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**PROGRAM CONCENTRATION:** Healthcare Science  
**CAREER PATHWAY:** Therapeutic Services – Physical Medicine  
**COURSE TITLE:** Introduction to Healthcare Science

**Course Description:** This course is the recommended foundation course for the Biotechnology Research and Development Pathway. It is also the foundation course for the Therapeutic Services-Nursing Pathway that was approved by the Georgia Board of Education in September, 2006. The standards for this course can be found at:  
<http://public.doe.k12.ga.us/DMGetDocument.aspx/Introduction%20to%20Healthcare%20Science.pdf?p=6CC6799F8C1371F68154927E6D0E1B1E67C7BA28E72E888F32DAD65F0D9A0380&Type=D>

**PROGRAM CONCENTRATION:** Healthcare Science  
**CAREER PATHWAY:** Therapeutic Services – Physical Medicine  
**COURSE TITLE:** Principles of Physical Medicine

**Course Description:** Principles of Physical Medicine is a foundations course for the Therapeutic Medicine-Physical Medicine Career Pathways. It is appropriate for students wishing to pursue a career in the Sports Medicine/Rehabilitative Services Industry. The course will enable students to receive initial exposure to Therapeutic Services skills and attitudes applicable to the healthcare industry. The concepts of anatomy and physiology, assessment, and preventative care are evaluated. Fundamental healthcares skills development is initiated including medical terminology, kinesiology, and basic life support. Mastery of these standards through project based learning, technical skills practice, and leadership development activities of the career and technical student organization -Health Occupations Students of America (HOSA) will provide students with a competitive edge for either entry into the healthcare global marketplace and/or the post-secondary institution of their choice to continue their education and training. This course is considered broad-based with high impact and is a prerequisite for Concepts of Physical Medicine, Rehabilitation in Physical Medicine and Practicum courses.

## Academic Foundations

**HS –PPM-1:** Students will demonstrate knowledge and understanding of the academic subject matter required for proficiency within their area. Academic Standards are integrated throughout the standard statements within their discipline areas and documented immediately following the standard statement.

## Foundations of Structural Kinesiology

**HS-PPM-2:** Students will analyze anatomic positions, directional terms, movements, and postures as related to the appendicular skeleton.

- a. Identify the anatomy of the skeleton system.

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- b. Identify and understand the terminology used to describe body part locations, reference positions, anatomical directions, and planes of motion, with their respective axis of rotation in relation to human movement.
- c. Define and understand the various types of bones and joints in the human body, and their characteristics.
- d. Define demonstrate the joint movement of the skeletal system.

**Academic Standards:**

*SAP1: Students will analyze anatomical structures in relationship to their physiological functions.*

*a. Apply correct terminology when explaining the orientation of body parts and regions.*

*b. Investigate the interdependence of the various body systems to each other and to the body as a whole.*

## Documentation Within Physical Medicine

**HS-PPM-3. Students will utilize correct terminology, abbreviations, and symbols to appropriately communicate oral and written information within the physical medicine team.**

- a. Interpret common terminology, abbreviations, symbols, and acronyms related to physical medicine.
- b. Explain the importance of reporting and recording information within the physical medicine team.
- c. Evaluate a variety of methods for recording patient information including SOAP notes and special considerations for electronic information and records.
- d. Analyze the legal responsibilities regarding privacy for patient information (HIPAA regulations).
- e. Organize thoughts and information to develop clear and accurate reports both verbal and written.

**Academic standards:**

*ELA9RL5: The student understands and acquires new vocabulary and uses it correctly in reading and writing.*

*a. Identifies and correctly uses idioms, cognates, words with literal and figurative meanings, and patterns of word changes that indicate different meanings or functions.*

*b. Uses knowledge of Greek and Latin prefixes, suffixes, and roots to understand the meanings of new words.*

*c. Uses general dictionaries, specialized dictionaries, thesauruses, or related references as needed to increase learning.*

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*ELA10LSV1: Students will participate in student-to-teacher, student-to-student, and group verbal interactions.*

- a. Initiates new topics in addition to responding to adult-initiated topics.*
- b. Asks relevant questions.*
- c. Responds to questions with appropriate information.*
- d. Actively solicits another person's comments or opinion.*
- e. Offers own opinion forcefully without domineering.*
- f. Contributes voluntarily and responds directly when solicited by teacher or discussion leader.*
- g. Gives reasons in support of opinions expressed.*
- h. Clarifies, illustrates, or expands on a response when asked to do so; asks classmates for similar expansions.*
- i. Employs group decision-making techniques such as brainstorming or a problem-solving sequence (e.g., recognizes problem, defines problem, identifies possible solutions, selects optimal solution, implements solution, evaluates solution).*
- j. Divides labor so as to achieve the overall group goal efficiently.*

*SCSh6: Students will communicate scientific investigations and information clearly.*

- a. Write clear, coherent laboratory reports related to scientific investigations.*
- b. Write clear, coherent accounts of current scientific issues, including possible alternative interpretations of the data.*
- c. Use data as evidence to support scientific arguments and claims in written or oral presentations.*
- d. Participate in group discussions of scientific investigation and current scientific issues.*

## **Introduction to Injury Classification**

**HS-PPM-4: Students will demonstrate knowledge and understanding of injury classifications.**

- a. Differentiate between evaluate and diagnose.
- b. Differentiate between a sign and a symptom.
- c. Compare and contrast injuries based upon the onset and duration of symptoms.
- d. Classify and explain the various degrees of tissue injury both open and closed.
- e. Classify and explain the various injuries to the bone and joint articulations.
- f. Classify nerve injuries according to mechanism, severity, signs and symptoms.
- g. Identify signs and symptoms of skin infections, and other dermatological conditions, and will be able to outline the proper treatment procedures for these conditions.

## **Community First Aid**

**HS-PPM-5: Students will demonstrate the performance of first aid procedures meeting and/or exceeding all standards of the American Red Cross (ARC) and/or American Heart Association's (AHA) utilizing personal protection devices and equipment in compliance with all OSHA regulatory guidelines. Situations may be used when necessary.**

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- a. Demonstrate the assessment of a victim requiring first aid, identification of the signs and symptoms, and how to locate the victim's injuries.
- b. Demonstrate the ability to adapt resources at the scene of injury for the provision of first aid techniques as necessary.
- c. Perform basic triage techniques for emergency situations involving multiple victims.
- d. Complete the American Red Cross (ARC) and/or American Heart Association's (AHA) First Aid Training.

## **Introduction to Injury Evaluation**

**HS-PPM-6: Students will demonstrate knowledge and understanding of injury evaluation.**

- a. Demonstrate the ability to obtain and document client history, observation, palpation, and specific tests.
- b. Define and demonstrate the Subjective, Objective, Assessment and Plan (SOAP) that is standard note writing in patient documentation.
- c. Identify and demonstrate appropriate anatomical structures to palpate during an injury evaluation.
- d. Administer active and passive ROM tests using standard goniometric techniques.
- e. Demonstrate the use of proper manual muscle testing techniques.

## **Injury Assessment, Evaluation, Prevention and Treatment**

**HS-PPM-7: Students will analyze the anatomy, muscular structure, vascular structure, Range of Motion (ROM), Manual Muscle Tests (MMT) and special tests, as well as prevention and treatment, of the shoulder joint.**

- a. Identify and locate the bones associated with the shoulder joint on either a human skeleton or subject.
- b. Identify and locate the muscle origins and insertions of the shoulder joint on either a human skeleton or subject.
- c. Demonstrate muscle actions associated with the shoulder joint.
- d. Identify the primary blood vessels and nerves that innervate the shoulder joint.
- e. Administer Passive Range of Motion (PROM) and Active Range of Motion ( AROM) tests special to the shoulder joint
- f. Administer MMT specific to the shoulder joint
- g. Identify specific type of injuries that occur to the shoulder.
- h. Define the proper evaluation procedures and special tests specific to injuries associated with the shoulder.
- i. Identify and demonstrate proper preventative techniques to the shoulder joint
- j. Utilize proper treatment techniques specific to the shoulder joint.
- k. Participate in mock examinations and practical simulations.

### **Academic Standards:**

*SAP1: Students will analyze anatomical structures in relationship to their physiological functions.*

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- a. Apply correct terminology when explaining the orientation of body parts and regions.
- b. Investigate the interdependence of the various body systems to each other and to the body as a whole.

*SAP2: Students will analyze the interdependence of the integumentary, skeletal, and muscular systems as these relate to the protection, support and movement of the human body.*

- a. Relate the structure of the integumentary system to its functional role in protecting the body and maintaining homeostasis.
- b. Explain how the skeletal structures provide support and protection for tissues, and function together with the muscular system to make movements possible.

**HS-PPM-8: Students will analyze the anatomy, muscular structure, vascular structure, ROM, MMT and special tests, as well as prevention and treatment of the elbow joint.**

- a. Identify and locate the bones associated with the elbow joint on either a human skeleton or subject.
- b. Identify and locate the muscle origins and insertions of the elbow joint on either a human skeleton or subject.
- c. Demonstrate muscle actions associated with the elbow joint.
- d. Identify the primary blood vessels and nerves that innervate the elbow joint.
- e. Administer PROM and AROM tests specific to the elbow joint
- f. Administer MMT specific to the elbow joint
- g. Identify specific type of injuries that occur to the elbow.
- h. Define the proper evaluation procedures and special tests specific to injuries associated with the elbow.
- i. Identify and demonstrate proper preventative techniques to the elbow joint.
- j. Utilize proper treatment techniques specific to the elbow joint.
- k. Participate in mock examinations and practical simulations.

**Academic Standards:**

*SAP1: Students will analyze anatomical structures in relationship to their physiological functions.*

- a. Apply correct terminology when explaining the orientation of body parts and regions.
- b. Investigate the interdependence of the various body systems to each other and to the body as a whole.

*SAP2: Students will analyze the interdependence of the integumentary, skeletal, and muscular systems as these relate to the protection, support and movement of the human body.*

- a. Relate the structure of the integumentary system to its functional role in protecting the body and maintaining homeostasis.
- b. Explain how the skeletal structures provide support and protection for tissues, and function together with the muscular system to make movements possible.

**HS-PPM-9: Students will analyze the anatomy, muscular structure, vascular structure, ROM, MMT and special tests, as well as prevention and treatment of the wrist/hand.**

- a. Identify and locate the bones associated with the wrist and hand on either a human skeleton or subject.

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- b. Identify and locate the muscle origins and insertions of the wrist and hand on either a human skeleton or subject.
- c. Demonstrate muscle actions associated with the wrist and hand.
- d. Identify the primary blood vessels and nerves that innervate the wrist and hand joint.
- e. Administer PROM and AROM tests special to the wrist and hand
- f. Administer MMT specific to the wrist and hand.
- g. Identify specific type of injuries that occur to the wrist and hand.
- h. Define the proper evaluation procedures and special tests specific to injuries associated with the wrist and hand.
- i. Identify and demonstrate proper preventative techniques to the wrist and hand j.
- j. Utilize proper treatment techniques specific to the wrist and hand.
- k. Participate in mock examinations and practical simulations.

**Academic Standards:**

*SAP1: Students will analyze anatomical structures in relationship to their physiological functions.*

- a. Apply correct terminology when explaining the orientation of body parts and regions.*
- b. Investigate the interdependence of the various body systems to each other and to the body as a whole.*

*SAP2: Students will analyze the interdependence of the integumentary, skeletal, and muscular systems as these relate to the protection, support and movement of the human body.*

- a. Relate the structure of the integumentary system to its functional role in protecting the body and maintaining homeostasis.*
- b. Explain how the skeletal structures provide support and protection for tissues, and function together with the muscular system to make movements possible.*

**HS-PPM-10: Students will analyze the anatomy, muscular structure, vascular structure, ROM, MMT and special tests, as well as prevention and treatment of the hip joint.**

- a. Identify and locate the bones associated with the hip joint on either a human skeleton or subject.
- b. Identify and locate the muscle origins and insertions of the hip joint on either a human skeleton or subject.
- c. Demonstrate muscle actions associated with the hip joint.
- d. Identify the primary blood vessels and nerves that innervate the hip joint.
- e. Administer PROM and AROM tests special to the hip joint.
- f. Administer MMT specific to the hip joint.
- g. Identify specific type of injuries that occur to the hip.
- h. Define the proper evaluation procedures and special tests specific to injuries associated with the hip.
- i. Identify and demonstrate proper preventative techniques to the hip joint.
- j. Utilize proper treatment techniques specific to the hip joint.
- k. Participate in mock examinations and practical simulations.

**Academic Standards:**

*SAP1: Students will analyze anatomical structures in relationship to their physiological functions.*

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- a. Apply correct terminology when explaining the orientation of body parts and regions.
- b. Investigate the interdependence of the various body systems to each other and to the body as a whole.

*SAP2: Students will analyze the interdependence of the integumentary, skeletal, and muscular systems as these relate to the protection, support and movement of the human body.*

- a. Relate the structure of the integumentary system to its functional role in protecting the body and maintaining homeostasis.
- b. Explain how the skeletal structures provide support and protection for tissues, and function together with the muscular system to make movements possible.

**HS-PPM-11: Students will analyze the anatomy, muscular structure, vascular structure, ROM, MMT and special tests, as well as prevention and treatment of the knee joint.**

- a. Identify and locate the bones associated with the knee joint on either a human skeleton or subject.
- b. Identify and locate the muscle origins and insertions of the knee joint on either a human skeleton or subject.
- c. Demonstrate muscle actions associated with the knee joint.
- d. The student will identify the primary blood vessels and nerves that innervate the knee joint.
- e. Administer PROM and AROM tests special to the knee joint.
- f. Administer MMT specific to the knee joint.
- g. Identify specific type of injuries that occur to the knee.
- h. Define the proper evaluation procedures and special tests specific to injuries associated with the knee.
- i. Identify and demonstrate proper preventative techniques to the knee joint.
- j. Utilize proper treatment techniques specific to the knee joint.
- k. Participate in mock examinations and practical simulations.

**Academic Standards:**

*SAP1: Students will analyze anatomical structures in relationship to their physiological functions.*

- a. Apply correct terminology when explaining the orientation of body parts and regions.
- b. Investigate the interdependence of the various body systems to each other and to the body as a whole.

*SAP2: Students will analyze the interdependence of the integumentary, skeletal, and muscular systems as these relate to the protection, support and movement of the human body.*

- a. Relate the structure of the integumentary system to its functional role in protecting the body and maintaining homeostasis.
- b. Explain how the skeletal structures provide support and protection for tissues, and function together with the muscular system to make movements possible.

**HS-PPM-12: Students will analyze the anatomy, muscular structure, vascular structure, ROM, MMT and special tests, as well as prevention and treatment of the ankle joint.**

- a. Identify and locate the bones associated with the ankle joint on either a human skeleton or subject.

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- b. Identify and locate the muscle origins and insertions of the foot and ankle joint on either a human skeleton or subject.
- c. Demonstrate muscle actions associated with the foot and ankle joint.
- d. Identify the primary blood vessels and nerves that innervate the foot and ankle joint.
- e. Administer PROM and AROM tests special to the foot and ankle joint.
- f. Administer MMT specific to the foot and ankle joint.
- g. Identify specific type of injuries that occur to the foot and ankle.
- h. Define the proper evaluation procedures and special tests specific to injuries associated with the foot and ankle.
- i. Identify and demonstrate proper preventative techniques to the foot and ankle joint.
- j. Utilize proper treatment techniques specific to the foot and ankle joint.
- k. Participate in mock examinations and practical simulations.

**Academic Standards:**

*SAP1: Students will analyze anatomical structures in relationship to their physiological functions.*

- a. Apply correct terminology when explaining the orientation of body parts and regions.
- b. Investigate the interdependence of the various body systems to each other and to the body as a whole.

*SAP2: Students will analyze the interdependence of the integumentary, skeletal, and muscular systems as these relate to the protection, support and movement of the human body.*

- a. Relate the structure of the integumentary system to its functional role in protecting the body and maintaining homeostasis.
- b. Explain how the skeletal structures provide support and protection for tissues, and function together with the muscular system to make movements possible.

## Reading Across the Curriculum

### Reading Standard Comment

After the elementary years, students engage in reading for learning. This process sweeps across all disciplinary domains, extending even to the area of personal they experience text in all genres and modes of discourse. In the study of various disciplines of learning (language arts, mathematics, science, social studies), students must learn through reading the communities of discourse of each of those disciplines. Each subject has its own specific vocabulary, and for students to excel in all subjects, they must learn the specific vocabulary of those subject areas in context.

Beginning with the middle grades years, students begin to self-select reading materials based on personal interests established through classroom learning. Students become curious about science, mathematics, history, and literature as they form contexts for those subjects related to their personal and classroom experiences. As students explore academic areas through reading, they develop favorite subjects and become confident in their verbal discourse about those subjects.

Reading across curriculum content develops both academic and personal interests in students. As students read, they develop both content and contextual vocabulary. They also build good habits for reading, researching, and learning. The Reading Across the Curriculum standard

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focuses on the academic and personal skills students acquire as they read in all areas of learning.

Students will enhance reading in all curriculum areas by:

- a. Reading in all curriculum areas
  - Read a minimum of 25 grade-level appropriate books per year from a variety of subject disciplines and participate in discussions related to curricular learning in all areas.
  - Read both informational and fictional texts in a variety of genres and modes of discourse.
  - Read technical texts related to various subject areas.
- b. Discussing books
  - Discuss messages and themes from books in all subject areas.
  - Respond to a variety of texts in multiple modes of discourse.
  - Relate messages and themes from one subject area to messages and themes in another area.
  - Evaluate the merit of texts in every subject discipline.
  - Examine author's purpose in writing.
  - Recognize the features of disciplinary texts.
- c. Building vocabulary knowledge
  - Demonstrate an understanding of contextual vocabulary in various subjects.
  - Use content vocabulary in writing and speaking.
  - Explore understanding of new words found in subject area texts.
- d. Establishing context
  - Explore life experiences related to subject area content.
  - Discuss in both writing and speaking how certain words are subject area related.
  - Determine strategies for finding content and contextual meaning for unknown words.

### **CTAE Foundation Skills**

The Foundation Skills for Career, Technical and Agricultural Education (CTAE) are critical competencies that students pursuing any career pathway should exhibit to be successful. As core standards for all career pathways in all program concentrations, these skills link career, technical and agricultural education to the state's academic performance standards.

The CTAE Foundation Skills are aligned to the foundation of the U. S. Department of Education's 16 Career Clusters. Endorsed by the National Career Technical Education Foundation (NCTEF) and the National Association of State Directors of Career Technical Education Consortium (NASDCTEC), the foundation skills were developed from an analysis of all pathways in the sixteen occupational areas. These standards were identified and validated by a national advisory group of employers, secondary and postsecondary educators, labor associations, and other stakeholders. The Knowledge and Skills provide learners a broad foundation for managing lifelong learning and career transitions in a rapidly changing economy.

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**CTAE-FS-1 Technical Skills:** Learners achieve technical content skills necessary to pursue the full range of careers for all pathways in the program concentration.

**CTAE-FS-2 Academic Foundations:** Learners achieve state academic standards at or above grade level.

**CTAE-FS-3 Communications:** Learners use various communication skills in expressing and interpreting information.

**CTAE-FS-4 Problem Solving and Critical Thinking:** Learners define and solve problems, and use problem-solving and improvement methods and tools.

**CTAE-FS-5 Information Technology Applications:** Learners use multiple information technology devices to access, organize, process, transmit, and communicate information.

**CTAE-FS-6 Systems:** Learners understand a variety of organizational structures and functions.

**CTAE-FS-7 Safety, Health and Environment:** Learners employ safety, health and environmental management systems in corporations and comprehend their importance to organizational performance and regulatory compliance.

**CTAE-FS-8 Leadership and Teamwork:** Learners apply leadership and teamwork skills in collaborating with others to accomplish organizational goals and objectives.

**CTAE-FS-9 Ethics and Legal Responsibilities:** Learners commit to work ethics, behavior, and legal responsibilities in the workplace.

**CTAE-FS-10 Career Development:** Learners plan and manage academic-career plans and employment relations.

**CTAE-FS-11 Entrepreneurship:** Learners demonstrate understanding of concepts, processes, and behaviors associated with successful entrepreneurial performance.