UHSE
Health Science Essentials

Program Content

Course 1: Applied Anatomy and Physiology
Course 2: Pathology

Created by London College of Osteopathy and Health Sciences
www.lcocanada.com
Part 1

Applied Anatomy and Physiology
Course Syllabus

- Learning materials include: recorded lectures, downloadable presentations, video tutorials, communication with course instructor, online textbook and anatomy atlas
- Evaluation: online quizzes, final exam
- Passing grade: 75%
- Lifetime access to course updates
Lesson 1: Introduction to Anatomy and Physiology

- Anatomy & Physiology defined
- Scales of Anatomy
- Anatomical Terminology
- Anatomical Positions
- Directional References
- Anatomical Planes
- Sectional Anatomy
- Review: video tutorial
Lesson 2. Integumentary system
Tissues and Skin

- Organization of the body
- Primary tissue types classification
- Epithelium
- Connective Tissue
- Integumentary System (IS) overview
- IS functions
- IS structures
- Local control of the Integumentary system
- Review: video tutorial
Lesson 3. Connective tissue
Cartilage - Ligaments - Tendons

- Cartilage: structure and cellular organization
- Types of Cartilage
  - Hyaline
  - Fibro
  - Elastic
- Joints: classification
- Types of synovial joints
- Ligaments
- Articulation: form and function
- Diseases of articulation and aging
- Review: video tutorial
Lesson 4: Bone Tissue

- Functions of the Skeleton
- Bone as specialized connective tissue
- Composition
- Structure
- Anatomy
- Bones classification
- Growth and development
- Bone maintenance, remodelling and repair
- Review: video tutorial
Lesson 5. Muscle Tissue

- Terminology
- Types of muscle tissue:
  1. Skeletal
  2. Cardiac
  3. Smooth
- Skeletal muscle functions and structure
- Skeletal muscle levels of organization
- Skeletal muscle contraction
- Muscular hypertrophy/atrophy
- Muscle naming
- Muscle origin and insertion
- Review: video tutorial
Lesson 6: The Nervous System

Part I: Central Nervous System (CNS)
- Anatomy
- Spinal Cord
- Spinal Nerves
- Sensory Dermatomes
- Brain and cranial Nerves
- Blood flow
- Cerebrospinal Fluid (CSF)
- Brainstem organization and function

Part II: Peripheral Nervous System (PNF)
- Neural Pathways
- Neurons

Part III: Autonomic Nervous System Divisions
- Sympathetic NS
- Parasympathetic NS
- Adrenal Glands
- Visceral Sensory System
- Referred pain

Part IV: Organization of the Brain
- Limbic System
- Cranial Nerves - anatomy and functions
Lesson 7. The Cardiovascular System (CVS)

- CVS Overview
- Pathways of blood circulation
- Circuits
- Blood Vessels
- Blood Composition
- Plasma
- The Heart
  - Function
  - Anatomy
  - Blood flow
  - Regulation
  - Heart homeostasis
  - Baroreceptors
  - Chemoreceptors
  - Reflexes
- Disorders of the CVS
- CVS and the aging heart
Lesson 8. The Lymphatic System

- Lymphatic System overview
- Anatomy
- Functions
- Organization
- Lymphatic capillaries and vessels
- Lymph nodes
- Lymphatic ducts
- Lymphatic Immune System
- Lymphatics of the face
- Review: tutorial video
Lesson 9. The Respiratory System

- Respiration process overview
- Conducting zone
  - The nose
  - Nasal cavity, paranasal sinuses
  - Pharynx
  - Larynx
  - Trachea
- Respiratory zone
  - Gas exchange
- The Lungs
- The Diaphragm
- Muscles of inhalation and expiration
- Neural control of respiration
  - Peripheral chemoreceptors
- Pneumothorax
- Review video tutorial
Lesson 10. The Digestive System - Urinary System

- DS Overview
- Digestion process
- Chemical Digestion
- Organs of Digestions
  - Mouth
  - Salivary Glands
  - Esophagus
  - Small Intestine
  - Large Intestine
- Accessory Organs
  - Liver
  - Gallbladder
- The Excretory System overview
- Organs of excretion
  - Lungs
  - Kidneys
  - Liver
- Urinary System
- Review: video tutorial
Lesson 11. Human Skeleton

- Human skeleton: functions
- Bones classification
- **Axial skeleton**
  - Skull
  - Cervical vertebrae
  - Thoracic vertebrae - ribs
  - Lumbar vertebrae
  - Sacrum
- **Appendicular skeleton**
  - Pectoral girdle
  - Humerus
  - Ulna & Radius
  - Hand bones
  - Pelvis
Lesson 12. Anatomy of the Head and Neck

- Overview: skull anatomy
- Cranial bones (8)
- Sutures of the skull
- Facial skeleton
- Facial bones (14)
- Blood supply of the head & neck:
  - Arteries
  - Veins
- Muscles of the Head and Neck
- TMJ: mastication
- Muscles of facial expression
- Review: video tutorial
Lesson 13. Upper Limb Anatomy

This lecture provides a detailed overview of the movements in the structures of the upper limb and the muscles involved.

- Pectoral Girdle
  - Movements
  - Musculature
- Muscles acting on the Scapula
- Muscles acting on the Shoulder
- Rotator Cuff muscles
- Muscles of the Arm
- Muscles of the Forearm
- Muscles of the Wrist
- Fingers
Lesson 14. Spine and Trunk Anatomy

- Abdominal wall muscles
- Anterior trunk muscles
- Muscles of the vertebral column
- Muscles of respiration
- The Spine - functions
  - Motion segment
- Sagittal plane curvatures
- Regions of the Spine
- Basic vertebral structure
- Typical spinal vertebrae
  - Cervical
  - Thoracic
  - Lumbar
  - Sacrum
Lesson 14. (continued)

- Intervertebral joint
- Intervertebral disc
- Occipital joint
- Atlantoaxial joint
- Sacroiliac joint
- Ligaments
- Posterior spinal muscle groups
- Spinal nerve structure
- Meninges
- Spinal nerve topography
- Review: video tutorial
- Self-quizz
Lesson 15: Lower Limb Anatomy

This lecture provides a detailed overview of the movements in the structures of the lower limb and the muscles involved.

- Anatomy of the Lower Limb
- Muscle Groups
- The Hip
- The Thigh
- The Knee
- The Ankle
- The Digits
Part 2

UHSE Pathology

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Lesson 1. Inflammation, injury and repair - Infectious diseases

1. Terminology
2. Lesion
3. Inflammatory response
4. Acute inflammation stages
5. Chronic inflammation
6. Clinical applications
7. Tissue Repair
8. Wound Healing
9. Soft tissue repair (phases)
10. Bone repair
11. Scar formation
12. Infection
13. Types of infectious diseases
14. Aging tissues
15. Stages in skin aging
Lesson 2. Osteoarthritis (OA) and Rheumatoid Arthritis (RA)

- Causes
- Classification
- Signs and symptoms
- Degeneration process overview
- Clinical features, examination and assessment
- Heberden’s or. Bouchard’s nodes
- Treatment OA
- Medications
- Prognosis
Lesson 3. Cervical Disorders - Neck pain - Headaches - Migraine headaches

- **Cervical Spine Anatomy review**
  - Types of Cervical vertebrae
  - Joints of the neck:
    - Atlantoaxial joint
    - Atlanto Occipital joint
  - Cervical ROM
  - Muscles of the Cervical Triangle
  - Ligaments
  - Blood Vessels
- **Neck Pain**
  - Cervical strain
  - Whiplash
  - Cervical Spondylosis
  - Cervical disk herniation
  - Cervical Stenosis
  - Torticollis (Wry neck)
Lesson 3 (continued)

- **Headache**
  - Classification
  - Causes
  - Trigeminal Nerve
- **Migraine headache**
  - Causes: Classical migraine
  - Clinical features
  - Scintillating scotoma
- **Cluster headache**
- **Tension headache**
- **Giant cell arteritis**
- **PTHA**
- **Hypertension headache**
- **Medication induced headache**
- **High altitude headache**
Thank you!

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