

I. COURSE DESCRIPTION:

This course introduces the learner to the normal structures and functions of the human body. The learner will examine the physiological components, homeostasis, and compensatory mechanisms of the human body. Associated medical terminology and pathophysiology will be incorporated throughout the course. The learner will also complete a medical terminology study.

This course is designed to enable students to attain competencies specified in the National Association of Pharmacy Regulatory Authorities (NAPRA) Professional Competencies for Canadian Pharmacy Technicians at Entry to Practice (March 2014). (Full document available at www.napra.ca)

This course is designed to enable students to attain the educational outcomes specified in the Canadian Pharmacy Technician Educators Association (CPTA) Educational Outcomes for Pharmacy Technician Programs in Canada (March 2007). (Full document available at www.cptea.ca)

This course is designed to enable students to meet and maintain the standards of practice expected within the pharmacy technician's role. The standards are specified in the National Association of Pharmacy Regulatory Authorities (NAPRA) Model Standards of Practice for Canadian Pharmacy Technicians (November 2011). (Full document available at www.napra.ca)

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

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

Potential Elements of the Performance:

- Define anatomy and physiology
- Explain how anatomy and physiology are related
- Name the six levels of structural organization of the human body
- Name the major organ systems of the body
- Name the major organs and classify by organ system
- Describe verbally the anatomical position
- Use proper anatomical terminology to describe :
 - body directions
 - body surfaces
 - body planes
- Name the major body cavities
- Name the chief organs in each body cavity

2. describe the relationship between the structure and function of the human body.

Potential Elements of the Performance

- List eight functions that humans must perform to maintain life
- Define homeostasis and its relationship in maintaining normal body functions

3. understand the chemical composition of the human body and the chemical interactions of body functions.

Potential Elements of the Performance:

- Define atom and describe its basic structure
 - Define chemical element and list the four elements that form the bulk of body matter
 - Define trace element and give examples found in the human body
 - Define radioisotope and describe briefly how they are used in diagnosis and treatment of disease
 - Define molecule and compound and give examples found in the human body
 - Understand what occurs during a chemical reaction
 - Describe 3 types of chemical reactions that occur in the human body
 - Describe 3 types of chemical bonds
 - Distinguish between organic and inorganic compounds and give examples of each
 - Differentiate a salt, an acid, and a base
 - Name several salts vitally important to bodily functions
 - Explain the concept of pH and its relationships to acids, base, salts in the body
 - Differentiate carbohydrates, proteins, lipids, and nucleic acids and provide examples of each
 - Explain the role of enzymes
 - Compare and contrast the structure and function of DNA and RNA
 - Explain the importance of ATP in the body
 - Define and describe the components of a solution
 - Define concentration and provide examples in the health sciences
4. describe the location, development, structure and function of cells, tissues and organs of the stated body system and understand homeostatic imbalances of each body system.

Potential Elements of the Performance:

CELLS

- Describe the major components of a generalized cell
- List the function of each of the components of a generalized cell
- Differentiate between active and passive transport processes and give examples of each type
- Name the 2 phases of cell division
- Describe briefly the process of interphase and of mitosis
- Describe the role of DNA and RNA in protein synthesis

BODY TISSUES

- Name the 4 major tissue types
- Explain how the major tissue types differ structurally and functionally
- Identify the common locations of the tissue types in the body

SYSTEMS

Skin and Body Membranes

- Name the 4 membrane types and the location of each in the body
- Describe the structure of the skin and its layers
- Describe the basic function of the skin
- Name the layers of the epidermis and describe the functions of each layer
- Describe various skin disorders

Skeletal System

- Identify the subdivisions of the skeleton
- Identify the functions of the skeletal system
- Name the four classifications of bone
- Identify the major anatomical areas of a long bone
- Describe the microscopic structure of compact bone
- Describe the process of bone formation
- Name and describe the types of bone fractures
- Identify the bones of the axial and appendicular skeleton
- Compare the parts of the cervical, thoracic and lumbar vertebra
- Name the three major categories of joints and compare the amount of movement allowed by each
- Identify some of the causes of bone and joint problems

Muscular System

- Compare the structure and function of the 3 types of muscle tissue and indicate the location of each in body
- Explain the basic process of muscle contraction
- Explain the relationship between muscle origin, insertion and action
- Name and describe the location of the major muscle groups
- Describe the changes that occur in aging muscles

Nervous System

- Explain the structural and functional classifications of the nervous system, their components and functions
- Name the two types of cells that make up the nervous tissue
- Describe the process of nerve impulse generation and conduction
- Describe how impulses are transmitted across a synapse
- Explain the role and types of neurotransmitters
- Explain the four mechanisms by which the central nervous system is protected from injury
- Describe the structure and function of the four main areas of the brain
- Discuss various types of brain dysfunctions
- Discuss the structure and function of the spinal cord
- Discuss the location and function of cranial and spinal nerves
- Describe the divisions of the peripheral nervous system
- Describe the sensation of pain and its triggers
- Special Senses
- Describe the special senses
- Identify the location, structure and function of the special sense organs
- Describe various imbalances that can occur with each of the special senses

III. TOPICS:

1. Orientation to the Human Body
2. Basic Chemistry and Biochemistry
3. Cells and Tissues
4. Skin and Body Membranes
5. Skeletal System
6. Muscular System
7. Nervous System
8. Special Senses

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

The following resources are **required**:

1. Marieb E. Essentials of Human Anatomy and Physiology, Eleventh Edition. 2014: Pearson Education Inc. ISBN -13:978-0-321-91875-8
2. Chabner D. Medical Terminology: A Short Course, Sixth Edition. 2012: Elsevier Inc. ISBN: 978-1-4377-3440-9
3. Sault College Learning Management System (D2L)

The following resources are **recommended** for students wanting extra practice exercises:

4. Marieb E. Anatomy and Physiology Coloring Workbook: A Complete Study Guide, Eleventh Edition. 2014: Pearson Education Inc. ISBN – 13:978-0-321-96077-1

V. EVALUATION PROCESS/GRADING SYSTEM:

Written tests (3 x 15% each)	45%
Quizzes/Assignments/Activities	15%
Final exam	40%

Total **100%**

Medical Terminology Component S or U

1. To pass this course, students must achieve a combined minimum average of 60% (calculated as indicated above) **and** a satisfactory (S) grade on the medical terminology component.
2. **Quizzes/Assignments/Activities**: All quizzes/assignments/activities are equally weighted. Students may be required to complete and/or submit these online using LMS.

3. **Medical Terminology Component:** This is a self-directed study whereby the student is expected to complete activities from each chapter of the medical terminology workbook. The student will also complete five terminology quizzes online and write a final medical terminology exam in class during the scheduled time. Students must achieve a combined minimum average of 60% to be satisfactory (S). The medical terminology evaluations are weighted as follows: online quizzes (20%), workbook completion (10%), and exam (70%). A supplemental medical terminology exam may, at the discretion of the professor, be provided for students who obtain an unsatisfactory (U) grade but have completed the workbook and all online quizzes.
4. **No supplements** will be provided for tests or the final exam.
5. All policies and procedures as outlined in the current Student Success Guide related to scholarly work/academic honesty, tests and examinations will be followed.
6. Students missing tests or the final exam because of illness or other serious reason must contact the professor (by phone, email, or personal note) before the test or exam begins. Those students who have notified the professor of their absence, according to policy, will be eligible to write the missed test or exam for full credit upon their return to school. A student who does not follow this policy, misses a test for a non-serious reason, or does not complete the missed test within a reasonable timeframe will either receive a mark of "zero" or write for reduced credit. The professor reserves the right to request supportive documentation (ex. doctor's note) for an absence before allowing a student to write a missed test.

The following semester grades will be assigned to students:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	3.00
C	60 - 69%	2.00
D (Fail)	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: 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.

A minimum of a “C” grade is required to be successful in most PTN coded courses.

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.

VII. COURSE OUTLINE ADDENDUM:

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