Canterbury High School

Ottawa-Carleton District School Board
Science Department
Semester I – 2010 / 11 – Course Outline

Course Title: Grade 11 University Biology **Grade Level: 11**
Course Code: SBI3U **Credit Value: 1.0**
Prerequisite: SNC2D Science, Grade 10, Academic
**Recommend above 65%*

Teachers: Mrs. Owen, Mrs. Tomlinson, Ms. Caiger-Watson

Course Overview: 110 hours
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.

Strands:

- **Diversity of Living Things**
- **Evolution**
- **Genetic processes**
- **Animals: Structure and Function**
- **Plants: Anatomy, Growth and Function**

Course Expectations

Diversity of Living Things (Unit One)
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.

Evolution (Unit Two)
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.

Genetic Processes (Unit Three)
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.

Animals: Structure and Function (Unit Four)
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

Plants: Anatomy, Growth, and Function (Unit Five)
By the end of this course, students will:
• describe the major processes and mechanisms by which plants grow, develop, and supply various products, including energy and nutrition, needed by other organisms;
• demonstrate an understanding, based in part on their own investigations, of the connections among the factors that affect the growth of plants, the uses of plants, and the ways in which plants adapt to their environment;
• evaluate how the energy and nutritional needs of a population influence the development and use of plant science and technology.
Units of Study

Teaching Strategies

teacher demonstrations	small group work
laboratory experiments	student-teacher conferencing
multimedia	hands-on activities
written assignments	investigative research

Assessment and Evaluation Strategies

written tests	rubrics
lab reports	group presentations
observation (formal and informal)	discussion
homework checks and quizzes	research projects
summative assignment	exam

Evaluation Summary

Knowledge and Understanding	25 %
Thinking, Inquiry & Problem Solving	25 %
Communication	10 %
Making Connections	10 %
Summative Evaluation	10 %
Final Examination	20 %

Please refer to the achievement chart for science in the ministry curriculum documents for more information.

References

http://www.edu.gov.on.ca/eng/curriculum/secondary/2009science11_12.pdf

Student Resources / Texts
Biology 11, McGraw-Hill Ryerson, replacement cost $89.95 + tax and shipping