

## Sir John A. Macdonald Collegiate Institute Course Brief

<b>Course Name</b>	BIOLOGY – GRADE 11 COLLEGE	<b>Grade</b>	11
<b>Course Code</b>	SBI 3C	<b>Credit Value</b>	1
<b>Pre-Requisite</b>	SNC 2D1/2P1	<b>Or Recommended Pre-Requisite</b>	
<b>Type of Course</b>	College		

### TEXTBOOKS

Biology 11 College Preparation  
McGraw-Hill Ryerson  
Whitby, ON © 2012

REPLACEMENT COST (if lost or damaged)

\$ 90.34

### ADDITIONAL RESOURCES/LEARNING MATERIALS

REPLACEMENT COST (if lost or damaged)

### Course Description

This course focuses on the processes that occur in biological systems. Students will learn concepts and theories as they conduct investigations in the areas of cellular biology, microbiology, genetics, the anatomy of mammals, and the structure of plants and their role in the natural environment. Emphasis will be placed on the practical application of concepts, and on the skills needed for further study in various branches of the life science and related fields.

### Curriculum Strands/Categories (this may differ depending on discipline and level)

#### Cellular Biology

- Life processes are determined by the structures and functions of biochemical compounds, cell organelles, and body systems.
- Technological devices that support cellular functions and processes can be used to improve human health.
- Substances that are present in our everyday lives can affect cellular functions and processes in positive and negative ways.

#### Microbiology

- Groups of microorganisms have common characteristics, and these characteristics enable them to interact with other organisms in the environment
- Microorganisms can have both positive and negative effects on the environment.
- The technological use of microorganisms raises many ethical issues.

#### Genetics

- Genetic research and biotechnology have social, environmental, and ethical implications.
- Variability and diversity of living organisms result from the distribution of genetic materials during the process of meiosis.

#### Anatomy of Mammals

- Groups of organs with specific structures and functions work together as systems, which interact with other systems in the body.
- Technologies that are used to maintain human health have social and economic benefits and costs.
- Environmental factors, including natural factors and those resulting from human activity, can have a wide range of effects on human health.

#### Plants in the Natural Environment

- Plants have specialized structures with distinct functions that enable them to respond and adapt to their environment.
- Plants are critical to the survival of ecosystems. Humans affect the sustainability of ecosystems when they alter the balance of plants within those ecosystems.

### Assessment and Evaluation of Student Achievement

Unit	Unit Title/Description	Evaluation Task	Achievement Chart Focus
Unit 1	<b>CELLULAR BIOLOGY</b> -life processes are determined by the structures and functions of biochemical compounds, cell organelles, and body systems -technological devices that support cellular functions and processes can be used to improve human health -substances that are present in our everyday lives can affect cellular functions and processes in positive and negative ways	Language of Biology Microscope Lab Enzyme Lab Macromolecule Lab Membrane Transport Lab Cellular Biology Quiz Unit Test	Communication Thinking Communication Application Application Knowledge and Understanding Thinking/Knowledge and Understanding Understanding
Unit 2	<b>ANATOMY OF MAMMALS</b> -groups of organs with specific structures and functions work together as systems, which interact with other systems in the body -technologies that are used to maintain human health have social and economic benefits and costs -environmental factors, including natural factors and those resulting from human activity can have a wide range of effects on human health	Stimulus Activity Digestion Lab Heart Rate Activity Blood Pressure Lab Lung Volume Lab Rat Dissection Anatomy Quiz Unit Test	Communication Application Thinking Application Application/Communication Application/Thinking Knowledge and Understanding Thinking/Knowledge and Understanding Understanding

Unit 3	<b>GENETICS</b> -genetic research and biotechnology have social, environmental, and ethical implications -variability and diversity of living organisms result from the distribution of genetic materials during the process of meiosis	DNA Building Mitosis/Meiosis Activity Heredity Simulation Genetics Activity Problem Set Creating Karyotypes DNA Fingerprinting Lab Unit Test	Communication Thinking Communication Application Knowledge and Thinking Application Communication Thinking/Knowledge and Understanding
Unit 4	<b>MICROBIOLOGY</b> -groups of microorganisms have common characteristics, and these characteristics enable them to interact with other organisms in the environment -microorganisms can have both positive and negative effects on the environment -the technological use of microorganisms raises many ethical issues	Dichotomous Key Activity Dichotomous Key Building Bacterial Structure Protist Lab Eukaryotic Micro-organisms Unit Test	Application Thinking Communication Application Communication Thinking/Knowledge and Understanding
Unit 5	<b>PLANTS IN THE NATURAL ENVIRONMENT</b> -plants have specialized structures with distinct functions that enable them to respond and adapt to their environment -plant variety is critical to the survival of ecosystems -humans affect the sustainability of ecosystems when they alter the balance of plants within those ecosystems	Tissue Lab Tree Identification Jobs of a Plant Unit Test	Communication/Thinking Application Thinking Knowledge and Understanding

**\*\*Assessments and Evaluations are subject to change\*\***

### Levels of Achievement

For Grades 9 to 12, a student's achievement of the overall curriculum expectations will be evaluated in accordance with the achievement charts in the provincial curriculum and will be reported using percentage marks.

Achievement Level	Percentage Mark Range	Achievement Description
HL4/L4+ L4 LL4/L4-	95 – 100 87 – 94 80 – 86	Level 4 identifies achievement that surpasses the provincial standard. The student demonstrates the specified knowledge and skills with a high degree of effectiveness.
HL3/L3+ L3 LL3/L3-	77 – 79 73 – 76 70 – 72	Level 3 represents the provincial standard for achievement. The student demonstrates the specified knowledge and skills with considerable effectiveness. Parents of students achieving at level 3 can be confident that their children will be prepared for work in subsequent grades/courses
HL2/L2+ L2 LL2/L2-	67 – 69 63 – 66 60 – 62	Level 2 represents achievement that approaches the provincial standard. The student demonstrates the specified knowledge and skills with some effectiveness. Students performing at this level need to work on identified learning gaps to ensure future success.
HL1/L1+ L1 LL1/L1-	57 – 59 53 – 56 50 – 52	Level 1 represents achievement that falls much below the provincial standard. The student demonstrates the specified knowledge and skills with limited effectiveness. Students must work at significantly improving learning in specific areas, as necessary, if they are to be successful in the next grade/course

Students who achieve below 50% have not met curriculum expectations; a credit will not be granted.

Learning Skills	Assessment of Learning Skills
Responsibility Organization Independent Work Collaboration Initiative Self-Regulation	Excellent (E) Good (G) Satisfactory (S) Needs Improvement (N)

### Weighting by Strands/Categories

Knowledge and Understanding	20%	Communication	25%
Thinking	25%	Application	30%

**Assessment and Evaluation Strategies:** the following is a list of potential A/E strategies used within the course; the list may not be exhaustive and is subject to change

- Paper & pencil quizzes & tests
- Formal examination
- Practical lab performance
- Written assignment/projects
- Research presentations
- Library/Internet research projects
- Formal lab reports
- Scientific illustration
- Graphical analysis & presentation
- Portfolio assessment

### CALCULATION OF FINAL MARK

- 70% for evaluations conducted throughout the course
- 30% for a Culminating Activity – the C/A will occur in the final 6 weeks of the course

- 15% Activity, 15% Final Exam