



**EFFECTIVE: SEPTEMBER 2003**

**CURRICULUM GUIDELINES**

**A:** Division: **Science and Technology** Date: **May 2002**  
**B:** Department/ **Biology Department** New Course | | Revision | **X** |  
 Program Area:  
 If Revision, Section(s) Revised: **A,B,F,G,J,K,L,O,P,Q,R**  
 Date Last Revised: **28 February 1992**

**C: Biology 109 D: Human Anatomy and Physiology E: 3**  
 Subject & Course No. Descriptive Title Semester Credits

**F:** Calendar Description: This course introduces the basic organization of the human body and examines the anatomy and physiology of cells, tissues, integumentary system, skeletal system, articulations, muscular systems and nervous system. Enrolment is usually limited to students in the Sport Science program.

<b>G:</b> Allocation of Contact Hours to Types of Instruction/Learning Settings  Primary Methods of Instructional Delivery and/or Learning Settings:  <b>Lecture/Tutorial/Laboratory</b>  Number of Contact Hours: (per week / semester for each descriptor)  <b>Lecture: 2 hours/week</b> <b>Tutorial: 1 hours/week</b> <b>Laboratory: 2 hours/week</b>  Number of Weeks per Semester: <b>14</b>	<b>H:</b> Course Prerequisites: None
	<b>I.</b> Course Corequisites: None
	<b>J.</b> Course for which this Course is a Prerequisite: Biol 209
	<b>K.</b> Maximum Class Size: Lectures: 42 Tutorials: 21

**L:** PLEASE INDICATE:  
 Non-Credit  
 College Credit Non-Transfer  
 College Credit Transfer: Requested  Granted   
 SEE BC TRANSFER GUIDE FOR TRANSFER DETAILS ([www.bccat.bc.ca](http://www.bccat.bc.ca))

**M: Course Objectives/Learning Outcomes**

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

1. Describe the structure and function of cells
2. Explain how materials enter into and exit from cells
3. Describe the structure and function of epithelial, connective, muscular and nervous tissue
4. Explain homeostatic mechanisms in the human body
5. Describe the body's structure and organization
6. Describe the structure and function of the integumentary system
7. Describe the structure and function of cartilage and bone
8. Name the bones making up the skeleton
9. Describe the structure and function of fibrous, cartilaginous and synovial joints
10. Describe first, second and third-class levers and explain biomechanical principles
11. Describe the structure and function of smooth, cardiac and skeletal muscle
12. Describe kinds of muscle contractions and explain the mechanisms of contraction
13. Name major skeletal muscles and give their origins, insertions and functions
14. Describe the organization of the nervous system
15. Describe the structure and function of nervous tissue, brain and spinal cord
16. Explain the mechanism of nerve impulse transmission
17. Describe types of sensory receptors and explain reflex arc physiology
18. Describe disorders of the joints and the integumentary, skeletal, muscular and nervous systems
19. Identify structures on slides, models and charts and conduct tests and experiments related to course objectives

**N: Course Content**

1. CELLS
  - structure and function
  - cell division
2. CELLULAR PROCESSES
  - passive processes
  - active processes
3. TISSUES
  - classification
  - structure and function of epithelial, connective, muscular and nervous tissue
4. HOMEOSTASIS
  - stress and homeostasis
  - negative feedback mechanisms
  - positive feedback mechanisms
5. BODY STRUCTURE AND ORGANIZATION
  - levels of structural organization
  - directional terms
  - body planes
  - body cavities
  - body systems
6. INTEGUMENTARY SYSTEM
  - epidermis-structure and function
  - dermis-structure and function
  - skin derivatives
  - disorders

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|-----|-----------------|---|--|
| 7.  | SKELETAL SYSTEM | - | functions                                      |
|     |                 | - | classification                                 |
|     |                 | - | bone structure                                 |
|     |                 | - | bone formation                                 |
|     |                 | - | bone growth                                    |
|     |                 | - | homeostasis                                    |
|     |                 | - | bone disorders                                 |
|     |                 | - | axial skeleton                                 |
|     |                 | - | appendicular skeleton                          |
| 8.  | ARTICULATIONS   | - | classification                                 |
|     |                 | - | characteristics                                |
|     |                 | - | structure and function of major joints         |
|     |                 | - | joint disorders                                |
|     |                 | - | lever systems                                  |
|     |                 | - | biomechanical principles                       |
| 9.  | MUSCULAR SYSTEM | - | muscle types                                   |
|     |                 | - | characteristics                                |
|     |                 | - | muscle growth and development                  |
|     |                 | - | skeletal muscle                                |
|     |                 | - | types of fibers                                |
|     |                 | - | gross anatomy                                  |
|     |                 | - | microscopic anatomy                            |
|     |                 | - | mechanism of contraction                       |
|     |                 | - | kinds of contractions                          |
|     |                 | - | smooth muscle                                  |
|     |                 | - | structure and function                         |
|     |                 | - | cardiac muscle                                 |
|     |                 | - | structure and function                         |
|     |                 | - | muscle homeostasis                             |
|     |                 | - | muscle disorders                               |
|     |                 | - | principle skeletal muscles                     |
| 10. | NERVOUS SYSTEM  | - | organization - CNS, PNS, ANS                   |
|     |                 | - | growth and development                         |
|     |                 | - | brain - structure and function                 |
|     |                 | - | spinal cord-structure and function             |
|     |                 | - | physiology of impulse transmission             |
|     |                 | - | spinal and cranial nerves                      |
|     |                 | - | neurotransmitters                              |
|     |                 | - | reflex arc                                     |
|     |                 | - | sensory receptors                              |
|     |                 | - | proprioception                                 |
|     |                 | - | sensory and motor pathways                     |
|     |                 | - | motor unit                                     |
|     |                 | - | special senses - vision, hearing, smell, taste |
|     |                 | - | nervous system disorders                       |

**O: Methods of Instruction**

This course involves three hours per week of classroom instruction and two hours per week of laboratory activity. Classroom work will include lectures and tutorials with instructor assistance.

**P: Textbooks and Materials to be Purchased by Students**

1. Tortora and Grabowski, *Introduction to the Human Body*. New York: John Wiley and Sons, Inc.
2. Douglas College produced manual: **Biology 109 Lab Manual**

**Q: Means of Assessment**

Class Tests and Assignments	20
Laboratory Reviews (See Note 1 below)	(up to -22)
Laboratory Examination - final	15
Comprehensive Examinations - midterm	30
- final	35
<b>TOTAL</b>	<b>100</b>

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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.

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**Notes:****1. Laboratory Reviews**

Required laboratory reviews will be assigned in most weeks, and these reviews must be completed in the laboratory in the week that they are assigned. The laboratory reviews are intended to provide an opportunity to review particular material with each student. Completion of the review will result in a grade of P (Pass) or R (Review Recommended) being marked on the laboratory sheet. If more than one review is not completed satisfactorily (P or R), **two marks will be deducted from the course total for each lab review in excess of one that is not completed.** A student **must complete 50% of the reviews to receive a P or better in the course.**

**2. Comprehensive Examinations**

There will be one midterm covering the first half of the course. The final examination will cover the entire course. If the student achieves a better grade on the final exam than on **one** midterm exam, the midterm grade will be raised to equal that achieved on the final examination.

**R:** Prior Learning Assessment and Recognition: specify whether course is open for PLAR  
There is no provision for PLAR, other than that normally done by examining transcripts and comparing course outlines of human biology courses taken within the last five years elsewhere to the Douglas College Biology 109 course content.

Course Designer(s)

Education Council/Curriculum Committee Representative

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Dean/Director

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Registrar

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