

## **SBI3U – Biology, Grade 11**

### **GENERAL INFORMATION**

Name of School: Rosedale Academy

Department: Science

Course Developer: Eli Fogle

Development Date: January, 2016

Revision Date: TBD

Course Title: Biology, Grade 11

Grade: 11

Course Type: Academic

Course Code: SBI3U

Credit Value: 1

Curriculum Policy Document: The Ontario Curriculum Grades 11 and 12 Science, Ministry of Education 2008 (Revised)

Prerequisite: SNC2D

## **COURSE DESCRIPTION**

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.

## **OVERALL EXPECTATIONS**

### **A. SCIENTIFIC INVESTIGATION SKILLS AND CAREER EXPLORATION**

**Throughout this course, students will:**

- A1. demonstrate scientific investigation skills (related both to inquiry and research) in the four areas of skills (initiating and planning, performing and recording, analysing and interpreting, and communicating);
- A2. identify and describe careers related to the fields of science under study, and describe the contributions of scientists, including Canadians, to those fields.

### **B. DIVERSITY OF LIVING THINGS**

**By the end of this course, students will:**

- B1. analyse the effects of various human activities on the diversity of living things;
- B2. investigate, through laboratory and/or field activities or through simulations, the principles of scientific classification, using appropriate sampling and classification techniques;
- B3. demonstrate an understanding of the diversity of living organisms in terms of the principles of taxonomy and phylogeny.

### **C. EVOLUTION**

**By the end of this course, students will:**

- C1. 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;
- C2. investigate evolutionary processes, and analyse scientific evidence that supports the theory of evolution;
- C3. demonstrate an understanding of the theory of evolution, the evidence that supports it, and some of the mechanisms by which it occurs.

### **D. GENETIC PROCESSES**

**By the end of this course, students will:**

- D1. Evaluate the importance of some recent contributions to our knowledge of genetic processes, and analyse social and ethical implications of genetic and genomic research;
- D2. investigate genetic processes, including those that occur during meiosis, and analyse data to solve basic genetics problems involving monohybrid and dihybrid crosses.
- D3. demonstrate an understanding of concepts, processes, and technologies related to the transmission of hereditary characteristics.

**E. ANIMALS: STRUCTURE & FUNCTION****By the end of this course, students will:**

- E1. analyse the relationships between changing societal needs, technological advances, and our understanding of internal systems of humans.
- E2. 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.
- E3. demonstrate an understanding of animal anatomy and physiology, and describe disorders of the respiratory, circulatory, and digestive systems.

**F. PLANTS: ANATOMY, GROWTH & FUNCTION****By the end of this course, students will:**

- F1. evaluate the importance of sustainable use of plants to Canadian society and other cultures.
- F2. investigate the structures and functions of plant tissues, and factors affecting plant growth.
- F3. demonstrate an understanding of the diversity of vascular plants, including their structures, internal transport systems, and their role in maintaining biodiversity.

**OUTLINE OF COURSE CONTENT**

	<b>Name of Unit</b>	<b>Time Allocated in Hours</b>
<b>Unit 1</b>	Diversity of Living Things & Evolution	40
<b>Unit 2</b>	Genetic Processes	22
Midterm Report Cards		
<b>Unit 3</b>	Animals: Structure and Function	22
<b>Unit 4</b>	Plants: Anatomy, Growth, and Functions	26
	<b>Total</b>	<b>110 hours</b>

## TEACHING / LEARNING STRATEGIES

A variety of teaching and learning strategies are used in this course to meet the needs of a diverse range of learners.

- Demonstrations
- Simulations
- Laboratory Activities
- Problem Solving
- Work Sheets
- Problem-Based Learning
- Interactive modules
- Inquiry Based Learning
- Experiments
- Animated Games
- Audio Presentations
- Video Presentations
- Interactive Online Activities
- Guided Internet Searches
- Case Studies
- Graphic Organizers
- Brainstorming/Mind Mapping
- Research Projects

## STRATEGIES FOR ASSESSMENT AND EVALUATION OF STUDENT PERFORMANCE

Assessment as Learning	Assessment for Learning	Assessment of Learning
<b>Student Product</b> <ul style="list-style-type: none"> <li>• Learning Logs</li> <li>• Peer Assessment</li> <li>• Discussion Forum Posts</li> <li>• Surveys</li> <li>• Practice worksheets</li> </ul>	<b>Student Product</b> <ul style="list-style-type: none"> <li>• Assignments</li> <li>• Quizzes</li> <li>• Practice Problem Work Sheets</li> <li>• Simulator Investigations</li> <li>• Lab Investigations</li> <li>• Forum Posts</li> <li>• Audio presentations</li> <li>• Video Presentations</li> </ul>	<b>Student Product</b> <ul style="list-style-type: none"> <li>• Assignments</li> <li>• Tests</li> <li>• Exams</li> <li>• Lab Reports</li> <li>• Audio Presentations</li> <li>• Video Presentations</li> <li>• Case studies</li> <li>• Research Projects</li> </ul>
<b>Observation</b> <ul style="list-style-type: none"> <li>• Class discussions</li> <li>• Discussion Forums</li> <li>• Quiz results</li> </ul>	<b>Observation</b> <ul style="list-style-type: none"> <li>• Class discussions</li> <li>• Presentations</li> </ul>	<b>Observation</b> <ul style="list-style-type: none"> <li>• Presentations</li> <li>• Performance tasks</li> </ul>
<b>Conversation</b> <ul style="list-style-type: none"> <li>• Whole class discussions</li> <li>• Student-Teacher discussions (skype, chat)</li> <li>• Student-Student discussions</li> <li>• Debate (Forums)</li> </ul>	<b>Conversation</b> <ul style="list-style-type: none"> <li>• Student teacher conferences</li> <li>• Small group discussions</li> <li>• Whole class discussions</li> <li>• Pair work</li> <li>• Peer-feedback</li> <li>• Forums</li> </ul>	<b>Conversation</b> <ul style="list-style-type: none"> <li>• Oral Presentations</li> <li>• Oral test questions</li> <li>• Student-Teacher discussions</li> <li>• Forums</li> </ul>

## FINAL GRADE

The percentage grade represents the quality of the students' overall achievement of the expectations for the course and reflects the corresponding achievement as described in the achievement chart for science.

1. Term work will be 70% of the overall grade for the course;
2. The final written exam will be worth 30% of the grade.

### Achievement Categories

Knowledge & Understanding	25%	Thinking & Investigation	25%
Communication	25%	Application	25%

### Achievement Chart

*A Summary Description of Achievement in Each Percentage Grade Range and Corresponding Level of Achievement*

Percentage Grade Range	Achievement Level	Summary Description
80–100%	Level 4	A very high to outstanding level of achievement. Achievement is above the provincial standard.
70–79%	Level 3	A high level of achievement. Achievement is at the provincial standard.
60–69%	Level 2	Moderate level of achievement. Achievement is below, but approaching the provincial standard.
50–59%	Level 1	A passable level of achievement. Achievement is below the provincial standard
Below 50%	Level R	Insufficient achievement of curriculum expectations. A credit will not be granted

## RESOURCES REQUIRED BY THE STUDENT

SBI3U Online Course of Study

## PROGRAM PLANNING CONSIDERATION

### Role of Technology in the Curriculum

Rosedale Academy courses leverage the power of information and communication technologies to provide rich, dynamic learning experiences. Students explore, evaluate and create concepts and works using a wide array of digital tools. They demonstrate their learning through text, video, voice and visual assignments that teach multi-literacy and media skills. Students also enhance their computer and technology skills in ways that are useful for their future academic and personal pursuits.

Teachers at Rosedale Academy get to know their learners, provide rich, descriptive feedback and assess student contributions and products AS, FOR and OF learning through digital technologies. They enable rapid feedback and communication at any time without borders in our global community.

Tool	Use	Benefit
<b>Discussion forums</b>	Whole class discussion (written)	Creates a record of each student's contributions.
<b>Group activities</b>	Small group collaboration and discussions.	Encourages student participation.
<b>Live Skype sessions</b>	Teacher leads the lesson with students as a class. Teacher holds reviews sessions with whole class or individuals.	Observations of whole class and individual students. Assessment for learning.
<b>Computer Simulations</b>	Individual or class exploration and visualization of concepts relating to the curriculum.	Allows hands-on exploration and investigation as an alternative learning strategy.
<b>Online Lab Investigations</b>	Application of concepts relating to the curriculum.	Allows students to experience laboratory environment in an online setting and apply proper laboratory techniques.
<b>Learning Modules</b>	Students explore content in an interactive manner with built-in assessments as they progress.	Students can navigate content at their own pace and assess their own learning along the way.
<b>Articulate Storyline Presentations</b>	Content is presented in an interactive manner with multimedia elements and assessments built-in.	Varied presentation style caters to different types of learners. Students can assess their own learning as they progress.
<b>Glossary</b>	Vocabulary reference and recording.	Allows students to reference key course vocabulary.

### English as a Second Language

Rosedale Academy provides students with comprehensive ESL support to enhance their proficiency with the English language.

- All Rosedale Academy instructional materials and resources are designed with English Language Learners in mind. Online and face-to-face instructional resources make use of differentiated learning methods and carefully structured language. These resources support English language development as students are taking credit courses in all academic fields.
- Teachers at Rosedale Academy provide a variety of accommodations for English Language Learners. These accommodations include: extended time for tests and exams; chunking of assignments and tests; a safe space for asking questions; formative feedback; mini-lessons in spelling, sentence structure and grammar; and access to ESL resources and expert discussion.
- The self-paced delivery method of this course allows students to take the time that they require to engage in meaningful participation while still enjoying the enriching experience of working in an online global classroom.
- All teachers at Rosedale Academy are responsible for helping students to develop their ability to use English in academic courses.

### **Career Education**

This course promotes skills effective for a variety of careers and informs students of some of the career opportunities where oral and written communication is considerable assets. Students will learn how to use English to inform audiences about ideas, persuade audiences to change their opinion or buy a product, and to formulate ideas. Students will also understand the importance of social media in their search for future education and career opportunities. Finally, this course also helps to prepare students for university application by providing a unit that helps them write a persuasive application essay. Beyond the immediate needs of the student, this also course focuses on demonstrating the value of English in jobs like business where clear communication is highly valued.

### **Academic Integrity**

Students are expected to maintain high standards of honesty and academic integrity throughout their participation in all courses. This includes avoiding any instance of fraud, plagiarism and cheating. Rosedale Academy takes the following steps to ensure academic integrity:

- Students provide photo identification
- Course assignments include audio and video components
- Teachers Skype weekly with their classes
- Students are encouraged and supported to develop original work
- Exams are proctored by adults in trusted positions

When a teacher has reasonable grounds to believe that a student has violated these standards, the school principal will review the incident and, if needed, enforce disciplinary procedures. More information about *Academic Honesty* may be found in section 5.3 of the school calendar.

### **Late and Missed Assignment**

Rosedale Academy provides a flexible, self-paced learning opportunity, which allows students to proceed through each course at their own speed. Students may submit any assignment from any unit while he or she is enrolled in this course. Assignments will not be accepted once the student's enrolment period has ended. Students must complete and submit all course requirements prior to booking their final exam. Course requirements include but are not limited to: assignments, tests, and learning log.