

EASTERN SCHOOL DISTRICT

Course Description

(June 2, 2006)

Course: Biology 3201

Subject Area: Science

Text: McGraw-Hill Ryerson: Biology

Description:

This course is common to all four Atlantic Provinces and is a continuation of the introduction to biological principles that was begun in Biology 2201. As with all science courses, the aim of this course is to develop scientific literacy. Scientific literacy is an evolving combination of the science related attitudes, skills, and knowledge students need to develop inquiry, problem-solving, and decision-making abilities; to become lifelong learners; and to maintain a sense of wonder about the world around them. To develop scientific literacy, students require diverse learning experiences which provide opportunity to explore, analyze, evaluate, synthesize, appreciate and understand the interrelationships among science, technology, society, and the environment that will affect their personal lives, their careers, and their futures.

This course is a continuation of introduction to biological principles that was begun in Biology 2201. The units are to be covered in the sequence outlined below. The numbers of hours of instruction are only approximate and serve as a guide only.

Unit 1: Maintaining Dynamic Equilibrium II 23 hours

Core Lab 1: The Nervous System & Reflex Responses
Core STSE Lab 1: Drugs and Homeostasis
Core Lab 2: Identifying Diabetes Mellitus

Unit 2: Reproduction & Development 31 hours

Core Lab 3: Observing the Cell Cycle in Plant & Animal Cells
Core STSE 2: Stem Cell Research
Core Lab 4: Reproductive Structures in Flowers
Core Lab 5: The menstrual Cycle

Unit 3: Genetic Continuity 44 hours

Core Lab 6: Karyotype Lab
Core Lab 7A: DNA Structure and Replication
Core Lab 7B: Simulating Protein Synthesis

Core STSE 3: *Genetics Research in Newfoundland & Labrador*

Unit 4: Evolution, Change, & Diversity

18 Hours

Core Lab 8: *Population Genetics & the Hardy Weinburg Principle*

Core STSE 4: *Extraterrestrial Life: Myth or Reality*

Evaluation Guidelines:

Summative evaluation of students in Biology 3201 shall utilize a variety of evaluation instruments. Primarily, these are designed to test students' basic knowledge of content, their understanding and ability to apply content, and ability to synthesize and problem solve (higher thinking skills) with respect to the content.

Summative evaluation of students in science courses must involve a variety of evaluation instruments. **Midyear examinations, final examinations, and unit tests/quizzes**, completed by students are traditional instruments which must be a part of any summative student evaluation scheme. As well, **Performance Assessment** instruments shall be used for a portion of the summative evaluation.

Unit Tests/Quizzes:

All unit tests are based on the learning outcomes of the course and the objectives. The tests include a variety of testing techniques such as multiple choice and essay items. There is at least one test after each unit and sometimes the unit can be broken into several sections for the purpose of testing if the teacher deems it necessary. Each test is designed for completion in a single class period.

Performance Assessment:

Performance assessment instruments shall be used for a portion of the summative evaluation. *Examples of performance assessment instruments are assignments, written homework, science fair, class observations, science projects, laboratory reports, in-class presentation, in-class cooperative education, practical laboratory tests, observation checklist, computer assisted evaluation and teacher-student interviews, research reports, field trip reports, portfolios, etc.*

Teachers can determine the performance assessment instruments used in Biology 3201. However, a variety of instruments shall be used to accurately assess students' understanding of learning outcomes, with a focus on core labs and STSE topics.

Cumulative Midyear Examination:

The mid-year examination tests all course objectives to that point. The test is designed to be completed in a 2 hour time period.

Final Provincial Examination:

The final provincial (or public) examination in Biology 3201 is composed of two parts. Part I, having a value of 75%, contains 75 selected response questions (multiple choice) that measure students' achievement at all levels of cognitive learning. Part II, having a value of 25%, contains constructed response questions that measure students' achievement only at the higher levels of cognitive learning (levels 2 and 3). The evaluation instrument will contain 15-20% of core labs and STSE (Science, Technology, Society, and the Environment) content. The test is designed to be completed in a 3.0 hour time period.

Weighting of Evaluation Component:

Tests/Quizzes	20%
Performance Assessment	10%
Comprehensive Midyear Exam	20%
Final Public Examination	50%

Notes:

- 1) Performance assessments in Biology 3201 should primarily focus on STSE and core lab outcomes (because approximately 15%-20% of the public examination contains STSE and core lab questions).
- 2) Student grades for the November reporting period comprised of results obtained from tests/quizzes (80%) and Performance Assessment (20%).

Table of Specifications:

This Table of Specifications is reviewed annually before the provincial (public) examination is developed. It is used for two main reasons. First, it guides the construction of the public examination by outlining a percent value for each cognitive level and unit of study. Secondly, the total percentage for each unit directly corresponds to the suggested time for teaching that unit.

Unit	Cognitive Level %			
	1	2	3	Total %
Maintaining Dynamic Equilibrium	8	8	4	20
Reproduction and Development	11	11	5	27
Genetic Continuity	15	15	8	38
Evolution, Change, and Diversity	6	6	3	15
Total %	40	40	20	100

The evaluation instrument will contain 15-20% of core lab and STSE (Science, Technology, Society, and the environment) content.