SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE MARIE, ON

COURSE OUTLINE

Course Title: Biology

Code No.: RSP1000 Semester: 1

Program: Occupational Therapy/Physiotherapy Assistant

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Date: Sept. 2002 Previous Outline Date: 09/01

Approved: _____ _____
Dean Date

Total Credits: 5 Prerequisite(s): None
Length of Course: 5 Hrs/Wk

I. COURSE DESCRIPTION:

This course is designed to introduce the student to the structures and the functions of the human body with special attention to the neuromusculoskeletal systems, as is appropriate for this program. Emphasis will be placed on approaching anatomy and physiology as foundations for the study of the biomechanics of movement and of therapeutic interventions. The format will involve a combination of seminars, lectures and labs.

II. LEARNING OUTCOMES:

Upon successful completion of this course, the student will:

1. Name and describe the major muscle groups, bones and joints and understand their relationships in sufficient detail to comprehend their functions.

2. Describe basic anatomy and physiology of the nervous system sufficiently to comprehend its role in controlling voluntary movement.

3. Identify major surface landmarks and develop adequate palpatory skills to demonstrate their location.

4. Describe the basic structure of connective and muscle tissue and define its role as it responds to mobility and activity.

5. Understand the basic structure and function of specified tissues, organs and systems and their integral role in maintaining homeostasis.

III. TOPICS:

1. Structural Organization
2. Overview of Body Systems
3. Homeostasis
4. Important Terms
5. Cells and Tissue (Connective and Muscle Tissue Emphasized)
6. Skin (Integumentary System)
7. Bones
8. Joints, Ligaments
9. Muscles
10. Surface Landmarking/Palpation Skills
11. Nervous System
12. Special Senses (eye, ear)
13. Endocrine System (GH, TSH and Thyroxine, Calcitonin, PTH)
14. Other Systems (Cardiovascular, Respiratory, Digestive, Urinary, Reproductive)

IV. LEARNING ACTIVITIES:

1. Structural Organization
   a) Define anatomy and physiology.
   b) Explain the levels of structural organization.

2. Overview of the Body Systems
   a) Name the systems of the body and briefly state the major functions of each system.
   b) List the functions for humans to maintain life.
   c) List the survival needs of humans.

3. Homeostasis
   a) Explain homeostasis and give at least three examples.

4. Important Terms
   a) Describe anatomical position and explain why it is important to know.
   b) Use anatomical terminology to describe body directions, surfaces and planes.
   c) Locate major body cavities and state the major organs in each one.

5. Cells and Tissues
   a) State the four types of cells.
   b) State the function of the major organelles in cells.
   c) State the four types of tissues and their major subclassifications.
   d) Explain the major structural and functional importance of connective and muscle tissue.

6. Skin
   a) State the different membrane types and where they are located.
   b) Explain the importance and function of the synovial membrane.
   c) Explain the functions of the integumentary system.
   d) State the function of major structures in the skin.

7. Bones
   a) Identify the subdivisions of the skeleton.
   b) List the functions of the skeletal system.
   c) State the four major kinds of bones.
   d) Describe a long bone.
   e) Explain how compact and cancellous bone is nourished.
   f) Explain the processes of bone formation, growth healing and remodelling.
   g) Name and describe the various types of fractures.
   h) Identify and name the bones of the skeleton.
   i) Name the normal curvatures of the vertebral column and state when they form.

IV. LEARNING ACTIVITIES (Continued)

8. Joints
   a) State the importance of the intervertebral disks.
   b) Explain the difference between scoliosis, lordosis and kyphosis.
   c) Name the three categories of joints, the amount of movement at each and examples of each type.
   d) Name, identify and state the function of the major ligaments of the body.

9. Muscles
   a) Explain the functions of the muscular system.
   b) Describe the structure of the skeletal muscle.
   c) Define the following: endomysium, perimysium, epimysium, tendon, aponeurosis.
   d) Briefly describe the events of muscle cell contraction.
   e) Define graded response, tetanus, muscle fatigue, isotonic and isometric contractions, and muscle tone as they apply to skeletal muscles.
   f) Briefly describe the effects of aerobic and resistance exercise on skeletal muscles.
   g) Identify accurately the different types of body movement exhibited for specified muscles.
   h) Define the following terms relating to skeletal muscles: origin, insertion, prime mover, antagonist, synergist, fixation.
   i) Name and locate the major muscles of the human body (with origin and insertion points of specified muscles) on a chart or diagram and self and state the action of each.
   j) State the importance of a nerve supply and exercise in keeping muscles healthy.
   k) Describe changes that occur in muscles as we age.

10. The Nervous System
   a) State the general functions of the nervous system.
   b) Explain the structural and functional classification of the nervous system.
   c) State the function of neurons and neuroglia.
   d) State the types and functions of general sensory receptors.
   e) Explain the conduction of a nerve impulse.
   f) Explain a reflex arc.
   g) Identify the parts of the Central Nervous System and state their functions.
   h) Describe the general structure of a nerve.
   i) State and identify the major parts of the Peripheral Nervous System.
   j) State the functions of specified nerves, plexuses and divisions of the PNS.

IV. LEARNING ACTIVITIES (Continued)

11. Special Senses
    a) Identify and state the function of the structures of the eye.
    b) Define the following terms: accommodation, astigmatism, blind spot, cataract, emmetropia, glaucoma, hyperopia, myopia, presbyopia, refraction.
    c) Identify and state the function of structures of the ear.
    d) Briefly describe the location and function of the olfactory and taste receptors.

12. The Endocrine System
    a) Define the following: hormone, target organ/tissue, endocrine gland, exocrine gland.
    b) Explain how endocrine glands are regulated.
    c) Identify specified endocrine glands on a diagram, chart or model.
    e) Explain the function of the following hormones and their relationship to the musculoskeletal system.

13. Other Systems
    a) Describe the basic anatomy and physiological function of the following systems: cardiovascular system, respiratory system, digestive system, urinary system and reproductive system.

V. REQUIRED RESOURCES/TEXTS/MATERIALS:

1. Biel, Andrew. (2001). Trail guide to the body. (2nd ed.). Andrew Biel Publications.

2. Martini, Frederic H., Timmons, Michael J., McKinley, Michael P., (2000). Human anatomy. (3rd ed.). Prentice Hall

VI. EVALUATION PROCESS/GRADING SYSTEM:

1. A combination of tests and assignments will be used to evaluate student achievement of the course objectives. A description of the evaluation methods follows and will be discussed by the teacher within the first two weeks of class.

2. All tests/exams are the property of Sault College.

3. Evaluation Methods:

Tests	50%
Final Exam	30%
Assignments	20%
TOTAL	100%

Students must achieve 100% accuracy on selected tests of palpation and diagram labelling to achieve a passing grade in RSP100. Two testing opportunities will be given to all students.

4. Students missing any of the tests or exams because of illness or other serious reason must notify the professor **BEFORE** the test or exam. The professor reserves the right to request documents to support the student's request.

5. Those students who have notified the professor of their absence that day will be eligible to arrange an opportunity as soon as possible to write the test or exam at another time. Those students who **DO NOT NOTIFY** the professor will receive a zero for that test or exam.

6. For assignments to be handed in, the policies of the program will be followed.

   For assignments not handed in by the due date, the mark received will be zero. Extensions will be granted if requested in writing at least 24 hours before the due date. There will be a deduction of one mark per day for every school day late with the permission of an extension. This means that if you requested an extension for 5 school days (1 week), 5 marks will be deducted from the 20 marks.

7. A supplemental exam may be written by students who meet the following criteria. The student must achieve at least a grade of 50% in the course. The student must have attended at least 80% of the classes. The student must have achieved 80% accuracy on palpation tests. The supplemental exam will then cover the entire course and will be worth 100% of the student's final mark.

The following semester grades will be assigned to students in postsecondary courses:

Grade	Definition	Grade Point Equivalent
A+	90 - 100%	4.00
A	80 - 89%	3.75
B	70 - 79%	3.00
C	60 - 69%	2.00
R (Repeat)	59% or below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field placement or non-graded subject areas.	
U	Unsatisfactory achievement in field placement or non-graded subject areas.	
X	A temporary grade. This is used in limited situations with extenuating circumstances giving a student additional time to complete the requirements for a course (see *Policies & Procedures Manual – Deferred Grades and Make-up*).	
NR	Grade not reported to Registrar's office. This is used to facilitate transcript preparation when, for extenuating circumstances, it has not been possible for the faculty member to report grades.	

VI. SPECIAL NOTES:

Special Needs:
If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your instructor and/or the Special Needs office. Visit Room E1204 or call Extension 493, 717, or 491 so that support services can be arranged for you.

Retention of course outlines:
It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Plagiarism:
Students should refer to the definition of "academic dishonesty" in *Student Rights and Responsibilities*. Students who engage in "academic dishonesty" will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course outline amendments:
The Professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

Attendance
Students are expected to attend all classes. Various handouts may be given out during class and students are responsible for keeping up with the material missed. The easiest way to do this, is to attend classes.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.