SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE: Anatomy and Physiology I

CODE NO. : PNG111 **SEMESTER:** 1

PROGRAM: Practical Nursing

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DATE: Sept/03 **PREVIOUS OUTLINE DATED:** Sept/02

APPROVED:

_____ _____

DEAN **DATE**

TOTAL CREDITS: 3

PREREQUISITE(S): None

HOURS/WEEK: 3

I. COURSE DESCRIPTION:

This course introduces the learner to the normal development, structures and functions of the human body. The learner will examine the physiological components of the human body, in order to obtain knowledge and understanding about how the structures and functions of the body are related.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Use the appropriate terminology related to the organization, structure and function of the human body.

Elements of the Performance:

- Define anatomy and physiology
- Name the following :
    - levels of organization of the human body
    - major organs for each body system
    - the directional terms that describe the location of body parts
    - the major body regions
    - the 3 planes used in making sections of the body or body parts
    - the 2 major body cavities, their subdivisions and membranes
    - the major organs located in each body cavity
    - the 4 quadrants and 9 regions of the abdominopelvic region
- Review the selected key terms (vocabulary) for each specific area of study/system studied

2. Examine the chemical composition and chemical interactions (life processes) of the human body.

Elements of the Performance:

- Describe the basic structure of an atom
- Explain the meaning of a chemical formula
- Distinguish between organic and inorganic compounds
- Compare the 3 types of chemical bonds
- Identify the difference between acids, bases and salts
- Examine the concept of pH and its relationship to acids, bases and salts in the body
- List the 4 major groups of organic substances in the body and give examples and functions of specific types in each group
- Explain the role of enzymes
- Describe the composition and role of ATP
- Explain the relationship between elements, compounds, atoms and molecules
- Explain the properties that make water such an important inorganic molecule in living organisms
- Explain why knowledge of basic chemistry is important in the study of life processes.

3. Describe the relationship between the structure and function of the human body.

   Elements of the Performance:
   - Define homeostasis and explain its relationship to normal body functions
   - List the five basic needs essential to human life

4. Describe the location, development, structure and function of cells, tissues and organs of stated body systems

   Elements of the Performance:

   THE CELL
   - Describe the structure of a typical cell
   - List the function of each part of a typical cell
   - Identify the 2 processes that allow substances to enter and leave cells
   - Explain cellular respiration and its importance
   - Explain the role of DNA and RNA
   - List the 2 processes of cell division
   - Differentiate the phases of mitosis and meiosis

   TISSUES AND MEMBRANES
   - Describe the distinguishing characteristics of each type of tissue and membrane
   - Identify the common location and function of each type of tissue and membrane

   SYSTEMS
   - Integumentary System:
     - Describe the basic structure of the skin and its layers
     - Describe the basic functions of the skin and its layers
     - Describe how skin colour is determined
     - Identify the accessory structures and function of the skin formed by the epidermis

   - Muscle System:
     - Compare the structure and function of the 3 types of muscle tissue
     - Explain the basic concept of muscle contraction
     - Explain the relationship between muscle origin, insertion and action
     - Identify the major muscles of the body
     - Describe the location and action of the major muscles of the body

   - Skeletal System:
     - Identify the major functions of the skeletal system
     - Identify the composition of bone structure
     - Explain the basic process of bone formation
     - Name the 2 divisions of the skeleton
     - Identify the bones of the axial and appendicular skeleton
     - Compare cervical, thoracic, lumbar, and sacral vertebrae
     - Compare immovable, slightly movable and freely movable joints

- Cardiovascular system:
  - Describe the general characteristics of blood
  - Identify the functions of the components of blood eg. red blood cells, white blood cells, platelets, plasma
  - Explain the basis of blood typing and why it is important
  - Describe the sequence of events in hemostasis
  - Identify the structures of the heart and blood vessels and their functions
  - Describe the basic mechanism of circulation within the body
  - Identify the major veins and arteries and the organs/body regions they supply
  - Trace the flow of blood through the heart
  - Describe the events of the cardiac cycle
  - Identify parts of the heart conduction system and their functions
  - Define pulse and blood pressure
  - Explain how heart rate and blood pressure are regulated

- Respiratory System:
  - List the parts of the respiratory system and identify their functions
  - Describe the mechanism of breathing
  - Explain how breathing is controlled
  - Describe the basic respiratory volumes and the significance of each
  - Identify the factors that influence breathing and their effect
  - Describe the mechanism of gas exchange in the lungs and body tissues
  - Explain how oxygen and carbon dioxide are transported by the blood

- Lymphatic System/Immune System:
  - Explain the source of lymph
  - Identify the lymphatic capillaries and vessels
  - Describe the lymphatic pathway
  - Identify the location and function of lymph nodes, spleen and thymus gland
  - Compare non-specific resistance and specific resistance against disease
  - Explain the mechanism of cell-mediated immunity
  - Explain the mechanism of antibody-mediated immunity
  - Compare primary and secondary immune responses

III. TOPICS:

1. Organization of the Human Body
2. The Chemical Basis of Life
3. The Cell
4. Tissues and Membranes
5. Integumentary System
6. Skeletal System
7. Cardiovascular System
8. Respiratory System
9. Muscular System
10. Lymphatic System

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Thibodeau, G.A. and Patton, K.T. (2000). *Structure and function of the body*. (11^{th} ed.). Mosby.

Swisher, L. (2000). *Study guide: Structure and function of the body*. (11^{th} ed). Mosby.

V. EVALUATION PROCESS/GRADING SYSTEM:

1. The pass mark for this course is 60%. It is composed of term quizzes, mid-term exam and a final exam.

2. Evaluation Methods:

Quizzes (6 in total, 5 are counted)	30%
Mid-Term Exam (multiple choice & diagrams)	35%
Final Exam (multiple choice & diagrams	35%
TOTAL	100%

Mid-term exam will consist of course material from the beginning of the course until the mid-term date.

Final exam will consist of anatomy and physiology from the mid-term exam to the end of the course.

V. EVALUATION PROCESS/GRADING SYSTEM:

3. Students who receive a mark of below 60% may be eligible to write a supplemental exam. The following criteria applies:
   - received at least 55% in the overall mark
   - attended at least 80% of the classes

   The supplemental exam will cover the entire semester. It may include multiple choice questions, short answer and/or matching questions and diagrams.

   Only <u>one</u> supplemental exam will be offered.

4. Students missing the quizzes for any reason will **<u>not</u>** be able to write them at any other date.

5. Students missing the mid-term exam or final exam because of illness or other serious reason must phone the professor **<u>before</u>** the exam to inform her/him (759-2554, Ext. 635). Those students who have notified the professor of their absence, according to policy, will be eligible to arrange an opportunity as soon as possible to write the exam at another time. Those students who **<u>do not notify</u>** the professor will receive a zero for that exam.

6. Students receiving borderline marks (59, 69, 79, 89) will have their mark advanced to the next category if they have attended at least 80% of the classes.
7. Course Grading Scheme:

The following semester grades will be assigned to students in post-secondary 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
F (Fail)	59% and below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	

X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

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 professor and/or the Special Needs office 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 post-secondary 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.