

MT-1242: SOMATIC STUDIES I

Cuyahoga Community College

Viewing: MT-1242 : Somatic Studies I

Board of Trustees:

May 2024

Academic Term:

Fall 2024

Subject Code

MT - Massage Therapy

Course Number:

1242

Title:

Somatic Studies I

Catalog Description:

Study of human anatomy and physiology for students of massage therapy. Specific emphasis on fundamental concepts of human body; chemical level, cellular level, tissue, integumentary system, skeletal system and articulations.

Credit Hour(s):

3

Lecture Hour(s):

2

Lab Hour(s):

2

Requisites

Prerequisite and Corequisite

MATH-0915 Basic Arithmetic and Pre-Algebra, or qualified Math placement; and ENG-0985 Introduction to College Literacies, or appropriate English placement score; or departmental approval.

Note: ENG-0980 Language Fundamentals I taken prior to Fall 2021 will also meet prerequisite requirements.

Outcomes

Course Outcome(s):

Apply knowledge of anatomy and physiology as it relates to cells, tissues, and integumentary systems of the body.

Objective(s):

1. Utilize appropriate applied medical and anatomical terminology.
2. Define and list the introductory concepts of human structure and function.
3. Examine the chemical level of organization and understand the chemical basis of reaction as related to physiology.
4. Describe the structure and function of the cell and its organelles.
5. Differentiate the different types of tissues and their function.
6. Describe the structure, types, function, and wound healing of integumentary system.

Course Outcome(s):

Apply knowledge of anatomy and physiology as it relates to the skeletal system and articulations.

Objective(s):

1. Define the classification and function of all the different articulations in the human body, including the range of motion.
2. Describe the physiology and anatomical characteristics of the skeletal system.
3. Cite and label the axial skeletal system.

4. Cite and label the appendicular skeletal system.

Methods of Evaluation:

1. Lecture examinations
2. Laboratory examinations
3. Quizzes
4. Participation
5. Case studies
6. Homework

Course Content Outline:

1. Anatomical and medical terminology
 - a. Sources
 - i. Greek
 - ii. Latin
 - b. Prefixes
 - c. Suffixes
2. Introduction to the human body
 - a. Definition and interrelationship
 - i. anatomy
 - ii. physiology
 - b. Subdivisions of anatomy
 - i. surface
 - ii. gross
 - iii. systemic
 - iv. regional
 - v. radiographic
 - vi. developmental
 - vii. histology
 - viii. cytology
 - ix. pathological
 - c. Subdivisions of physiology
 - i. cellular
 - ii. systemic
 - iii. pathophysiology
 - iv. neurophysiology
 - v. endocrinology
 - vi. cardiovascular
 - vii. immunology
 - viii. respiratory
 - ix. digestive
 - x. renal
 - xi. reproductive
 - d. Levels of organization
 - i. chemical
 - ii. cellular
 - iii. histological
 - iv. organ
 - v. systemic
 - vi. organismic
 - e. Basic life processes
 - i. metabolism
 1. anabolism
 2. catabolism
 - ii. responsiveness
 - iii. movement

- iv. growth
 - v. differentiation
 - vi. reproduction
 - f. Homeostasis
 - i. definition
 - 1. optimum environment
 - 2. internal environment
 - ii. stress
 - 1. source
 - 2. response
 - iii. deviations
 - 1. moderate
 - 2. severe
 - iv. control
 - 1. positive
 - 2. negative
 - g. Principal body systems
 - i. integumentary
 - ii. skeletal
 - iii. muscular
 - iv. nervous
 - v. digestive
 - vi. urinary
 - vii. reproductive
 - viii. endocrine
 - ix. cardiovascular
 - x. lymphatic and immune
 - xi. respiratory
 - h. Common anatomical terms
 - i. cephalic region
 - ii. cervical region
 - iii. trunk region
 - iv. upper extremity region
 - v. lower extremity region
 - i. Anatomical position
 - j. Body planes
 - i. longitudinal
 - 1. sagittal
 - 2. coronal
 - ii. transverse
 - iii. oblique
 - k. Body cavities
 - i. dorsal
 - ii. ventral
 - l. Abdominopelvic regions
 - m. Abdominopelvic quadrants
 - n. Directional terms
 - o. Medical imaging techniques
3. Chemical level of organization
- a. Organization of matter
 - i. elements
 - ii. structure of an atom
 - iii. atomic number and mass
 - iv. ions, molecules, free radicals, and compounds
 - b. Chemical bonds
 - i. ionic
 - ii. covalent
 - iii. hydrogen
 - c. Chemical reactions

- i. reactants
- ii. products
- iii. law of conservation of mass
- iv. forms of energy
 - 1. potential
 - 2. kinetic
- v. law of conservation
- vi. energy transfer
 - 1. exergonic
 - 2. endergonic
- vii. activation energy
- viii. catalyst
- d. Types of chemical reactions
 - i. synthesis
 - ii. decomposition
 - iii. exchange
 - iv. reversible
 - v. oxidation
 - vi. reduction
- e. Inorganic compounds
- f. Organic compounds
 - i. carbohydrates
 - ii. lipids
 - iii. proteins
 - iv. DNA
 - v. RNA
 - vi. ATP
- g. Universal solvent (water)
- 4. Cellular level of organization
 - a. Principal parts
 - i. plasma membrane
 - ii. cytoplasm
 - iii. nucleus
 - b. Plasma membrane
 - i. lipid bilayer
 - ii. arrangement of proteins
 - iii. function of proteins
 - iv. membrane fluidity
 - v. membrane permeability
 - vi. electrochemical gradient
 - c. Transport across plasma membrane
 - i. passive
 - 1. diffusion
 - 2. osmosis
 - 3. facilitated diffusion
 - ii. active
 - 1. primary
 - 2. secondary
 - iii. vesicular transport
 - 1. endocytosis
 - 2. exocytosis
 - d. Cytoplasm
 - i. cytosol
 - ii. organelles
 - 1. cytoskeleton
 - 2. centrosome
 - 3. cilia and flagella
 - 4. ribosome
 - 5. endoplasmic reticulum

- 6. golgi complex
- 7. lysosome
- 8. peroxisome
- 9. mitochondria
- e. Nucleus
 - i. nuclear membrane
 - ii. chromatin
 - iii. nucleolus
- f. Protein synthesis
 - i. transcription
 - ii. translation
- g. Normal cell division
 - i. mitosis
 - ii. meiosis
- 5. Tissue level
 - a. Types
 - i. epithelial
 - 1. general features
 - 2. types
 - ii. connective tissue
 - 1. general features
 - 2. components
 - 3. classification of adult connective tissue
 - 4. types of mature connective tissue
 - iii. membranes
 - 1. epithelial membranes
 - 2. synovial membranes
 - iv. muscle tissues
 - 1. general features
 - 2. types of muscle tissue
 - v. nervous tissue
 - 1. general features
 - 2. cell types
 - vi. tissue repair
 - 1. process of repair
 - 2. conditions affecting repair
- 6. Integumentary system
 - a. Structure of skin
 - i. epidermis
 - ii. dermis
 - b. Accessory structures
 - i. hair
 - ii. skin glands
 - iii. nails
 - c. Types of skin
 - i. thick skin
 - ii. thin skin
 - d. Functions
 - i. thermoregulation
 - ii. protection
 - iii. cutaneous sensations
 - iv. excretion
 - v. absorption
 - vi. synthesis of vitamin D
 - e. Skin wound healing
 - i. epidermal wound healing
 - ii. deep wound healing
- 7. Skeletal system
 - a. Functions
 - b. Structure

- c. Histology
- d. Blood and nerve supply
- e. Bone formation
 - i. intramembranous
 - ii. endochondral
- f. Bone growth
- g. Remodeling
- 8. Axial skeleton
 - a. Divisions
 - b. Bone surface markings
 - c. Skull
 - i. general features
 - ii. cranial bones
 - iii. facial bones
 - iv. special features
 - 1. sutures
 - 2. sinuses
 - 3. fontanelles
 - 4. nasal septum
 - d. Hyoid bone
 - e. Vertebral column
 - i. intervertebral disc
 - ii. normal curves
 - iii. typical vertebra
 - iv. regions
 - 1. cervical
 - 2. lumbar
 - 3. thoracic
 - 4. sacrum
 - 5. coccyx
 - f. Thorax
 - i. sternum
 - ii. ribs
- 9. Appendicular skeleton
 - a. Pectoral (shoulder) girdle
 - i. clavicle
 - ii. scapula
 - b. Upper limb (extremity)
 - i. humerus
 - ii. radius and ulna
 - iii. carpals, metacarpals, and phalanges
 - c. Pelvic (hip) girdle
 - i. ilium
 - ii. ischium
 - iii. pubis
 - iv. true and false pelvis
 - d. Comparison of male and female pelvis
 - e. Comparison of pectoral and pelvic girdles
 - f. Lower limb (extremity)
 - i. femur
 - ii. patella
 - iii. tibia and fibula
 - iv. tarsals, metatarsals, and phalanges
 - v. arches of foot
- 10. Joints
 - a. Structural classification
 - i. fibrous
 - ii. cartilaginous
 - iii. synovial

- b. Functional classification
 - i. synarthrosis
 - ii. amphiarthrosis
 - iii. diarthrosis
- c. Types of movement at synovial joint
 - i. gliding
 - ii. angular
 - iii. rotation
 - iv. special movements
- d. Selected joints of the body (with special emphasis on ligaments)
 - i. sternoclavicular
 - ii. acromioclavicular
 - iii. radioulnar
 - iv. wrist (radiocarpal)
 - v. intercarpal
 - vi. carpometacarpal
 - vii. metacarpophalangeal
 - viii. metatarsophalangeal
 - ix. interphalangeal
 - x. sacroiliac
 - xi. pubic symphysis
 - xii. tibiofibular
 - xiii. talocrural (ankle)
 - xiv. intertarsal
 - xv. tarsometatarsal
- e. Factors affecting range of motion

Resources

Allen, Colleen & Harper, Valerie. *A Laboratory Manual for Anatomy & Physiology*. 7th ed. Wiley & Sons, 2021.

Tortora, Gerald J. and Derrickson, Bryan H. *Principles of Anatomy and Physiology*. 16th ed. Wiley Publishers, 2020.

Goldberg, Stephen. *Clinical Physiology Made Ridiculously Simple*. 2nd ed. MedMaster Inc., 2019.

Goldberg, Stephen & Ouellette, Hugue. *Clinical Anatomy Made Ridiculously Simple*. 4th ed. MedMaster Inc., 2016.

Resources Other

1. Wiley Plus Website

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