluation of Instruction Survey Available Online.....	Nov 18-22 (Mon-Fri)
Thanksgiving Holiday (begins 9 pm Tues, Nov 26).....	Nov 27-30 (Thurs-Sat)
Last Class Day.....	Dec 7 (Sat)
Final Exams.....	Dec 9-12 (Mon-Thurs)
End of Semester.....	Dec 12 (Thurs)
Fall Graduation.....	Dec 14 (Sat)
College Offices Closed.....	Dec 21-Jan 5 (Sat-Sun)

## **Course Policies**

### **Disclaimer**

This syllabus is tentative and subject to change in any part at the discretion of the instructor. Any changes will be in accordance with Odessa College policies. Students will be notified of changes, if any, in timely manner.

## Original Effort

The work submitted for this course must be original work prepared by the student enrolled in this course. Efforts will be recognized and graded in terms of individual participation and in terms of ability to collaborate with other students in this course.

## Description of students

Students enrolled in this course are preparing to enter into their clinical rotations.

## Course prerequisites

BIOL 2401, BIOL 2402 PTHA 1413 Source: *Odessa College Catalog of Courses 2012-2013, page 178*)

**Corequisites:** PTHA 1201, 1305

## Course Alignment with Industry Standards

This course (Functional Anatomy/PTHA 1413/ Fall) has been identified as a course by Career, Technical, and Workforce Education as one in which teaching and learning strategies adopted by AVID will be implemented via Lectures, demonstrations, laboratory practice, reading assignments, discussions, videos, and outside projects and assignments. As a student in The PTA program, you will be expected to develop an understanding of the strategies, to model the strategies, to maintain fidelity of implementation, and to examine how these strategies may impact your effectiveness as a professional in your chosen area of occupation, either through coursework or practicum experience as outlined by the course instructor. CAPTE accreditation of the PTA program can be found on the PTA Program website [www.odessa.edu/dept/pta](http://www.odessa.edu/dept/pta)

## Digital Protocol

Cell phones must be placed on *silent* mode and are to be accessed in emergency cases only. The use of laptops or any other digital device is permitted in order to facilitate note-taking relative to instruction with instructor permission only. Any written assignments may be submitted electronically on Blackboard. **The electronic recording of the time on Blackboard will be considered the time of assignment submission. Take necessary steps to ensure that your assignments are submitted on "Blackboard" time.** Back-up and/or additional copies of all assignments submitted is encouraged. **Computers/printers are available to OC students in the LRC (301-303); therefore, not having access to a computer due to technical issues (crash; corrupted files) will not be considered as an acceptable reason for not completing assignments.** If there is a loss of server connection with Odessa College due to maintenance, then an email will be sent to student with pertinent information and status reports. Assignments submitted electronically need to be **WORD document (doc or docx).**

## Attendance Policy

Regular attendance at lecture and lab is essential and has a direct effect on the final grade that a student earns in class. Non-attendance on the part of a student may result in grade penalty or may lead to dismissal from the program.

A student should attend all lecture and laboratory sessions. Habitual or patterned absenteeism in lecture or lab will not be tolerated. As soon as such a problem is identified, the student will be required to meet with the faculty to determine a course of action and, if the problem is not corrected, the student will be subject to dismissal from the program. Absences in laboratory sessions are particularly problematic because of the lost opportunity to practice skills; therefore, students will be penalized for missing more than one lab session per semester. Should a student miss more than one lab session, one point for each missed session will be deducted from the final course grade. All absences must be reported to the appropriate faculty member prior to the start of class. If the faculty member cannot be reached directly, a voice mail message may be left. Failure to notify the faculty prior to an absence will affect the student's Professional Behaviors Assessment.

## AVID

This course has been identified as a course by Career, Technical, and Workforce Education as one in which teaching and learning strategies adopted by AVID will be implemented. As a student in the legal program, you will be expected to develop an understanding of the strategies, to model the strategies, to maintain fidelity of implementation, and to examine how these strategies may impact your effectiveness as a professional in your chosen area of occupation, either through coursework or practicum experience as outlined by the course instructor.

## Grading Policy

Please understand that this is a required course for the PTA program in order to prepare you for PTHA 2409 and PTHA 2201 as well as Acute, Ortho and Neuro Clinical Rotations. Quality work and active participation is expected and not to be negotiated. As a

general policy, grades will be taken in class. Any written assignments or tests will be graded outside of class. You can expect feedback on assignments within a week's time. A minimum grade of a 70 is required to pass PTHA 1413.

### **Grade Inquiry Policy**

It is the responsibility of the individual taking this course to maintain accurate track of assignment submissions and grades. There will be opportunities during the semester to meet with the instructor to discuss your academic progress. Contact the instructor to schedule an appointment. Class time will not be used for grade inquiries. All grades are final.

### **Professional Behavior:**

Professional behavior is absolutely essential both while the individual is a student in this program as well as after graduation. The Professional Behaviors Assessment form provides a standard for behavior and a mechanism for self-assessment by the student as well as assessment by faculty during the academic component of the program. If a faculty member observes consistent failure to demonstrate acceptable professional behavior by a student, the faculty member will utilize the assessment form as a tool for counseling the student. **Failure to respond appropriately to counseling regarding professional behaviors will result in dismissal from the program.**

### **Communication Plan**

The best way to communicate with the course instructor is via email and text. Do not text after 8 PM unless for an emergency. Also, check in BlackBoard regularly for announcements, including any changes in the course schedule due to instructor illness or conference attendance. Appointments with the instructor may also be scheduled.

### **Acceptance of Late Assignments:**

Projects or outside assignments are due at the beginning of class on the assigned due date. Late papers will receive a 5% per day grade penalty. This penalty will continue to be assessed each day the assignment is not turned in.

### **Missing an Exam:**

Exams are defined as formally scheduled examinations covering a major portion of the course content and cumulatively comprising a relatively large percentage of the overall grade for a course. Every effort should be made by the student to be present for all exams. If it is necessary for a student to miss an exam, the instructor must be notified prior to the scheduled exam time and arrangements must be made for make-up. It is the instructor's option to give the same exam as the one missed or a different exam over the same content. If the exam is not made up within one class day, a 5% per day penalty will be assessed each day the exam is not taken.

### **Incomplete Policy**

An 'Incomplete' grade may be given only if:

1. The student has passed all completed work
2. If he/she has completed a minimum of 75% of the required coursework. A grade of an "I" will only be assigned when the conditions for completions have been discussed and agreed upon by the instructor and the student.

### **Labs/Worksheets**

There are labs and worksheets in the course packet. They will also be available on BlackBoard. They are designed to encourage preparation for the material covered in class. All the content necessary for completing the lab/worksheets can be found in the assigned textbook readings.

### **Videos: (Optional)**

Seven anatomy videos are on reserve in the LRC. These videos are to be viewed by students on their own time. It is recommended that each video be viewed during the week that its topic is covered in class. Some students will find that it is more beneficial to view the videos before lecture, while some will prefer to view them after lecture. Students are to sign the completion card at the circulation desk in LRC after each video is viewed. Videos are optional; however, extra credit will be given for completion – a maximum of five percentage points added to the student's lowest unit exam grade, prorated for the number of videos viewed.



**Skeleton:**

An articulated skeleton is available in the LRC for independent study by PTHA 1413 students. Students are advised that articulated skeletons are an expensive, limited resource, and as such, should not be damaged or misused. It is expected that all students taking advantage of this opportunity for increased access to a skeleton will respect college property and handle it with great care.

**Quizzes:**

There are scheduled weekly quizzes in this course. Specific dates can be found on the course schedule. The lowest quiz grade will be dropped and the remaining grades will be averaged for a total of 10% of the final grade. Missed quizzes cannot be made up. If one quiz is missed, it will be the grade that is dropped before averaging. If more than one quiz is missed, zeroes will be recorded and averaged in the final grade. The instructor reserves the right to give unannounced quizzes should it become necessary to provide motivation to stay current on class assignments.

**The SEI process for face-to-face and online courses is the week of November 18-22<sup>nd</sup>, 2013**

**Objectives:**

After completing this course, the student should be able to:

Given the classroom and/or laboratory sessions, textbook/s, personal notes, handouts and other material, the student should be able to:

- 1.0 Identify and analyze actions and interactions of selected muscles and joints of the human body.
- 2.0 Identify and analyze actions and interactions of muscles and joints of the human body during gait.
- 3.0 Identify and analyze actions of central and peripheral neuromuscular control mechanisms.

**Competencies:**

- 1.0 To demonstrate competency in performing selected musculoskeletal data collection techniques and understanding their relevance to the treatment plan established by the physical therapist, the student should be able to:
- 1.0 To demonstrate competency in identifying and analyzing actions and interactions of selected muscles and joints of the human body, the student should be able to:
  - 1.1 Define terms related to functional anatomy.
  - 1.2 Define the anatomical subdivisions of the body.
  - 1.3 \*Define and describe the rationale for anatomical position.
  - 1.4 Identify terms of direction and relationship of body structures.
  - 1.5 Identify the planes of the body.
  - 1.6 \*Identify and explain terms of movement related to the function of the musculoskeletal system.
  - 1.7 \*Identify lever and force systems and relate them to the function of the musculoskeletal system.
  - 1.8 \*Identify the types, configurations, and specialized characteristics of connective tissue.
  - 1.9 \*Identify the types, configurations, and specialized characteristics of muscle tissue.
  - 1.10\*Identify the types, configurations, and specialized characteristics of nervous tissue.
  - 1.11\*Identify and describe types of joints.
  - 1.12\*List and describe types of muscle contraction / muscle tension and relate them to the function of the musculoskeletal system.
  - 1.13\*Define and differentiate normal resting tone, muscle spasm, and spasticity.
  - 1.14\*Define and describe active and passive insufficiency and relate them to the function of the musculoskeletal system.
  - 1.15\*Define and explain the differing roles muscles can assume in producing movement.
  - 1.16\*Identify and describe central and peripheral neuromuscular control mechanisms and relate them to the function of the musculoskeletal system.
  - 1.17\*Identify joint structure; normal joint range of motion, selected ligament location and function; muscle origin, insertion, innervation and action; and unique characteristics of the joint complexes listed below.
    - a. Elbow and Forearm
    - b. Wrist and Hand
    - c. Shoulder

- d. Knee
- e. Pelvis and Hip
- f. Ankle and Foot
- g. Back and Neck
- h. Head
- i. Thorax

1.18\*Palpate selected bony landmarks, ligaments, and muscle bellies, origins, and insertions of the joint complexes listed in 1.17.

1.19\*Recognize results of muscle atrophy on surface anatomy.

2.0 To demonstrate competency in identifying and analyzing actions and interactions of muscles and joints of the human body during gait, the student should be able to:

- 2.1 Define terms related to gait.
- 2.2 \*Identify and describe the phases of gait.
- 2.3 \*Identify joint actions during each phase of gait.
- 2.4 \*Describe floor reaction force, gravity, and momentum and describe their relation to muscle function during gait.
- 2.5 \*Deduce the muscles that are active during each phase of gait.
- 2.6 \*Describe selected gait deviations and their possible causes.

*\* Indicates integrated, core curriculum skills (math, reading, writing, communication, technological literacy and/or critical thinking)*

## Course Outline:

- I. INTRODUCTION
  - A. Terminology
  - B. Anatomical Position
  - C. Planes of the Body
- II. LEVERS AND MUSCULAR ACTION
  - A. Components
  - B. Classes
- III. TISSUES OF THE BODY
  - A. Epithelial
  - B. Connective
    - 1. Fibrous
    - 2. Cartilage
    - 3. Bone
  - C. Muscular
    - 1. Anatomy
    - 2. Contractile Properties
  - D. Nervous Tissue
    - 1. Anatomy
    - 2. Conduction
- IV. MUSCULOSKELETAL SYSTEM
  - A. Attachments
  - B. Fiber Arrangement
  - C. Types of Contraction
  - D. Muscle Actions
- V. CENTRAL NEUROMUSCULAR CONTROL
  - A. Brain
  - B. Spinal Cord
- VI. PERIPHERAL NEUROMUSCULAR CONTROL
  - A. Nerve Supply
  - B. Muscle Spindle
  - C. Golgi Tendon Organ

## VII. THE UPPER LIMB

- A. Elbow/Forearm
  - 1. Bones
  - 2. Joints
  - 3. Muscles
  - 4. Actions
- B. Wrist/Hand
  - 1. Bones
  - 2. Joints
  - 3. Muscles
  - 4. Actions
- C. Shoulder
  - 1. Bones
  - 2. Joints
  - 3. Muscles
  - 4. Actions

## VIII. THE LOWER LIMB

- A. Knee
  - 1. Bones
  - 2. Joints
  - 3. Muscles
  - 4. Actions
- B. Hip
  - 1. Bones
  - 2. Joints
  - 3. Muscles
  - 4. Actions
- C. Ankle/Foot
  - 1. Bones
  - 2. Joints
  - 3. Muscles
  - 4. Actions

## IX. THE HEAD, NECK, & TRUNK

- A. Bones
- B. Joints
- C. Muscles
- D. Actions

## X. RESPIRATION

- A. Bones/Joints
- B. Muscles
- C. Actions

## XII. GAIT

- A. Upright Posture
- B. Phases
- C. Joint and Muscle Actions
- D.** Deviations