



A POLYTECHNIC INSTITUTION

School of Health Sciences

Program: Medical Radiography

Option:

BHSC 1113
Anatomy & Physiology 1**Start Date:** January, 2003**End Date:** April, 2003**Total Hours:** 32 **Total Weeks:** 16**Term/Level:** 1 **Course Credits:** 2.5**Hours/Week:** 2 **Lecture:** 2 **Lab:****Shop:** **Seminar:** **Other:****Prerequisites****BHSC 1113 is a Prerequisite for:****Course No. Course Name****Course No. Course Name**

None

BHSC 2213 Anatomy & Physiology 2

■ Course Description

An introduction to human anatomy and physiology using a systems approach. Emphasis is placed on those systems most commonly examined by the radiographic technologist. After a core of fundamentals are considered, the systems studied in this course are: skeletal, muscular, nervous and cardiovascular.

The remaining systems are covered in the second term anatomy and physiology course, BHSC 2213.

■ Detailed Course Description

The goals of this course are:

- to attain a basic understanding of human anatomy and physiology that can be applied to other courses in the Radiography program.
- to become familiar with basic sectional anatomy.

■ Evaluation

Quizzes

Midterm 1 28%

Midterm 2 28%

Final Exam 44%

TOTAL 100%

Comments:

- The pass mark for this course is 60%.

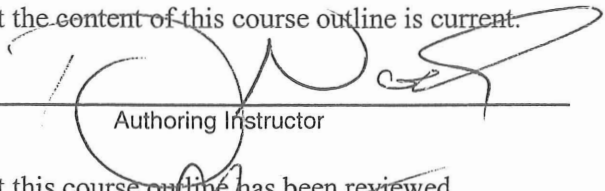
■ Course Learning Outcomes/Competencies

Upon successful completion of this course, the student will be able to:

1. use correct terminology to describe the location and relationships of structure in the normal body.
2. identify the components of the integument and their functions.
3. describe the skeletal system in terms of:
 - a. functions
 - b. types of bones
 - c. the structure of a long bone
 - d. location of red and yellow marrow in the child and the adult
 - e. intramembranous and endochondral ossification of a long bone and the hormonal factors affecting growth
 - f. the structure of a synovial joint.
4. relate a muscles structures and its attachments to bone to movement at joints.
5. describe the major movements produced by the action of contracting muscles.
6. describe the major structures of the nervous system (brain, spinal cord and spinal and cranial nerves); describe and explain the various types of protection afforded the CNS.
7. relate the parts of the CNS to the enclosing bones of the skull and the spinal column.
8. where appropriate, relate selected CNS structures to generalized functions.
9. describe the composition of blood, the function of the formed elements, erythropoiesis and red blood cell destruction.
10. compare the structure of arteries, veins and capillaries.
11. describe the location, structure and function of the heart, the myocardial sac; describe basic myocardial physiology and myocardial blood supply and drainage.
12. relate systolic and diastolic arterial blood pressure and blood pumping to the electrical, mechanical and audible events of the cardiac cycle.
13. describe the circulatory and exchange vessels and their functions, and explain the physiology of blood flow.
14. describe the arterial supply and venous drainage of the brain.
15. describe and differentiate between features of fetal circulation and that of the neonate.

■ Verification

I verify that the content of this course outline is current.

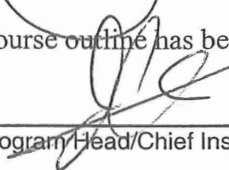


Authoring Instructor

4 Dec '02

Date

I verify that this course outline has been reviewed.

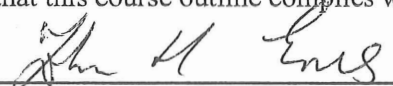


Program Head/Chief Instructor

Dec 4, 2002

Date

I verify that this course outline complies with BCIT policy.



Dean/Associate Dean

Dec 4 2002

Date

Note: Should changes be required to the content of this course outline, students will be given reasonable notice.

■ Instructor(s)

Tom Nowak

Office Location: SW3-3083

Office Phone: 604-451-6919

Office Hrs.: TBA

E-mail Address: tnowak@bcit.ca

■ Learning Resources

Required:

Tortora & Grabowski, (2000). *Introduction to the Human Body*, (5th Ed.). 2001, Wiley.

Medical dictionary, as required by program.

Reference:

The BCIT library has good holdings which may be useful to you in your studies.

General Anatomy and Physiology Books: These are located in call number group of QP 34, e.g., Textbook of Medical Physiology, Guyton, QP34.5 G9.

■ Information for Students

Attendance at lectures will be monitored as per the BCIT Attendance Policy; see current BCIT Calendar. Also, note the provisions of the policy regarding 'unexcused absence' under Student Responsibility.

■ Assignment Details

There are no formal assignments for which you will receive a grade. However, from time to time you will be assigned readings which will be examined on the mid-terms or final exam.

Schedule

No. of Hours	Description
2	Functional Body Organization - organization in terms of cells, tissues, organs and systems. - body cavities, gross contents, quadrants and regions of abdominopelvic cavity. - examples of sectional relationships of cavity contents (more details are given during discussion of the body systems). - review of Cytology and Histology.
1	Integument <i>Epidermis</i> — germinal layer, melanocytes, keratinisation. <i>Dermis</i> — blood vessels, sense receptors, sweat and sebaceous glands, hair roots. <i>Skin functions</i> — protection, body temperature control.
6	Skeletal System <i>Functions</i> — support, protection, calcium storage, movement. — long, short, flat, irregular, sesamoid, wormian. <i>Types of bones</i> — epiphysis, diaphysis, metaphysis, articular cartilage, cancellous and compact bone, periosteum, endosteum, marrow cavity, lamellae, Haversian and Volkmann's canals, canaliculi, Sharpey's fibers, nutrient foramina. <i>Description of a long bone</i> <i>Bone marrow</i> — location of red and yellow marrow in non-adults and adults. <i>Development & growth of bone</i> — intramembranous ossification, endochondral ossification of a long bone – primary and secondary ossification centres, epiphyseal plate. <i>Joints</i> — brief description of synarthroses, amphiarthroses, diarthroses, structure of a generalized synovial joint — joint cavity, synovial, membrane and fluid, bursae, ligaments, menisci, joint capsule. <i>Movements</i> — adduction, abduction, flexion, extension, supination, pronation, rotation, circumduction, inversion, eversion, protraction, retraction, dorsi-flexion, hyperextension.
2	Muscular Systems - muscle tissue subtypes - essentials of muscle structure - principles of muscle function

No. of Hours	Description
12	Nervous System <i>Nervous Tissue</i> — neuroglia, neurons — action potential and synaptic transmission
	Basic Structures <i>Brain</i> — cerebrum, brain stem, cerebellum
	Cerebrum <i>Gross Superficial Anatomy</i> — hemispheres, lobes, landmarks, cortical localization of function <i>Cerebral Vasculature</i> — major arteries, veins and venous sinuses <i>Gross Anatomy in Section</i> — corpus callosum, thalamus, basal ganglia, hypothalamus including association with pituitary stalk and pituitary gland, ventricles, septum, functions associated with each of foregoing
	Brain Stem — midbrain (cerebral peduncles, cerebral aqueduct, substantia nigra) — pons (fourth ventricle) — medulla
	Spinal Cord <i>Gross Anatomy</i> — grey matter, white matter, central canal, dorsal root ganglion — dorsal columns, anterior median fissure — cervical and lumbar enlargements, filum terminale, cauda equina <i>Cord Tracts</i> — extent of cord vs dural membranes, lumbar cistern — principal motor and sensory tracts <i>Reflexes</i> — reflex mechanics
	Meningeal Protection <i>Roles of CSF</i> <i>Meningeal Membranes</i> — dura, venous sinuses, arachnoid and subarachnoid space, CSF cisterns, pia <i>CSF Production and Circulation</i> — choroid plexus, ependyma, ventricles, medial and lateral foraminae, arachnoid villi
	Peripheral Nervous System: Spinal vs Cranial Nerves — olfactory and optic vs all others — structure and functions of a peripheral nerve — cervical, brachial, lumbar and sacral plexuses — vagus, phrenic, ulnar, brachial, sciatic and femoral nerves — autonomic nervous system (very brief intro)

No. of Hours	Description
8	Cardiovascular System and Lymphatics
	<i>Cardiovascular System</i> <i>Blood</i> — plasma composition and functions — erythrocytes, formation and destruction — specific leukocytes — platelets — hemopoiesis <i>Arterial System</i> — elastic and muscular arteries, arterioles — capillary structure, movement of fluid and dissolved substances <i>Venous System</i> — names and locations of selected arteries — structure of veins and venules, valves — names and locations of selected veins <i>Heart</i> — location, pericardial sac, myocardium, endocardium — atria, ventricles, valves, pacemaker and conduction system — cardiac cycle: electrical and mechanical events, the ECG <i>Fetal Circulation</i> — brief description — changes at birth