



BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

Operating Unit: Health Sciences

Program: Medical Radiography

Option:

Course Outline

BHSC 2213

Anatomy and Physiology 2

Start Date: September, 1999

End Date: December, 1999

Course Credits: 2.0

Term/Level: 2

Total Hours: 23

Total Weeks: 10

Hours/Week: **Lecture:** 1.5 (average)

Prerequisites

Course No. Course Name

BHSC 1113 Anatomy and Physiology 1

BHSC 2213 is a Prerequisite for:

Course No. Course Name

MRAD 2204/3304

Course Calendar Description

BHSC 2213 Anatomy and Physiology 2 (MRAD) continues from BHSC 1113. This course introduces human anatomy and physiology using a systems approach. Emphasis is placed on those systems most commonly examined by the radiographic technologist. Systems covered in this course are cardiovascular, lymphatic, nervous, endocrine, and reproductive.

Course Goals

- to provide a basic understanding of human anatomy and physiology that can be applied to other courses in the radiography program.
- to give the student sufficient background to function effectively in the clinical setting when confronted with both commonly encountered and unfamiliar physiologic and pathologic states.

Evaluation

First Midterm	30%	(covers liver, biliary tract, pancreas and part of Cardiovascular System)
Second Midterm	30%	(covers remainder of Cardiovascular/Lymphatics and Nervous System)
Final Exam	40%	(A comprehensive final examination emphasizing the Endocrine and
TOTAL	100%	Reproductive Systems)

The pass mark for this course is 60%.

Course Learning Outcomes/Competencies

On successful completion of this course the student should be able to:

1. describe the structure and function of the liver and biliary tract and trace the path of bile from the liver to the small intestine.
2. describe the structure and function of the pancreas and recognize the structural relationships among organs of the upper abdomen.
3. describe the circulatory system in terms of the structure and function of the two circulations, the vascular structures and their functions, and the physiology of blood flow.
4. describe the location, structure, and function of the heart, including the cardiac cycle, and myocardial blood supply and drainage.
5. relate the systolic and diastolic arterial blood pressure to the mechanical events of the cardiac cycle.
6. describe the composition of blood, the function of the formed elements, erythropoiesis and r.b.c. destruction.
7. differentiate between features of the fetal circulation, and that of the neonate.
8. describe the lymphatic system according to its structure and function, including formation and composition of lymph and its drainage paths.
9. describe the major structures of the nervous system (brain, spinal cord and spinal and cranial nerves) including the various types of protection afforded the C.N.S.
10. identify the brain ventricles in a variety of different planes and sections.
11. relate the parts of the C.N.S. to the enclosing bones of the skull and the spinal column.
12. describe the glands of the endocrine system in terms of their location, the hormones produced, and the effect on target organs.
13. describe the major components of the female and male reproductive systems, and their functions.
14. identify the relationships between organs of the female and male pelvis, and recognize structures from their location and sectional appearance.

Course Content Verification

I verify that the content of this course outline is current, accurate, and complies with BCIT Policy.

Program Head/Chief Instructor

Date



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Option:

BHSC 2213

Anatomy and Physiology 2

Instructor(s)

Dr. John Emes

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Learning Resources

Required:

Principles of Anatomy and Physiology, Tortora and Grabowski, 8th Ed., 1996. Harper Collins.

Access to a good medical dictionary.

Recommended:

Human Anatomy and Physiology, 3rd edition, 1995, Benjamin/Cummings Publishing Co. Inc., Redwood City, California.

Clinically-oriented Anatomy by K. Moore.

Human Physiology, 5th Ed., 1990. A.J. Vander, J.H. Sherman and D.S. Luciano; published by McGraw-Hill Publishing Co., New York.

BCIT Policy Information for Students

Attendance is required in this course as much of the material presented in lecture will not be available in other formats. If students are absent for more than 10% of the planned activities without a documented medical reason, they will not meet the attendance requirement of the course and may be withdrawn from the course. (See BCIT policy re attendance.)

Assignment Details

There will likely be two learning assignments in this course. Material will be examined during regular examination. There are no written assignments.



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Schedule

BHSC 2213

Anatomy and Physiology 2

Review of GI tract general structure, structure and role of esophagus

Week of/ Number	Outcome/Material Covered
1 and 2	<p>Liver Segmental and lobar anatomy of the liver. Blood supply to the liver, hepatic circulation and venous drainage. Metabolic functions of the liver and common diagnostic tests of liver function.</p> <p>Biliary Tract Formation and secretion of bile. The biliary duct system. Structure and function of the gall bladder. Digestive and excretory functions of the biliary tract.</p> <p>Pancreas Structure and function of the pancreas, including both its digestive and endocrine secretions. The pancreatic duct system and its relationships to the biliary duct.</p> <p>Anatomic relationships in the upper abdomen</p>
3 – 5	<p>Cardiovascular System</p> <p>Overall design — arteries, veins, heart, pulmonary and systematic circulations.</p> <p>Heart location, anatomy, and related structures — refer to handout sheet.</p> <p>The cardiac cycle — electrical and mechanical events.</p> <p>Arterial system — structure of elastic and muscular arteries, and arterioles. Capillary structure, movement of materials through cap. walls.</p> <p>Venous system — structure of veins, valves.</p> <p>Location of arteries and veins identified in handout sheet.</p> <p>Fetal circulation and changes at birth.</p> <p>Composition of blood — erythrocytes, formation and destruction. Brief description of the leukocytes and platelets, and sites of formation.</p>

Week of/ Number	Outcome/Material Covered
6	<p>Lymphatic System</p> <p>Basic structure — lymph capillaries, lymphatics, R. lymphatic and thoracic ducts, cisterna chyli. Lymph node structure, cervical, axillary, inguinal, popliteal, periaortic, trachiobronchial nodes. Other lymphoid tissue — spleen.</p> <p>Functions of lymphatic system.</p>
7 and 8	<p>Nervous System</p> <p>Types of nervous tissue cells — neuroglia, neurons</p> <p>C.N.S. — Gross anatomy and functions Brain, spinal cord, and related structures — as detailed in handout sheet. C.N.S. protection — bony protection, the meninges, ventricular system, production and reabsorption of C.S.F.</p> <p>P.N.S. — Gross anatomy and function Somatic nervous system Cranial nerves — names, numbers, functions, and associated cranial foramina. Spinal nerves — numbers and spinal regions from which they arise. Cervical, brachial, lumbar and sacral plexuses, phrenic, ulnar, brachial, sciatic and femoral nerves. Autonomic nervous system Structure of the two divisions, and examples of their antagonistic actions.</p>
9	<p>Endocrine System (2 hours)</p> <p>The following tissues and organs are considered briefly with respect to location, major hormones produced, and effects on target organs: pancreas, thyroid, parathyroids, adrenals (cortex and medulla), thymus, pineal, ant. and post. pituitary. (Gonads are covered in reproductive systems.)</p>
10	<p>Reproductive Systems</p> <p>Female structure and function Anatomic relationships of organs in pelvic cavity. Ova production and cycle — effects of F.S.H., estrogens, L.H. on development and ovulation. Uterine changes — effects of progesterone and estrogens. Menstruation. Changes in pregnancy. Breast structure, cyclical changes and changes in pregnancy.</p> <p>Male structure and function Anatomic relationships of organs. Role of testosterone, seminal vesicles, bulbourethral and prostate glands, in sperm production, maturation and semen production.</p>