

BIOL 025F, BIOLOGY 025

6 credits, 16 weeks, 6 hours lecture

Topics studied include: cells, protein synthesis, DNA, genetics, principles of classification and ecology.

Co-requisites: English 013 or English 010 or permission of the Program Chair

Instructor

Maureen Clarke
Office location: FC-119
Phone number: (780) 697-3767
maureen.clarke@keyano.ca

Office Hours

Monday 8:30 – 9:00; 3:00 – 3:50
Tuesday 8:30 – 9:00; 3:00 – 3:50
Wednesday 3:00 – 3:50
Thursday 3:00 – 3:50

Hours of Instruction

Monday 2:00 – 2:50
Tuesday 1:00 – 1:50; 2:00 – 2:50
Wednesday 1:00 – 1:50; 2:00 – 2:50
Thursday 1:00 – 1:50

Required Resources

Prentice Hall Biology; K. Miller & J. Levine; Prentice Hall (2006) ISBN 0-13-166255-4

Course Outcomes

Upon successful completion of this course, students will be able to:

1. appreciate that scientific understanding evolves from the interaction of ideas involving people with different views and backgrounds.
2. seek and apply evidence using the scientific method when evaluating alternative approaches to investigations, problems and issues.
3. explain the cycling of energy and matter through the biosphere and ecosystems.
4. explain how the biosphere is composed of ecosystems, each with distinctive biotic and abiotic characteristics.
5. demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment.
6. describe the cell theory, and function of cell organelles and structures in a cell, in terms of life processes, and use models to explain these processes and their applications.
7. relate photosynthesis to storage of energy in organic compounds.
8. compare and contrast the roles of glycolysis, respiration, and fermentation in releasing potential energy from organic compounds.

9. describe, in words *and in* diagrams, the processes of mitosis and meiosis.
10. explain the basic rules and processes associated with the transmission of genetic characteristics.
11. explore classical genetics at the molecular level, including several human genetic disorders.
12. explain several mechanisms involved in the change of populations over time.
13. describe a community as a composite of populations in which individuals contribute to a gene pool that can change over time.
14. explain the types of interaction of individuals within and between populations.
15. describe the fundamental principles of taxonomy and binomial nomenclature, and the defining characteristics of the six kingdoms of life.

Evaluation

Assignments	25
Tests/Quizzes	15%
Midterm Exam	30%
Final Exam	30%
Total	100%

Grading System

Descriptor	4.0 Scale	Percent
Excellent	4.0	96 – 100
	4.0	90 – 95
	3.7	85 – 89
Good	3.3	81 – 84
	3.0	77 – 80
	2.7	73 – 76
Satisfactory	2.3	69 – 72
	2.0	65 – 68
Minimum Prerequisite	1.7	60 – 64
Poor	1.3	55 – 59
Minimum Pass	1.0	50 – 54
Failure	0.0	0 – 49

Proposed Schedule of Topics

UNIT 1: THE NATURE OF LIFE	Jan. 5 - 8
Chapter 1	The Science of Biology
Chapter 2	The Chemistry of Life
UNIT 2: ECOLOGY	Jan. 12 - 25
Chapter 3	The Biosphere
Chapter 4	Ecosystems and Communities
Chapter 5	Populations
Chapter 6	Humans in the Biosphere

UNIT 3: CELLS	Jan. 26 – Feb. 5
Chapter 7	Cell Structure and Function
Chapter 8	Photosynthesis
Chapter 9	Cellular Respiration
Chapter 10	Cell Growth and Division
UNIT 4: GENETICS	Feb. 9 - 19
Chapter 11	Introduction to Genetics
Chapter 12	DNA and RNA
Chapter 13	Genetic Engineering
Chapter 14	The Human Genome
UNIT 5: EVOLUTION	March 2 - 15
Chapter 15	Darwin's Theory of Evolution
Chapter 16	Evolution of Populations
Chapter 17	The History of Life
Chapter 18	Classification
UNIT 6: MICROORGANISMS AND FUNGI	March 16 - 19
Chapter 19	Bacteria and Viruses
Chapter 20	Protists
Chapter 21	Fungi
UNIT 7: PLANTS	March 23 - 26
Chapter 22	Plant Diversity
Chapter 23	Roots, Stems, and Leaves
Chapter 24	Reproduction of Seed Plants
UNIT 8: INVERTEBRATES	March 30 – April 7
Chapter 26	Sponges and Cnidarians
Chapter 27	Worms and Mollusks
Chapter 28	Arthropods and Echinoderms
UNIT 9: Chordates	April 8 - 16
Chapter 30	Nonvertebrate Chordates, Fishes and Amphibians
Chapter 31	Reptiles and Birds
Chapter 32	Mammals

Please Note:

Date and time allotted to each topic is subject to change. It is your responsibility as a student to contact the Office of the Registrar to complete the forms for Withdrawal or Change of Registration, and any other forms. Please refer to the list of important dates as noted in the Academic Schedule in the Keyano College Credit Calendar.

Performance Requirements

Laboratory Safety

In the science laboratories, safety is important.

Students must complete the *WHMIS for Students* online training course on Moodle before entering the science laboratories.

Students must comply with the mandatory laboratory safety rules for this course as provided in the laboratory manual. Failure to do so will result in progressive discipline such as a verbal warning, refused entry into the laboratory, or suspension from the College.

Student Attendance

Class attendance is useful for two reasons. First, class attendance maximizes a student's learning experience. Second, attending class is a good way to keep informed of matters relating to the administration of the course (e.g., the timing of assignments and exams). Ultimately, you are responsible for your own learning and performance in this course.

It is the responsibility of each student to be prepared for all classes. Students who miss classes are responsible for the material covered in those classes and for ensuring that they are prepared for the next class, including the completion of any assignments and / or notes that may be due.

Academic Misconduct

Students are considered to be responsible adults and should adhere to principles of intellectual integrity. Intellectual dishonesty may take many forms, such as:

- Plagiarism or the submission of another person's work as one's own
- The use of unauthorized aids in assignments or examinations (cheating)
- Collusion or the unauthorized collaboration with others in preparing work
- The deliberate misrepresentation of qualifications
- The willful distortion of results or data
- Substitution in an examination by another person
- Handing in the same unchanged work as submitted for another assignment

Penalties for academic offences range from a verbal reprimand to dismissal from the College, and in certain circumstances may involve legal action.

Specialized Supports

Counselling and Disability Services

Counselling Services provides a wide range of specialized counselling services to prospective and registered students, including personal, career and academic counselling.

SKILL Centre

The SKILL Centre is a learning space in the Clearwater Campus at Keyano College where students can gather to share ideas, collaborate on projects and get new perspectives on learning from our tutorial staff.

The SKILL Centre, through a variety of delivery methods, provides assistance in skill development to Keyano students. Assistance is provided by instructors, staff and student tutors. Individuals wishing to improve their mathematics, writing, grammar, study, or other skills, can take advantage of this unique service.

Authorization

This course outline has been reviewed and approved by the Program Chair.



Maureen Clarke, Instructor

Lisa Turner, Chair

Date Authorized

Guy Harmer, Dean

Date Authorized

Signed copies to be delivered to:

Instructor

Registrar's Office