



# EFFECTIVE: SEPTEMBER 2007 CURRICULUM GUIDELINES

**A. Division:**                      **Education**    Effective Date:    **September 2007**

**B. Department /**                      **Faculty of Science & Technology**                      Revision                       New Course                       **X**  
**Program Area:**                      **Biology**  
 If Revision, Section(s)  
 Revised:

	Descriptive Title	Semester Credits						
<p><b>F:</b> Calendar Description:</p> <p>This course is the study of the principles of genetics. Topics covered include the physical and chemical basis of heredity, genetic analysis in eukaryotes, prokaryotes and viruses, mutation; population genetics and evolution</p>								
<p><b>G:</b> Allocation of Contact Hours to Type of Instruction / Learning Settings</p> <p>Primary Methods of Instructional Delivery and/or Learning Settings:</p> <p><b>Lecture/Tutorial (problem solving)/Laboratory</b></p> <p>Number of Contact Hours:</p> <p><b>Lecture/tutorial    4 hours/week</b>  <b>Laboratory /practical    3 hours/week</b></p> <p>Number of Weeks per Semester:</p> <p><b>15</b></p>	<p><b>H:</b> Course Prerequisites:</p> <p><b>BIOL 1210 or BIOL 1310</b>  <b>or permission of instructor</b></p> <p><b>I:</b> Course Corequisites:</p> <p>none</p> <p><b>J:</b> Course for which this Course is a Prerequisite</p> <p>none</p> <p><b>K:</b> Maximum Class Size:</p> <p><b>27</b></p>							
<p><b>L: PLEASE INDICATE:</b></p> <table style="width: 100%;"> <tr> <td style="width: 50px; text-align: center;"><input type="checkbox"/></td> <td>Non-Credit</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>College Credit Non-Transfer</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>College Credit Transfer:</td> </tr> </table> <p style="text-align: center;">SEE BC TRANSFER GUIDE FOR TRANSFER DETAILS (<a href="http://www.bctransferguide.ca">www.bctransferguide.ca</a>)</p>			<input type="checkbox"/>	Non-Credit	<input type="checkbox"/>	College Credit Non-Transfer	<input checked="" type="checkbox"/>	College Credit Transfer:
<input type="checkbox"/>	Non-Credit							
<input type="checkbox"/>	College Credit Non-Transfer							
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**M:** Course Objectives / Learning Outcomes

Upon completion of this course, students will be able to demonstrate an understanding of the principles of classical and modern genetics, including being able to:

1. Describe the physical basis of heredity.
2. Describe the experimental basis of Mendelian inheritance.
3. Describe sex-determining mechanisms in a wide variety of organisms.
4. Describe non-Mendelian inheritance, including linkage, sex-linkage, sex-influenced inheritance, sex-limited inheritance, multiple allelism, multigenic inheritance, and extra-chromosomal inheritance.
5. Interpret pedigrees to determine modes of inheritance of genetic anomalies in humans.
6. Derive chromosome maps by a variety of techniques, including the analysis of:
  - 6.1. testcross data in higher organisms
  - 6.2. tetrad analysis in fungi

4. Non-Mendelian Inheritance, including:
  - 4.1. linkage

17. Population genetics and evolution, including:
  - 17.1. Hardy-Weinberg equilibrium
  - 17.2. effects of genetic drift and selection
  
18. Laboratory Exercises
  - 18.1. mitosis in onion roots
  - 18.2. chi square (corn crosses)
  - 18.3. gene mapping in *Drosophila*
  - 18.4. polytene chromosomes
  - 18.5. plant viruses
  - 18.6. population genetics (models of drift and selection; field study)

**DOUGLAS COLLEGE SIGNATURE ELEMENTS:**

Core Competencies:

- a. Oral, written and interpersonal communication:

Laboratory assignments, in-class assignments, problem sets and all examinations in this course will

**O:** Methods of Instruction

This course involves four hours per week of classroom instruction and three hours per week of laboratory activity. Classroom work will include lectures and tutorial