

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE: Anatomy and Physiology I

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

PROGRAM: Practical Nursing ; Fitness and Health

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DATE: Sept/12 **PREVIOUS OUTLINE DATED:** Sept/11

APPROVED: "Marilyn King" Aug/12

CHAIR, HEALTH PROGRAMS **DATE**

TOTAL CREDITS: 3

PREREQUISITE(S): None

HOURS/WEEK: 3

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For additional information, please contact the Chair, Health Programs
School of Health Wellness and Continuing Education
(705) 759-2554, Ext. 2689

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 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 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 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 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 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 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 and describe the basic functions of the accessory structures of the skin formed by the epidermis
- **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
- **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

Elements of Performance cont:

Nervous System

- Name the anatomical divisions of the nervous system, their components and functions
- Name the functional divisions of the nervous system, their components and functions
- Identify the 2 types of cells that make-up nerve tissue
- Describe the formation and conduction of a nerve impulse
- Describe how impulses are transmitted across a synapse
- Explain how the central nervous system is protected from injury

The Special Senses

- Describe the basic function of sensory receptors, neurons, nerves and the cerebral cortex
- Describe the location of receptors for heat, cold, touch, pressure and pain
- Describe the location, structure and function of olfactory and taste receptors, receptors involved in hearing, receptors involved in equilibrium and sight

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. Muscular System
8. Nervous System
9. Special Senses

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Marieb, E. N, Hoehn K. (2011). *Anatomy and Physiology*. (4th ed.). Benjamin Cummings.

Marieb, E. N. (2009). *Anatomy and Physiology Colouring Workbook: A Complete Study Guide*. (9th ed). Benjamin Cummings.

Sault College LMS (class notes, textbook support, online quizzes, important announcements)

Sault College Student Portal – www.mysaultcollege.ca

RECOMMENDED:

Jones, S. A. *Pocket Anatomy and Physiology*. F.A.Davis Co
ISBN-13: 978-0-8036-1824-4
ISBN-10: 0-8036-1824-7

V. EVALUATION PROCESS/GRADING SYSTEM:

1. The pass mark for this course is 60% for PN (50% for FHP). It is composed of 2 term tests, and a final exam.

2. Evaluation Methods:

Semester exams (2) (MC, True or False, Diagrams) 60%
Worth 30% each

Final Exam (MC, True or False, Diagrams) 40%

TOTAL 100%

Final exam will consist of course material from the **entire** course.

3. Students missing the tests or the final exam because of illness or other serious reason must inform the professor at least one hour **before** (759-2554, Ext. 2635 OR via email/LMS). Those students who have notified the professor of their absence, according to policy, will be eligible to arrange an opportunity to write **as soon as possible** upon return to the college. Those students who **do not notify** the professor will receive a zero for that exam. See Student Success Guide.

V. EVALUATION PROCESS/GRADING SYSTEM:

4. Course Grading Scheme:

The following semester grades will be assigned to students in post-secondary courses:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00

D	50 – 59%	1.00
F (Fail)	49% 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.	

NOTE:

Mid Term grades are provided in theory classes and clinical/field placement experiences. Students are notified that the midterm grade is an interim grade and is subject to change.

For such reasons as program certification or program articulation, certain courses require minimums of greater than 50% and/or have mandatory components to achieve a passing grade.

It is also important to note, that the minimum overall GPA required in order to graduate from a Sault College program remains 2.0.

VI. SPECIAL NOTES:Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session. *It is the departmental policy that once the classroom door has been closed, the learning process has begun. Late arrivers may not be granted admission to the room.*

VII COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline. www.mysaultcollege.ca