

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY  
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

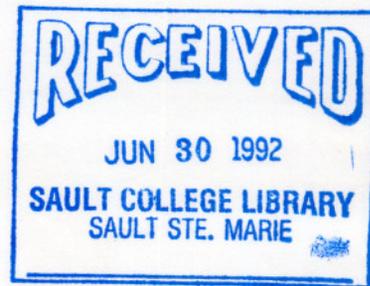
COURSE TITLE: HUMAN BIOLOGY

CODE NO: BIO 104 SEMESTER: ONE

PROGRAMME: NURSING ASSISTANT

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APPROVED: *Harv. Rubin* \_\_\_\_\_  
Dean Date

HUMAN BIOLOGY

BIO 104

Course Name

Code No.

60

TOTAL CREDIT HOURS

PREREQUISITE(S): Acceptance into the Nursing Assistant Programme/  
General Arts & Science

I. PHILOSOPHY/GOALS:

The structure and function of the human body is the basis for the human biology course. External and internal environmental stimuli which result in biological processes and activities (responses) will be identified. The human body is seen as an adaptive system, constantly adjusting to changes in the environment, in order to maintain a relatively constant state.

This knowledge of environmental stimuli and subsequent adaptive biologic responses will give the student scientific rationales for the theory and practice of nursing. The course also includes basic principles of microbiology, with emphasis on preventing and controlling infection.

II. STUDENT PERFORMANCE OBJECTIVES:

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

- 1) Describe levels of organization within the human body.
- 2) Describe the:
  - a) structure
  - b) function
  - c) relationship between function and structurefor body organs and systems
- 3) Describe the interdependence of body systems.
- 4) Explain how various body systems maintain biological adaptation.
- 5) For each of the body systems, describe significant developmental changes that occur throughout the life span.
- 6) Describe how micro-organisms exist, grow and multiply.
- 7) Describe how to prevent the transmission of disease-producing micro-organisms.

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III. TOPICS TO BE COVERED:

1. Structural organization of the human body - cells, tissues, organs, systems.
2. Itegumentary System
3. Skeletal System
4. Muscular System
5. Nervous System
6. Special Senses
7. Endocrine System
8. Circulatory and Lymphatic System
9. Respiratory System
10. Urinary System
11. Gastrointestinal System
12. Reproductive System
13. Characteristics and growth requirements of micro-organisms.
14. Body Defenses against microbial invasion.
15. Methods of bacterial destruction

IV.

LEARNING ACTIVITIES

REQUIRED RESOURCES

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- 1.0 Structural Organization of the human body - (cells, tissues, organs, systems)  
Upon successful completion of this unit, the students will be able to:
  - 1.1 Define anatomical terms used to describe body directions, surface landmarks and body planes.
  - 1.2 Locate major body cavities and list the chief organs in each cavity.

Text: Essentials of Human Anatomy and Physiology Chapter 1  
The A&P Coloring Workbook

Text: pp. 10-14  
Workbook: pp. 8-13  
Text: pp. 15-16

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IV. LEARNING ACTIVITIES REQUIRED RESOURCES

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- 1.3 Given a list of selected body parts, describe their location using correct anatomical terminology. Workbook: p. 12  
p. 17
- 1.4 Describe the chemical composition of living matter. Text: Chapter 2  
pp. 36-52
- 1.5 Describe the functions of the organic and inorganic constituents of living matter Text: pp. 36-45  
Workbook: pp. 20-21  
# 12,13,14
- 1.6 Describe the common structural features of cells:  
a) cell membrane  
b) cytoplasm  
c) cytoplasmic organelles  
d) nucleus  
e) nuclear membrane  
f) chromosomes  
g) DNA; RNA Text: Chapter 3  
pp. 56-60  
Workbook: pp. 25-27  
# 1,2,3
- 1.7 Describe the functions of the above component parts of the cell. Text: pp. 56-60
- 1.8 Explain how the individual cell structures contribute to the functions of the cell as a whole.
- 1.9 Describe the internal and external cellular environment by defining the following terms:  
a) interstitial fluid  
b) intracellular fluid  
c) extracellular fluid  
d) homeostasis Text: Glossary
- 1.10 Define the following membrane transport processes and give one example of each:  
a) diffusion  
b) facilitated diffusion  
c) filtration  
d) osmosis  
e) active transport  
f) phagocytosis/pinocytosis Text: pp. 60-65  
Workbook: pp. 30-31  
# 6,7,8,9

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IV. LEARNING ACTIVITIES

REQUIRED RESOURCES

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- 1.11 Define terminology related to membrane transport. Text: pp. 60-64
- a) semi-permeable
  - b) osmotic pressure
  - c) hydrostatic pressure
  - d) isotonic
  - e) hypotonic
  - f) hypertonic
  - g) concentration gradient
  - h) pressure gradient
- 1.12 Briefly describe the cell life cycle by defining interphase and cell division. Text: p. 65
- 1.13 Define "tissue".
- 1.14 List the four primary tissue types and chief sub-categories of each. Text: pp. 68-76  
Workbook: pp. 34-38  
# 15,17,18,19
- 1.15 Briefly describe the functions for each of the primary tissue types.
- 1.16 Define "organ". Text: Chapter 1, pp. 2-6  
Workbook: pp. 2-3  
# 5,6,7
- 1.17 Define "system".
- 1.18 Name the chief structural components and state the major function for each of the following body systems: Text: Chapter 1, pp. 3-6  
Workbook: pp. 2-6  
# 3,4,5,6,7
- a) Integumentary
  - b) Musculoskeletal
  - c) Nervous
  - d) Endocrine
  - e) Special Senses
  - f) Circulatory
  - g) Respiratory
  - h) Urinary
  - i) Gastro-intestinal
  - j) Reproductive
- Teacher presentation

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IV.	LEARNING ACTIVITIES	REQUIRED RESOURCES
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2.0 The Integumentary System

Upon successful completion of this unit, the student will be able to:

2.1 List the major functions of the integumentary system.

Text: Chapter 4  
pp. 86-92

2.2 Given a model or diagram of the of the skin, recognize and name the following skin structures:

Workbook: pp. 43-47  
# 1,2,6,8  
Teacher presentation

- a) epidermis
- b) dermis
- c) hair/hair follicle
- d) sebaceous gland
- e) sudoriferous gland

2.3 Describe the functions of the above skin structures.

2.4 Describe how the structures of the skin contribute to the general functions of the skin.

2.5 Describe the role of the skin in temperature regulation.

Teacher presentation  
Chapter 4, pp. 94-96  
Workbook: pp. 48-49  
# 10,11

2.6 Describe the location and function of the following body membranes:

- a) mucous membrane
- b) serous membrane
- c) synovial membrane

2.7 Describe the role of the integumentary system in supporting adaptation.

Group Discussion

2.8 Describe selected developmental aspects of skin and body membranes.

Text: pp. 95-97  
Workbook: p. 50, #12

3.0 The Skeletal System

Upon successful completion of this unit the student will be able to:

3.1 Define selected terms related to the skeletal system.

Vocabulary List -  
Skeletal System

3.2 Describe major functions of the skeletal system

Text: Chaper 5  
pp. 101-102

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IV.	LEARNING ACTIVITIES	REQUIRED RESOURCES
3.3	Define and give examples of: a) long bones b) short bones c) flat bones d) irregular bones	Text: pp. 103 Workbook: p. 53, # 2 Lab: Examination of bone samples, skeletons
3.4	Describe the structure of a long bone.	Teacher Presentation. Text: pp. 104-107 Workbook: pp. 54-56
3.5	Briefly explain the processes of bone formation, growth and remodeling.	# 3,4,6
3.6	Describe how the structure of bone is suited to its functions.	Class Discussion
3.7	List the three parts of the axial skeleton.	Text: pp. 109-121 Workbook: pp. 56-64, #'s 7,8,9,11,12,13,14,15,16
3.8	Given a skeleton, diagram or charts, locate selected bones within the axial skeleton.	Lab: Identification of bones, parts of vertebrae, male and female pelvis using skeletons, anatomical charts.
3.9	Name parts of a typical vertebra and explain how the cervical, thoracic, lumbar vertebrae and sacrum differ from one another.	
3.10	Given a skeleton, diagram or charts, locate selected bones within the appendicular skeleton	Text: pp. 121-127 Workbook: pp. 65-74 # 22,23,24,25,26,27,28
3.11	Explain the differences between a male and female pelvis.	
3.12	Name three major types of articulations (joints).	Teacher presentation Text: pp. 127-130 Workbook: pp. 76-77
3.13	Compare the movements possible at each type of articulation (joint).	# 31,32,33
3.14	Describe the general structure of a diarthrotic joint.	
3.15	Describe the role of the skeletal system in supporting adaptation	Class Discussion
3.16	Describe selected developmental aspects of the skeleton.	Text: p. 134 Workbook: p. 78, #35,36 Review skeletal system Workbook: p. 79, # 37

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IV.	LEARNING ACTIVITIES	REQUIRED RESOURCES
4.0	<u>The Muscular System</u> Upon successful completion of this unit the student will be able to:	
4.1	Define selected terms related to the muscular system.	Vocabulary List - Muscular System
4.2	Describe the major functions of the muscular system.	Text: pp. 139-140
4.3	Describe three types of muscle tissue and identify where they are found in the body.	Text: pp. 140-142 Workbook: pp. 81-83, # 1
4.4	Describe the events of muscle cell contraction.	Teacher Presentation Workbook: p. 86, # 9
4.5	Describe the effects of exercise on muscles.	
4.6	Demonstrate the different types of body movement.	Text: pp. 149-152 Workbook: pp. 86-87, # 10,11
4.7	Given diagrams, charts and a torso model, name and locate selected muscles and state the action of each.	Lab: Class exercise to demonstrate and perform body movements. Identification of muscles using torso, anatomical charts. Text: pp. 154-163. Workbook: pp. 88-96, # 14,15,16,17,18,19,20
4.8	Describe how the structure of muscle(s) is suited to function.	Class Discussion
4.9	Explain the importance of nerve supply to the functioning of muscle tissue.	
4.10	Describe the role of the muscular system in supporting adaptation.	Class Discussion
4.11	Describe selected developmental aspects of the muscular system.	Text: pp. 163 Workbook: p. 102, # 21  Review Muscular System Workbook p. 102-103 # 22

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IV.	LEARNING ACTIVITIES	REQUIRED RESOURCES
5.0	<u>The Nervous System</u> Upon successful completion of this unit the student will be able to:	
5.1	Define selected terms related to the nervous system.	Vocabulary List - Nervous System
5.2	Describe the general functions of of the nervous system.	Text: p. 172 Workbook: p. 105, # 1
5.3	Describe the general structure of a neuron.	Teacher Presentation Text: pp. 174-183 Workbook: pp. 106-112, # 4,5,6,7,8,10,11
5.4	State the function of neurons.	
5.5	Classify neurons according to function.	
5.6	Describe a nerve impulse and how it is conducted from one neuron to another.	
5.7	Define reflex arc and list its elements.	
5.8	List the parts of the central nervous system.	
5.9	Given a model, diagram or specimen, locate selected parts of the brain and spinal cord.	Lab: Dissection of the Brain. Examination of torso, model, anatomical charts.
5.10	Describe the functions of the selected parts of the brain and spinal cord.	Teacher Presentation Text: pp. 183-194 Workbook: pp. 112-120, # 13,14,15,16,17,18,20, 21,22,23,24
5.11	Explain how the brain and spinal cord are protected.	Teacher Presentation Text: pp. 188-191
5.12	Describe the formation and function of cerebrospinal fluid.	

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IV.	LEARNING ACTIVITIES	REQUIRED RESOURCES
5.13	Describe the structure of a nerve within the peripheral nervous system.	Teacher Presentation Text: pp. 194-198 Workbook: pp. 120-123, # 29,30,31,33
5.14	Given a diagram, model or chart, name and locate the four major nerve plexuses with the major nerves of each.	Lab: Identification of selected nerves using models, torso, anatomical charts.
5.15	Given a diagram, model or chart, identify the cranial nerves and list the major functions of each.	
5.16	Explain the function of the sympathetic and parasympathetic divisions of the autonomic nervous system and state the effect of each on the major body organs.	Teacher Presentation Text: pp. 199-205 Workbook: pp. 123-124, # 34,35
5.17	Describe how various structures within the nervous system are suited to their function.	Class Discussion
5.18	Describe the role of the nervous system in supporting adaptation.	Class Discussion
5.19	Describe selected developmental aspects of the nervous system.	Text: p. 208-209 Review Workbook: pp. 124 # 37,38
6.0	<u>The Special Senses</u> Upon successful completion of this unit the student will be able to:	
6.1	Given models, charts or diagrams, identify and locate the receptors for each of the special senses: i) eye ii) ear iii) nose iv) tongue v) skin	Teacher Presentation Text: pp. 216-234 Workbook: pp. 127-139 # 1,2,4,5,6,7,8,9,13,14, 15,16,17,18,19,20,21,22, 23,24,25
6.2	State the function for each receptor.	

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IV.	LEARNING ACTIVITIES	REQUIRED RESOURCES
6.3	Describe the structures and related functions of selected parts of the: i) eye ii) ear iii) nose (in relation to smell) iv) tongue (in relation to taste) v) skin (in relation to touch)	Lab: Identification of selected structures using torso, models, anatomical charts, eye specimens.
6.4	For each of the above sensory organs, trace the afferent pathway followed by sensory impulses to their corresponding sensory areas in the brain.	
6.5	Describe the role of the special senses in supporting adaptation.	Class Discussion
6.6	Describe selected developmental aspects of the special senses.	Text, p. 234-235 Workbook p. 139, #26 Review workbook p. 140, # 27
7.0	<u>The Endocrine System</u> Upon successful completion of this unit the student will be able to:	
7.1	Define selected terms related to the endocrine system.	Vocabulary List - Endocrine System
7.2	Given a torso, charts or diagrams identify the major endocrine glands.	
7.3	State the general function of endocrine glands.	Text: pp. 239-241 Workbook - pp. 143-148 # 2,3,4,5,6,7,8
7.4	List hormones produced by endocrine glands and discuss their general functions.	
7.5	Describe the effects of hypo and hypersecretion of selected hormones.	
7.6	Describe how the secretion of hormones is regulated.	Teacher presentation.

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IV.	LEARNING ACTIVITIES	REQUIRED RESOURCES
7.7	Describe the role of the endocrine system in supporting adaptation.	Class Discussion
7.8	Describe the relationship between the nervous system and the endocrine system.	Class Discussion
7.9	Describe selected developmental aspects of the endocrine system.	Text p. 259 Workbook: p. 148, #10 Review: Workbook p. 149, # 11
8.0	<u>Circulatory and Lymphatic System</u> Upon successful completion of this unit the student will be able to:	
8.1	Define selected terms related to the circulatory and lymphatic systems.	Vocabulary List - Circulatory System
8.2	Describe the composition of blood.	Text pp. 264-270 Workbook: pp. 151-155 # 1,2,5
8.3	Describe the basic function of blood.	
8.4	Review the role of the skeletal system in hemopoiesis.	
8.45	Describe the blood clotting process.	Teacher presentation Text: p. 271-272 Workbook: p. 156, # 6,7
8.6	Describe the ABO and Rh blood groups and explain their significance in relation to blood transfusions.	Text: p. 273-275 Workbook - p. 157, # 8,9,10,11
8.7	Describe the location of the heart and identify its major anatomical areas on charts, diagrams, models and specimens.	Text: pp. 283-287 Workbook: pp. 161-164 # 1,2,3,4 Teacher presentation. Lab: dissection of heart specimen. Identification of selected structures on specimens, models, torso, anatomical charts

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IV.	LEARNING ACTIVITIES	REQUIRED RESOURCES
8.8	Relate the structural features of the heart to its function.	Class discussion.
8.9	Trace the pathway of blood through the heart and lungs.	
8.10	Describe the conduction system of the heart.	Text: p. 287-289 Workbook: p. 164, # 5
8.11	Briefly describe the "cardiac cycle".	
8.12	Compare and contrast the structure and function of arteries, veins and capillaries.	Teacher presentation. Text: pp. 292-293 Workbook: p. 167, # 12,13,14
8.13	Given a torso, diagrams, or charts locate and identify selected arteries and veins	Text: pp. 294-298 Workbook: p. 168-171 # 16,17,18
8.14	Describe i) systemic circulation ii) pulmonary circulation iii) portal circulation iv) fetal circulation	Teacher presentation. Text: pp. 298-300 Workbook pp. 173-174 # 19,20,22,23,24,25,26, 28.
8.15	Describe the structure, location and function of the following parts of the lymphatic system. i) capillaries ii) vessels iii) ducts iv) nodes v) other lymphoid organs	Teacher presentation. Text: 309-311 Workbook: pp. 178-179 # 29,30
8.16	Describe the significance of lymphatic circulation.	
8.17	Describe the role of the circulatory and lymphatic systems in supporting adaptation.	Class discussion.

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IV.	LEARNING ACTIVITIES	REQUIRED RESOURCES
8.18	Describe selected developmental aspects of the circulatory system.	Text: pp. 277,312 Workbook: p. 158, # 12 p. 179, # 31 Review, Workbook p. 159 # 13, p. 180 # 32
9.0	<u>The Respiratory System</u> Upon successful completion of this unit the student will be able to:	
9.1	Define selected terms related to the respiratory system.	Vocabulary - Respiratory System.
9.2	State the function of the respiratory system.	Text: p. 344
9.3	Given a torso, chart or diagram locate the following structures of the respiratory system.  i) nose ii) pharynx iii) larynx iv) trachea v) bronchi vi) lungs (alveoli)	Text: pp. 344-349 Workbook: p. 199 # 1,2,3,4,5,6,7,8,9  Lab: Identify selected structures using torso, anatomical charts.
9.4	Describe how the above structures of the respiratory system are related to their function.	Teacher presentation. Text: pp. 344-349.
9.5	Describe briefly the mechanism of breathing.	Teacher presentation. Text: pp. 351-353 Workbook: pp. 206-208 # 10,11,12,13,14
9.6	Describe the process of gas exchanges in the lungs (external respiration) and tissues (internal respiration)	Teacher presentation. Text: pp. 354-356 Workbook: pp. 209 # 17,18,19
9.7	Briefly describe how gases are transported in the blood.	
9.8	Briefly describe the control of respirations.	Teacher presentation. Text: pp. 356-357 Workbook: pp. 210, #20

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IV.	LEARNING ACTIVITIES	REQUIRED RESOURCES
9.9	Describe the role of the respiratory system in supporting adaptation.	Class discussion.
9.10	Describe selected developmental aspects of the respiratory system.	Text: pp. 360-361 Workbook: p. 211, #22,23 Review workbook: p. 212-213. #24
10.0	<u>The Digestive System</u> Upon successful completion of this unit the student will be able to:	
10.1	Define selected terms related to the digestive system.	Vocabulary List - Digestive System.
10.2	State the functions of the digestive system.	Text: p. 366
10.3	Given a torso, charts or diagrams locate and identify the organs of the alimentary canal and the accessory digestive organs.	Teacher presentation. Text: pp. 366-367 Workbook: pp. 215-216 # 1,2,3,4,5,6,7 Lab: Identify selected structures using torso, anatomical charts.
10.4	Describe the structure, in relation to function of the organs of the digestive system. i) mouth (oral cavity) ii) pharynx iii) esophagus iv) stomach v) small intestine vi) large intestine	
10.5	Describe the structure and function of the accessory organs of the digestive system. i) teeth ii) salivary glands iii) liver iv) gall bladder v) pancreas	Teacher presentation. Text: pp. 375-377 Workbook: pp. 224-226 # 9,10,12

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IV.	LEARNING ACTIVITIES	REQUIRED RESOURCES
10.6	Describe the digestive processes as they relate to the organs and accessory organs of the digestive system. i) ingestion ii) food breakdown iii) food movement iv) absorption v) defecation	Teacher presentation. Text: pp. 378-387 Workbook: pp. 226-229 # 13,14,15,16,17,18
10.7	Describe the circulation of absorbed food stuffs in blood and lymphatics.	
10.8	Describe the normal composition and characteristics of feces.	
10.9	Briefly describe the metabolism of carbohydrates, fats and proteins.	Teacher presentation. Text: pp. 387-392 Workbook: pp. 230-232
10.10	Describe the role of the liver in metabolism.	# 19,20,21,22
10.11	Explain the importance of energy balance in the body.	
10.12	Describe the relationship of foods to body heat.	Teacher presentation. Text: pp. 393-395
10.13	Review body temperature regulation.	
10.14	Describe the role of the digestive system in supporting adaptation.	Class discussion.
10.15	Describe selected developmental aspects of the digestive system.	Text: 395-396 Workbook: 233, #24 Review workbook: p. 234, # 25
11.0	<u>The Urinary System</u> Upon successful completion of this unit the student will be able to:	
11.1	Define selected terms related to the urinary system.	Vocabulary List - Urinary System.

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IV.	LEARNING ACTIVITIES	REQUIRED RESOURCES
11.2	State the basic function of the urinary system.	Text: pp. 401-402
11.3	Given a torso, charts, or diagrams locate and identify the organs of the urinary system.	Text: 402-403 Workbook: pp. 238-239 # 2 Lab: Identify selected structures using torso, anatomical charts.
11.4	Describe the general structure and related functions of the organs of the urinary system. i) kidney ii) ureters iii) urinary bladder iv) urethra	Teacher presentation. Text: pp. 402-403, 414-416 Workbook: pp. 238-240, # 3,4
11.5	Describe the structures and function of the nephron.	Teacher presentation. Text: pp. 404-406 Workbook: pp. 240-242, # 5,6,7
11.6	Describe the process of urine formation. i) filtration ii) tubular reabsorption iii) tubular secretion	Text: pp. 406-408 Workbook: pp. 243-244 # 8,9,10,11,12,13,14, 15,17
11.7	Explain the effect of aldosterone and A.D.H. on the kidneys	Text: pp. 408-411
11.8	Describe the characteristics of urine.	Text: pp. 411-412
11.9	Describe the role of the urinary system in supporting adaptation.	Class discussion.
11.10	Describe selected developmental aspects of the urinary system.	Text: p. 417-418 Workbook: pp. 247, # 19 Review workbook: p. 248, # 20
12.0	<u>The Reproductive System</u> Upon successful completion of this unit the student will be able to:	
12.1	Define selected terms related to the reproductive system.	Vocabulary List - Reproductive System

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IV.	LEARNING ACTIVITIES	REQUIRED RESOURCES
12.2	State the basic functions of the reproductive system.	Text: pp. 421-422
12.3	Given a torso, charts or diagrams locate and identify the organs of the male and female reproductive systems.	Lab: Identify selected structures using torso and anatomical charts
12.4	Describe the structure and related functions of the male organs of reproduction. i) scrotum ii) testes iii) epididymis iv) vas deferens v) seminal vesicle vi) ejaculatory duct vii) prostate gland viii) bulbourethral glands ix) urethra	Teacher presentation. Text: pp. 422-428 Workbook: pp. 251 # 1,2,3,4,5,7,8
12.5	Name the endocrine and exocrine products of the testes.	
12.6	Describe the composition and production of seminal fluid.	Text: pp. 427-428
12.7	Describe the hormonal control of male sex characteristics and reproductive function.	Teacher presentation.
12.8	Describe the nervous control of the male reproductive organs.	Teacher presentation.
12.9	Describe the structure and related function of sperm.	Text: pp. 423-424
12.10	Describe the structure and related functions of the female organs of reproduction. i) vagina ii) Bartholin's glands iii) uterus iv) uterine (fallopian) tubes v) ovaries vi) vulva and perineum vii) mammary glands	Teacher presentation. Text: pp. 429-435 Workbook: pp. 257-264 # 9,11,12,13,14,15,16,19

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- 12.11 Describe how the uterus and ovaries are supported in the pelvic cavity.
- 12.12 Describe the structure and related function of the ova.
- 12.13 Describe the hormonal control of the female sex characteristics and reproductive function. Teacher presentation.  
Workbook: p. 262,  
# 17,18
- 12.14 Describe the phases and controls of the menstrual cycle. Teacher presentation.
- 12.15 Describe the nervous control of the female reproductive organs. Teacher presentation.
- 12.16 Describe the role of the reproductive system in supporting adaptation. Class discussion.
- 12.17 Describe selected developmental aspects of the reproductive system. Text: p. 442  
Workbook: p. 269, # 31  
Review workbook:  
p. 270 # 32
- 13.0 Microbiology  
Upon successful completion of this unit the student will be able to:
- 13.1 Define the selected words associated with microbiology. Consult a Microbiology text from the College or other library to complete vocabulary list.
- 13.2 Briefly define the following classifications of parasites & organisms.  
i) bacteria  
ii) rickettsiae  
iii) viruses  
iv) fungi (yeasts & molds)  
v) protozoa  
vi) helminths  
vii) arthropods Complete self-study workbook for Microbiology followed by teacher summary & discussion.  
  
View videos-  
Principles of Microbiology Bacteria Part I, Part II, Viruses.
- 13.3 List 1 example of a disease or condition caused by the above types of organisms.

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- 13.4 Describe the sub-types of bacteria according to shape.
- 13.5 Describe the general characteristics of a bacterial cell.
- 13.6 Describe the growth requirements of most bacteria.
- 13.7 State beneficial effects of non-pathogenic bacteria.
- 13.8 State the effect of pathogenic bacteria on the body.
- 13.9 Describe the normal flora of the human body in terms of:
  - i) benefits of body flora
  - ii) potential hazard of body flora
  - iii) location of normal flora
- 13.10 Describe the general characteristics of viruses.
- 13.11 State reasons why viruses are difficult to destroy.
- 13.12 List examples of common diseases caused by viruses.
- 13.13 Identify beneficial and harmful activities of yeasts & molds.
- 13.14 Identify beneficial and harmful activities of protozoa.
- 13.15 Identify parasitic worms which cause disease.
- 13.16 Describe transmission & portals of entry & exit of microorganisms.
- 13.17 Explain the criteria important in determining if infection will follow microbial invasion.
  - i) number of organisms
  - ii) virulence of organisms
  - iii) adaptive responses of host

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13.18 Explain the adaptive responses of the host by describing the body's three main lines of defense against pathogens.

13.19 Explain "culture & sensitivity".

13.20 Explain "drug resistance".

13.21 Explain common diagnostic tests which confirm presence of pathogens.

13.22 Describe the methods of assisting man in adapting to microorganisms.

i) physical agents

a) mechanical

b) heat

c) miscellaneous

ii) chemical agents

a) disinfectants & antiseptics

b) chemotherapeutic agents

Class presentations

13.23 Describe environmental use & control of microorganisms related to:

i) air

ii) water and sewage

iii) milk

iv) food

v) health care agencies

vi) communities

Class presentations

Community Agencies

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V. **EVALUATION METHODS:** (includes assignments, attendance requirements, etc.)

A final grade will be derived from the following:

- 1. Six unit tests           70%
- 2. Final Exam               30%

Grading System

Grading	A+	90 - 100%
	A	80 - 89%
	B	70 - 79%
	C	60 - 69%

\* Note - Pass is a "C" overall.

Test Schedule

Test #1	Terminology, Overview of Body Systems, The Cell	12%	Sept. 22/92
#2	Integumentary, Skeletal, Muscular Systems	12%	Oct. 06/92
#3	Nervous System, Special Senses, Endocrine System	12%	Nov. 03/92
#4	Circulatory and Respiratory Systems	12%	Nov. 18/92
#5	Microbiology	10%	Dec. 02/92
#6	Urinary, G.I., and Reproductive Systems	12%	Dec. 09/92
Final	Final to cover all above units	30%	Dec. 15/92

NOTE:

1. If you are unable to attend class for a test, you MUST contact the Health Sciences Office BEFORE the test. 759-6774, ext. 689.
2. Students must pass at least one term test and obtain at least 50% on the Final exam to be eligible to write a supplemental exam.
3. One supplemental exam will be given. If the supplemental exam is passed, the student will receive a "C" regardless of the final exam mark.
4. Excellent attendance will be taken into consideration for borderline marks.
5. Evaluation of this course will be done mid-term.
6. Tests remain the property of Sault College.

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**VI. REQUIRED STUDENT RESOURCES**

Marieb, Elaine N., Essentials of Human Anatomy and Physiology, Benjamin/Cummings Publishing Company Inc., Redwood City, California, 1991.

Marieb, Elaine N., The A&P Coloring Workbook - A Complete Study Guide, Benjamin/Cummings Publishing Company Inc., Redwood City, California, 1991.

**VII. ADDITIONAL RESOURCE MATERIALS AVAILABLE IN THE COLLEGE LIBRARY BOOK SECTION: (title, publisher, edition, date, library call number if applicable)**

Several additional Biology/Physiology and Microbiology books are available in the Library.

**VIII. SUGGESTED MICROBIOLOGY REFERENCES:**

Burton, Gwendolynn R.W., Microbiology for the Health Sciences, Third Edition, J.B. Lippincott Company, Philadelphia, 1988.

Alcamo, I. Edward, Fundamentals of Microbiology, Third Edition, The Benjamin/Cummings Publishing Company Inc., Redwood City, California, 1991.

Videos - Principles of Microbiology, Bacteria Part I, Part II, Viruses.

**XI. SPECIAL NOTES**

Students with special needs (eg: physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.