

BIOL 030A, Biology 030

5 Credits, 6 hours lecture + 2 hours lab

Topics studied include the scientific method, principles of classification and population ecology, biological macromolecules, DNA and protein synthesis, cells and cell membranes, enzyme structure and function, human body systems (anatomy and physiology) and the concept of homeostasis.

Alberta Education Course Equivalency: Biology 30

Prerequisite: BIOL 025 or equivalent or permission from the Program Chair

Instructor

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Office Hours

Monday 3:00 p.m. – 3:50 p.m.
Tuesday 10:00 a.m. – 10:50 a.m.
Thursday 10:00 a.m. – 11:50 a.m.
Friday 10:00 a.m. – 10:50 a.m.

Hours of Instruction

Monday Lab	9:00 a.m. – 10:50 a.m.	Room CC234 (dates noted on Calendar, page 4)
Tuesday	1:00 p.m. – 2:50 p.m.	Room CC215
Wednesday	8:00 a.m. – 9:50 a.m.	Room CC283
Thursday	8:00 a.m. – 9:50 a.m.	Room CC283

Required Resources

Inquiry into Life by S. S. Mader & M. Windelspecht, 15th Ed., McGraw Hill, ISBN 978-1-259-42616-2

Biology 030 Student Course Package, available in the Keyano Bookstore

Other supplies:

Calculator, basic or scientific

Lab Coat—must be knee-length

Course Outcomes

Upon successful completion of the course, the student shall be able to:

- describe the chemical nature of carbohydrates, lipids, proteins, and nucleic acids, including enzyme action and factors influencing their action.
- describe how genetic information is contained in the sequence of bases in DNA molecules in chromosome, how the DNA molecules replicate themselves, and how genetic information is transcribed into RNA and translated into sequences of amino acids in proteins.
- explain, in quantitative and qualitative terms, how gene pools change over time.
- describe the general characteristics of the three domains of life and the fundamental principles of taxonomy and binomial nomenclature.
- explain population growth patterns and the interactions of individuals within and between populations.
- explain the relationship between developments in imaging technology and the current understanding of cell types and structures, including the functions of cell organelles and membranes in maintaining homeostasis.
- describe the levels of organization of matter in creating human tissues and systems.
- explain the role of the circulatory and defense systems in maintaining an internal equilibrium.
- explain how the human digestive, respiratory, and excretory systems exchange energy and matter with the environment.
- explain the role of the musculoskeletal system in the function of other body systems.
- explain how the nervous system controls physiological processes.
- explain how the endocrine system is a chemical control system that contributes to homeostasis.
- explain how survival of the human species is ensured through reproduction, and how reproduction is regulated by chemical control systems.
- show concern for safety in planning, carrying out and reviewing laboratory activities in a biohazard level II laboratory, referring to WHMIS and consumer product labels.
- work collaboratively in planning and carrying out laboratory investigations and in generating and evaluating scientific ideas.

Evaluation

Daily work & Quizzes	15%
Projects and Lab Work	20%
Midterm Exam (first 2 units)	30%
Lab Exam	5%
Final Exam (last 2 units)	30%

The minimum pre-requisite for progression is 1.7 (refer to Grading System on following page)

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**Units of Study****Text References****Labs****Unit 1 – The Organization of Life**

- the study of life
- the molecules of cells
- DNA structure and gene expression
- evolution and diversity
- population and community ecology

Ch. 1
Ch. 2
Ch. 25
Ch. 27
Ch. 34

#1

Unit 2 – The Organization of Cells

- cell structure and function
- membrane structure and function
- energy and enzymes
- human organization

Ch. 3
Ch. 4
Ch. 6
Ch. 11

#2

MIDTERM EXAM**Unit 3 – The Organization of Human Support Systems**

- circulation, blood
- lymphatics and immunity
- digestion
- respiration and excretion

Ch. 12
Ch. 13
Ch. 14
Ch. 15, 16

#3

#4

Unit 4 – The Organization of Human Control Systems

- nervous system and senses
- musculoskeletal system
- endocrine system
- reproduction and development

Ch. 17, 18
Ch. 19
Ch. 20
Ch. 21

#5

LAB EXAM & FINAL EXAM

Calendar of Important Events

Dates on the following calendar are tentative; shaded areas indicate no Biology 030 classes.

Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	January 2 New Year's Day - College Closed	3	4 First day of BIOL 030	5	6
2	9 Lab Introduction Room TBA	10	11	12	13
3	16 Lab #1	17	18	19	20
4	23	24	25	26	27
5	30 Lab #2	31	February 1	2	3
6	6	7	8	9	10
7	13 Lab #3	14	15	16	17
8	20 Family Day - College Closed	21 MIDTERM EXAM	22	23	24
9	27 Reading Week - No Class	28 Reading Week - No Class	March 1 Reading Week - No Class	2 Reading Week - No Class	3 Reading Week - No Class
10	6	7	8	9	10
11	13 Lab #4	14	15	16	17
12	20	21 Immunity Project Due	22	23	24
13	27 Lab #5	28	29	30	31
14	April 3	4	5	6	7
15	10 LAB EXAM Room TBA	11	12	13	14 Good Friday - College Closed
16	17 Easter Monday - College Closed	18	19 Last day of BIOL 030	20 Final Exams	21 Final Exams
17	24 Final Exams	25	26	27	28

Please Note:

Date and time allotted to each topic is subject to change.

Final exams are scheduled by the College. Do not book travel until April 25, 2017.

Performance Requirements

Student Responsibilities

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.

More specific details are found in the Student Rights and Student Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Student Code of Conduct Policies.

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
- Breach of confidentiality.

The consequences for academic misconduct range from a verbal reprimand to expulsion from the College. More specific descriptions and details are found in the Student Rights and Student Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Student Code of Conduct Policies.

In order to ensure your understanding of the concept of plagiarism, you must successfully complete the online tutorial found on ilearn.keyano.ca. Then print the certificate, sign it, and show it to each of your instructors. Your course work will not be graded until you show this signed certificate.

Specialized Supports

Counselling and Accessibility 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.

Patricia Collins, Instructor

Lisa Turner, Chair

Date Authorized

Vincella Thompson, Dean

Date Authorized

Signed copies to be delivered to:

Instructor

Registrar's Office