

**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**

Patricia Collins  
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**Office Hours**

Monday	3:00 p.m. – 3:50 p.m.
Tuesday	1:00 p.m. – 1:50 p.m.
Wednesday	3:00 p.m. – 3:50 p.m.
Thursday	10:00 a.m. – 10:50 a.m.
Friday	12:00 p.m. – 12:50 p.m.

**Hours of Instruction**

Monday Lab	9:00 a.m. – 10:50 a.m.	Room CC234 (dates noted on Calendar, page 4)
Tuesday	11:00 a.m. – 12:50 p.m.	Room S205
Wednesday	9:00 a.m. – 10:50 a.m.	Room S205
Thursday	11:00 a.m. – 12:50 p.m.	Room S205

**Required Resources**

***Inquiry into Life*** by S. S. Mader & M. Windelspecht, 15<sup>th</sup> 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	20%
Projects and Lab Report	15%
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**

<b>Descriptor</b>	<b>4.0 Scale</b>	<b>Percent</b>
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
	<b>Minimum Prerequisite</b>	1.7
Poor	1.3	55 – 59
Minimum Pass	1.0	50 – 54
Failure	0.0	0 – 49

**Proposed Schedule of Topics**

<b><u>Units of Study</u></b>	<b><u>Text References</u></b>	<b><u>Labs</u></b>
<b>Unit 1 – The Organization of Life</b>		
▪ the study of life	Ch. 1	
▪ the molecules of cells	Ch. 2	
▪ DNA structure and gene expression	Ch. 25	
▪ evolution and diversity	Ch. 27	#1
▪ population and community ecology	Ch. 34	
<b>Unit 2 – The Organization of Cells</b>		
▪ cell structure and function	Ch. 3	#2
▪ membrane structure and function	Ch. 4	
▪ energy and enzymes	Ch. 6	
▪ human organization	Ch. 11	
<b>MIDTERM EXAM</b>		
<b>Unit 3 – The Organization of Human Support Systems</b>		
▪ circulation, blood	Ch. 12	#3
▪ lymphatics and immunity	Ch. 13	
▪ digestion	Ch. 14	
▪ respiration and excretion	Ch. 15, 16	#4
<b>Unit 4 – The Organization of Human Control Systems</b>		
▪ nervous system and senses	Ch. 17, 18	#5
▪ musculoskeletal system	Ch. 19	
▪ endocrine system	Ch. 20	
▪ reproduction and development	Ch. 21	

**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	Jan 8	9 First day of Biol 030	10	11	12
2	15	16	17	18	19
3	22 Lab Intro Session Room S212	23	24	25	26
4	29 Lab #1	30	31	Feb 1	2
5	5	6	7	8	9
6	12 Lab #2	13	14	15	16
7	19 Family Day Holiday College Closed	20 Reading Day— No Classes	21 Reading Day— No Classes	22 Reading Day— No Classes	23 Reading Day— No Classes
8	26	27	28	Mar 1 MIDTERM EXAM	2
9	5	6	7	8	9
10	12 Lab #3	13	14	15	16
11	19 Lab #4	20	21	22	23
12	26 Lab #5	27	28	29	30 Good Friday Holiday College Closed
13	Apr 2 Easter Monday College Closed	3	4	5	6
14	9 LAB EXAM	10	11	12 Last Day of Biol 030	13
15	16 Final Exams	17 Final Exams	18 Final Exams	19 Final Exams	20 Final Exams

**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 21, 2018.**

### Course Specific Policies

1. **Attendance Policy:** Biology 030 is designed as a **face-to-face course**, so success is improved by being on time and regularly attending. Extended or frequent absences *for any reason cannot* be accommodated and can impact your overall mark. Some suggestions for handling occasional lecture absences include:
  - a. checking the Calendar of Events, News Forum and slide notes by logging into [ilearn.keyano.ca](http://ilearn.keyano.ca)
  - b. finding a “classroom buddy” whom you can contact for details regarding what you have missed. *I do not use ilearn to post exact slides and daily homework from the lectures.*
  - c. check your Keyano email frequently, as notices posted to the ilearn forum automatically go there.
2. **Electronic devices policy:** some students find usage of tablets and laptops very helpful during lectures, so you are welcomed to bring these to class. Sounds on all cell phones should be turned off during class and if you need to take an important call, please leave the room to avoid disrupting others. *Using electronic devices to record the class in any way (audio, video, photos, etc.) is not permitted.*
3. **Late Work Policy:** assigned work must be received in hard copy and in person. It will receive
  - a. full marks when received in class, on the due date. ☺
  - b. the earned grade, minus 5%, if received during office hours on the due date.
  - c. the earned grade, minus 20%, for each additional day late, if received during our scheduled class time or during office hours.
  - d. a mark of zero if received after I have returned them. I do not accept work pushed under my office door or left in an office door pouch.
4. **Laboratory Policy:** our laboratories have important safety protocols and procedures which you will learn about during our Laboratory Introduction Session and your WHMIS training. You will need to do the following to complete the lab portion of the course:
  - a. **complete your WHMIS training** through ilearn prior to your first lab. You must score at least 80% on the quiz to receive your certification, which is good for 2 years in Keyano’s science labs.
  - b. **arrive at every lab on time.** It is recommended that you be ready to go 10 minutes prior to the lab. For safety reasons, students who arrive late will NOT be permitted into the lab and *will receive a mark of zero* for all related lab work.
  - c. **be present for every laboratory period** for your lab section. Make-up time or switching lab dates/sections is not an option, due to limited facilities, safety concerns, and staff workloads.
  - d. **complete four labs plus the Lab Final Exam** to receive a course grade greater than 60%. Missing more than one lab for any reason means that you did not complete the lab portion of the course and did not obtain exposure to the prerequisite skills for the next level of chemistry.
5. **Other Course Policies and Procedures:**
  - a. **work submitted by non-attending students may not be marked.**
  - b. any work showing evidence of copying or plagiarism will receive a mark of zero. (see “Student Rights and Responsibilities” in the Credit Calendar).
  - c. in-class quizzes cannot usually be rewritten, as these are meant to give you immediate feedback on your progress.
  - d. a missed exam may be written at an alternate time only under certain exceptional circumstances, *at the instructor’s discretion*. The instructor must be contacted within 24 hours of the scheduled exam, and documentation (e.g. a doctor’s note) provided.
  - e. the final exam will be written on the date scheduled by the College; otherwise, the procedure for “Deferred Final Examination” in the Credit Calendar is to be followed.

Should you have trouble logging into [ilearn.keyano.ca](http://ilearn.keyano.ca), please contact Keyano College Information and Technology Services ([its.helpdesk@keyano.ca](mailto:its.helpdesk@keyano.ca) or 780-791-4965).

## 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](http://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.