

M: Course Objectives / Learning Outcomes

Upon completion of this course, students will:

1. Have gained an understanding of basic human anatomy and physiology in a context that will be useful to them in their work.
2. Have learned how to integrate knowledge, including how to use inquiry, critical thinking and scientific reasoning to solve problems.
3. Have experienced the value of teamwork, of developing good interpersonal skills, and the importance of psycho social issues in maintaining health and wellness.

More specifically, students will have learned to:

- Develop an appreciation for the interrelated nature of the physical, biological and behavioural mechanisms that must be considered with each health problem during the process of generating a management plan.
- Reinforce and/or develop effective reasoning processes including the skills of problem synthesis, hypothesis generation, critical appraisal of available information, data analysis and decision-making.
- Effectively use a problem-solving process to formulate a plan to address any health-related problem independently or in a group, in a timely manner.
- Critically evaluate literature, research findings, laboratory data and other resources in relation to accuracy, relevance and utility.
- Develop creative strategies for addressing problems by considering alternative ways of viewing a problem or situation.
- Function effectively as an active participant within a small group.
- Share information.

N: Course Content:

The major topics in the course include problems that involve the following learning issues:

1. Alternative Hypotheses to explain the symptoms presented in each case

- Developing as many explanations for the symptoms presented as possible.

2. Integumentary System

- Anatomy and physiology of the skin
- Review function of skin in maintaining health
- Review the involvement of the integumentary systems in the homeostatic systems of water balance and temperature regulation
- Review of skin layers and implications for damage to each layer and implications with respect to surface area involved

3. Skeletal System

- Bone cells, tissues
- Types of bone and bone growth
- Anatomy of skeletal system and types of joints
- Composition of joint – joint serum
- Relationship of muscles to joints
- Types and causes of arthritis

4. Muscular System

- How muscles work
- Anatomy of muscular system with respect to movement
- Biomechanics of movement

5. Digestive System

- Anatomy of the digestive tract and associated organs
- Function of the digestive tract and associated organs, in particular the pancreas and liver
- Role of intestines and colon in digestion/absorption
- Relationship of liver to blood homeostasis
- Malfunctions of the digestive tract, particularly the colon
- Relationship of diet to health of digestive tract
- Consequences of obesity

6. Respiratory System

- Anatomy of respiratory system
- Relationship between respiratory system and blood gases
- Importance of breathing, with specific reference to brain cells
- Review of normal respirations/minute and reasons for deviance
- Causes and consequences of acute respiratory distress syndrome (ARDS)

7. Circulatory System

- Anatomy of circulatory system
- Relationship of circulatory system to the skin, the brain and digestive system
- Causes and consequences of lack of blood to cells
- Relationship between nutrition and cardiovascular health
- Review of normal pulse, BP, and temperature
- Review diagnostic tests, including normal counts of white blood cells, red blood cells, blood pH, hematocrit and blood proteins
- Significance of blood tests and homeostasis of body
- Connection between body weight and reproductive hormones
- Relationship of endocrine system to appropriate food intake
- Significance of serum electrolytes (sodium, potassium and chloride)
- Causes and consequences of shock

8. Immune System

- Non-specific defences (membrane barriers, cellular and chemical defences)
- Specific immune defences – immunity
- Interactions with other systems – complements
- Antigens/antibodies
- Humoral immune response/cell-mediated response
- Immunodeficiencies/autoimmune diseases

9. Endocrine Systems

- Major endocrine glands
- Definition of hormones
- Functions of hormones generally
- Pancreatic hormones
- Role of pancreas in homeostasis of blood sugar
- Effect of aging on endocrine system functioning
- Connection between body weight and reproductive hormones
- Relationship of endocrine system to appropriate food intake
- Hormone-target cell specificity

10. Urinary System

- Anatomy and physiology of urinary system
- Role of the nephron in producing urine
- Role of nephron in maintaining blood pH
- Significance of urinary tract symptoms
- Significance of various urine tests

11. Nervous System

- Anatomy and physiology of a neuron
- Physiology of impulse transmission
- Review of functional areas of the brain
- Review sensory integration and describe the visual pathway to the optic cortex

12. Other Issues

- Relationship between normal A&P and social environment
- Relationship between nutrition and muscular skeletal system
- Relationship between nutrition and nervous system

13. Social Implication of Illness

- Issues with respect to aging and living alone
- Issues with respect to sudden illness
- Dealing with depression
- Issues with respect to social attitudes that equate slimness with beauty

O: Methods of Instruction

This course involves three hours of self-directed, interdependent, small group and laboratory, problem-based learning. The information content is integrated with problem sets, videos, laboratory experiences, journal articles and textbook readings.

P: Textbooks and Materials to be Purchased by Students

1. Donald Woods, 1994. *Problem-based Learning: How to Gain the Most from PBL*. McMaster University.
2. Marieb, Elaine, 2001. *Human Anatomy & Physiology*. 5th Edition. Benjamin/Cummings Science Publishing. (Includes the *Study Partner* CD Rom)

Q: Means of Assessment

TYPE OF EVALUATION	POINTS
Weekly Class Participation	25
Project	25
Minor Exam	20
Major Exam	<u>30</u>
TOTAL	100

GRADES:	A+ 95-100	A 90-94	A- 85-89	B+ 80-84	B 75-79	B-70-74
	C+ 65-69	C 60-64	C- 55-59	P 50-54	F 0-49	

Notes:

Exam: Both exams are open book and similar in style to the classroom work, except that each student must analyze the problem in their own exam book, without discussion. The minor exam will take one to two hours, the major exam will take about three hours.

Participation: As PBL requires that each student be present to gain information and problem solving skills, participation is essential. Each class missed can result in the loss of a maximum of 2.5% , to a total of 25%. At the end of each case, students will be assessed for their contribution to the problem solving process. If a class is missed, the participation opportunity is lost. 1.5% will be lost for each class missed, even if the cause of the missed class is unavoidable.

Project: Each student will be required to choose a health issue of interest, relating to the topics in that semester and write a short (max. 5 pages) description of the issue, and the facts currently known with respect to cause and, if possible, treatment.

R: Prior Learning Assessment and Recognition: specify whether course is open for PLAR

Student may present a portfolio documenting previous experience in A&P and will be asked to dissect a problem presented by the instructor.

 Course Designer(s)

 Education Council / Curriculum Committee Representative

 Dean / Director

 Registrar