



**Ontario eSecondary School  
Course Outline  
2022-2023**

<b>Ministry of Education Course Title: Biology, University Preparation</b>	
<b>Ministry Course Code: SBI3U</b>	
<b>Course Type: University Preparation</b>	
<b>Grade: 11</b>	
<b>Credit Value: 1.0</b>	
<b>Prerequisite(s): SNC2D, Grade 10, Academic Science</b>	
<b>Department: Science</b>	
<b>Course developed by: David Fairfax</b>	<b>Created: May 5, 2015</b> <b>Updated: August 1, 2019</b>
<b>Length: One Semester</b>	<b>Hours: 110</b>
This course has been developed based on the following Ministry documents: <ol style="list-style-type: none"><li>1. <i>Science, The Ontario Curriculum, Grades 11 and 12, 2008, (revised)</i></li><li>2. <i>Growing Success: Assessment, Evaluation, and Reporting in Ontario Schools (2010)</i></li><li>3. <i>Learning for All (2013)</i></li></ol>	

### **COURSE DESCRIPTION/RATIONALE**

This course furthers students' understanding of the processes that occur in biological systems. Students will study theory and conduct investigations in the areas of biodiversity; evolution; genetic processes; the structure and function of animals; and the anatomy, growth, and function of plants. The course focuses on the theoretical aspects of the topics under study, and helps students refine skills related to scientific investigation.

**Prerequisite:** Science, Grade 10, Academic

### **OVERALL CURRICULUM EXPECTATIONS**

#### **Scientific Investigation Skills and Career Exploration**

By the end of the course, students will:

- demonstrate scientific investigation skills (related to both inquiry and research) in the four areas of skills (initiating and planning, performing and recording, analysing and interpreting, and communicating)

#### **Animals: Structure and Function**

By the end of this course, students will:

- analyse the relationships between changing societal needs, technological advances, and our understanding of internal systems of humans
- investigate, through laboratory inquiry or computer simulation, the functional responses of the respiratory and circulatory systems of animals, and the relationships between their respiratory, circulatory, and digestive systems
- demonstrate an understanding of animal anatomy and physiology, and describe disorders of the respiratory, circulatory, and digestive systems

#### **Genetic Processes**

By the end of this course, students will:

- evaluate the importance of some recent contributions to our knowledge of genetic processes, and analyse social and ethical implications of genetic and genomic research
- investigate genetic processes, including those that occur during meiosis, and analyse data to solve basic genetics problems involving monohybrid and dihybrid crosses
- demonstrate an understanding of concepts, processes, and technologies related to the transmission of hereditary characteristics.

#### **Evolution**

By the end of this course, students will:

- analyse the economic and environmental advantages and disadvantages of an artificial selection technology, and evaluate the impact of environmental changes on natural selection and endangered species
- investigate evolutionary processes, and analyse scientific evidence that supports the theory of evolution
- demonstrate an understanding of the theory of evolution, the evidence that supports it, and some of the mechanisms by which it occurs

#### **Diversity of Living Things**

By the end of this course, students will:

- analyse the effects of various human activities on the diversity of living things
- investigate, through laboratory and/or field activities or through simulations, the principles of scientific classification, using appropriate sampling and classification techniques
- demonstrate an understanding of the diversity of living organisms in terms of the principles of

taxonomy and phylogeny

**Plants: Anatomy, Growth, and Function**

By the end of this course, students will:

- evaluate the importance of sustainable use of plants to Canadian society and other cultures
- investigate the structures and functions of plant tissues, and factors affecting plant growth
- demonstrate an understanding of the diversity of vascular plants, including their structures, internal transport systems, and their role in maintaining biodiversity

## COURSE CONTENT

<i>Unit</i>	<i>Length</i>
Unit 1: Animals: Structure and Function	22 hours
Unit 2: Genetic Processes	22 hours
Unit 3: Evolution	22 hours
Unit 4: Diversity of Living Things	23 hours
Unit 5: Plants	21 hours
<b>Total</b>	<b>110 Hours</b>
	<b>2 Hour exam</b>
	<b>3 Hour Culminating Task</b>

### The students will experience a variety of activities:

**Video presentations** and technological aids with videos embedded to enrich the course content and clarify concepts and skills being studied.

**Practice (formative) quizzes** as a review for students with access to answers for timely feedback to help reinforce the concepts and skills being studied.

**Inquiry activities** that will allow students to develop/practice problem solving and critical thinking skills, as well as enrich the course content and clarify concepts and skills being studied.

**Visuals and graphic organizers** are a great way for students to demonstrate their knowledge of subject matter through graphic organizers, pictures, and texts.

### Individual Activities

Individual activities allow the teacher to accommodate interests and needs and to assess the progress of individual students. The teacher plays an important role in supporting these activities through the provision of ongoing feedback to the students, both orally and in writing. These activities include the following in the course:

**Research** is completed in an online environment and the use of using reliable sources/A.P.A. formatting is reinforced.

**Individual assignments** - the teacher can support the student in these activities with ongoing feedback.

**Oral presentations** are facilitated through the use of video conferencing.

**Practical extension and application of knowledge** helps students develop their own voice, and gives them the ability to make personal connections, and connections to the world throughout their course.

## ASSESSMENT, EVALUATION, AND REPORTING

**Assessment:** The process of gathering information that accurately reflects how well a student is achieving the identified curriculum expectations. Teachers provide students with descriptive feedback that guides their efforts towards improved performance.

**Evaluation:** Assessment of Learning focuses on Evaluation which is the process of making a judgement about the quality of student work on the basis of established criteria over a limited, reasonable period of time.

**Reporting:** Involves communicating student achievement of the curriculum expectations and Learning Skills and Work Habits in the form of marks and comments as determined by the teacher's use of professional judgement.

## STRATEGIES FOR ASSESSMENT

Assessment practices can nurture students' sense of progress and competency and information instruction. Many diagnostic tools, e.g. checklists and inventories, are used at regular intervals throughout the units to encourage students' understanding of their current status as learners and to provide frequent and timely reviews of their progress.

Teachers are encouraged to share goals with students early in the course and to connect Unit learning experiences frequently and explicitly with big ideas, overall expectations, and performance tasks.

## ASSESSMENT ACTIVITIES

- Virtual lab assignments
- Individual conference meetings
- Practice (formative) quizzes
- Research projects (STSE focused)
- Inquiry Assignments
- Tests & Exam

## EVALUATION

The final grade will be determined as follows:

- Seventy percent of the grade will be based on evaluation conducted throughout the course. This portion of the grade should reflect the student's most consistent level of achievement throughout the course, although special consideration will be given to more recent evidence of achievement.
- Thirty percent of the grade will be based on a final evaluation administered at or towards the end of the course. This evaluation will be based on evidence from a combination of the following: an examination and a performance task, an essay, and/or another method of evaluation suitable to the course content. The final evaluation allows the student an opportunity to demonstrate comprehensive achievement of the overall expectations for the course.

*(Growing Success: Assessment, Evaluation and Reporting in Ontario Schools. Ontario Ministry of Education Publication, 2010 p.41)*

Weightings	
<b>Course Work</b>	<b>70</b>
Knowledge/Understanding	21
Thinking/Inquiry	21
Communication	10.5
Application	17.5
<b>Final</b>	<b>30</b>
Performance Task	10
Final Exam	20

### TERM WORK EVALUATIONS (70%)

The overview below outlines all Assessment and Evaluation activities for each unit of the course. The following weighting system should be applied when generating a student's mark:

- Teacher conferences (AAL)– 5
- Practice quizzes (AFL) - 9
- Inquiry Assignments (AOL) – 5
- STSE Projects (AOL) - 5
- Unit Tests (AOL) – 5