

**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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780-791-8955

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**Office Hours**

Tuesday 12:00 p.m. – 1:50 p.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.

Tuesday 10:00 a.m. – 11:50 a.m.

Wednesday 3:00 p.m. – 4:50 p.m.

Friday 8:00 a.m. – 9:50 a.m.

Room CC236 (dates noted on Calendar, page 4)

Room CC233

Room S214

Room S112

**Required Resources**

- ***Inquiry into Life*** by S. S. Mader & M. Windelspecht, 17<sup>th</sup> Ed., McGraw Hill, ISBN 978-1-265-14060-1. Both print and digital variations are available from the Keyano Bookstore.
- ***Biology 030 Student Course Package***, available in print from the Keyano Bookstore.
- **Calculator**, basic or scientific
- **Pencil crayons**, or other colouring tools
- **Graph paper**
- **Sharpie** fine point permanent marker, black
- **Lab Coat** (must be knee-length)
- **Safety goggles** (one of: Honeywell North VMAXX 112-508-10, **or** Honeywell UVEX Stealth S3970D **or** Honeywell UVEX Classic 360 S360)
- **Dissection kit and replacement 10 blades** (Wards College Dissecting Kit, Cat# 470002-896 and Replacement Scalpel Blades #10, Cat# 102097-828, available in the Keyano Bookstore)
- **Extra large Ziploc bag**
- **Computer** (laptop or desktop)—see page 7 for details

**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 and quizzes	30%
Projects and Lab Report	20%
Lab Exam	10%
Midterm Exam (Units 1 and 2)	20%
Final Exam (Units 3 and 4)	20%

*A grade of 60% (1.7, or C-) is required for progression. The minimum standard for passing this course is a grade of 50% (1.0, or D).*

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

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

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

#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, parts of 22

#5

**LAB EXAM & FINAL EXAM**

**Calendar of Important Events:** shaded areas indicate no Biology 030 lectures.

Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	Jan 2 College Closed (in lieu of New Year's Day)	3	4	5	6 First day of Biol 030!
2	9 Nutrition Project Room S212	10	11	12	13
3	16	17 Nutrition Project Due	18	19	20
4	23 Lab #1	24	25	26	27
5	30	31 Lab #1 Report Due	Feb 1	2	3
6	6 Lab #2	7	8	9	10
7	13	14	15	16	17 MIDTERM EXAM
8	20 Family Day Holiday College Closed	21 Reading Day— No Classes	22 Reading Day— No Classes	23 Reading Day— No Classes	24 Reading Day— No Classes
9	27	28 Immunity Project Due	Mar 1	2	3
10	6 Lab #3	7	8	9	10
11	13	14	15	16	17
12	20 Lab #4	21	22	23	24
13	27 Lab #5	28	29	30	31
14	Apr 3 LAB EXAM	4	5	6	7 Good Friday Holiday College Closed
15	10 Easter Monday College Closed	11	12 Last day of classes	13	14
16	17 FINAL EXAMS	18 FINAL EXAMS	19 FINAL EXAMS	20 FINAL EXAMS	21 FINAL EXAMS
17	24 FINAL EXAMS	25 FINAL EXAMS	26 FINAL EXAMS	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 29, 2023 for courses with final exams.** Deferred exams will NOT be approved for travel, even if the travel was booked prior to enrolling in the course.

**Course Specific Policies**

1. **Attendance:** Biology 030 is designed as a **face-to-face course**. Extended or frequent absences for *any reason* can impact your overall mark. Suggestions for handling occasional absences include:
  - a. **finding a “classroom buddy”** whom you can contact for details regarding what you have missed.
  - b. **using Moodle:** log into [ilearn.keyano.ca](http://ilearn.keyano.ca) to check the Calendar and see slide notes and pre-recorded audio PowerPoint lessons.
  - c. **using OneNote:** this is the class notebook where I record daily lesson outlines and homework. Search your Keyano email during the first week of classes for an invitation from SharePoint, or use your Keyano credentials to log into [onenote.com](http://onenote.com)
  - d. **using your Keyanomail** to get in touch with me. You will receive responses during office hours.
2. **Electronic devices:** some students find usage of tablets and laptops very helpful during lectures, so you are welcomed to bring these to class. Sounds on all devices should be turned off during class and if you need to take an important call, please leave the room to avoid disrupting others. *Please do not use electronic devices to record the class in any way (audio, video, photos, etc.).*
3. **Late Work:** for full marks, assigned work must be received in hard copy and in person, in class, on the due date. If you need extra time to get an assignment completed, it will receive
  - a. the earned grade, minus 5%, if received after class on the due date.
  - b. the earned grade, minus 20%, for each additional day late.
  - c. **a mark of zero if received after I have returned them, OR if pushed under my office door.**
4. **Laboratory:** our laboratories have important safety protocols and procedures which you will learn about during your WHMIS training. To complete the lab portion of the course:
  - a. **complete your WHMIS training** through Moodle prior to your first lab. Your certification is good for 2 years in Keyano’s science labs. Bring your certificate to the first lab session.
  - b. **arrive at every lab on time and in correct apparel.** It is recommended that you be ready to go 10 minutes prior to the lab. For safety reasons, students who arrive late or improperly dressed will NOT be permitted into the lab and *will receive a mark of zero* for all related lab work.
  - c. **to receive marks for laboratory work, you need to arrive on time and complete the entire laboratory.** There are no make-up labs or make-up reports.
5. **Other:**
  - a. Any work showing evidence of copying or plagiarism will receive a mark of zero. (see page 6)
  - b. Biology 030 has in-class quizzes and Moodle quizzes (see Moodle Calendar). Moodle quizzes are completed online, in one attempt, during a limited timeframe—**see Moodle for quiz opening and closing dates.** *Extensions and “make-ups” will not be granted for any quizzes..*
  - c. 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) must be provided.
  - d. 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.
  - e. There will be no alternative, “make-up”, or “extra credit” assignments provided for this course.

## Performance Requirements and Student Services

### Student Responsibilities

As a student, it is your responsibility to contact the Office of the Registrar to complete the required forms, including the Withdraw Course or Program or a Change of Registration form. Please refer to the important dates listed in the Academic Schedule in the [Keyano College credit calendar](#). The Keyano College credit calendar also has information about Student Rights and the Code of Conduct. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and the Code of Conduct Policies.

### Student Attendance

Class attendance is helpful for two reasons: First, class attendance maximizes a student's learning experience. Second, attending class is an excellent way to keep informed of matters relating to the course administration (e.g., the timing of assignments and exams). Ultimately, you are responsible for your learning and performance in this course. It is the responsibility of each student to be prepared for all classes. Absent students are responsible for the material covered in those classes, and students must ensure they are ready for their next class, including completing any missed assignments and notes.

### Laboratory Safety

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.

Before entering the lab, students are responsible reviewing the lab manual and relevant Safety Data Sheets for the purpose of evaluating risks associated to health. Some hazards used in the laboratory may have additional risks to those with pre-existing medical conditions.

### Academic Misconduct

Students are considered responsible adults and should adhere to the principles of intellectual integrity. Intellectual dishonesty takes many forms:

- Plagiarism or the submission of another person's work as their 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,
- Submitting unchanged work for another assignment, and
- 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 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 Code of Conduct Policies. To ensure your understanding of plagiarism, you may be required to complete the online [Understanding Plagiarism tutorial](#) and submit the certificate of completion.

### Online Learning

Technology and internet connectivity will impact your online learning experience. You may be required to watch online videos, take online quizzes, or participate in live online classes. Live/virtual courses will be hosted in Microsoft Teams or Zoom. For all course delivery types, you will access your course resources on Keyano's learning management system: Moodle (iLearn). Login in using your [Keyano username and password](#). Keyano College operates in a Windows-based environment and having access to the correct tools for online learning is essential.

### Internet Speed

Minimum download and upload speeds of 10 Mbps. Recommended download speeds of 25 Mbps and upload speeds of 10 Mbps (if you are sharing your internet at home). You can check your internet speed with [Speedtest by Ookla](#).

### Computer System Requirements

Keyano College software are Windows based.

#### Minimum Requirements and Recommended Upgrades for Windows (preferred system) and Apple devices

These minimum standards are required for a Windows computer/laptop (OS 10 or 11) and a Macintosh (OS 10.14 or above).

1. Windows 10 Operating System or above
2. 4GB of RAM. Recommended upgrade to 8GB of RAM.
3. 10GB+ available hard drive storage space. Note installing Microsoft Office 365 requires 3GB of available hard drive space.
  - a. Install the Microsoft Office 365 suite (~3GB) \*
4. Microphone, webcam, and speakers (All modern laptops have these three accessories built-in. However, a headset or earbuds with a microphone is also recommended.
5. Windows has built-in anti-virus/malware software. It is essential to install system updates to keep your device secured regularly.

\*[Microsoft Office 365](#) is free to Keyano students.

Tablets, iPads, and Chromebooks are **not** recommended: they may not be compatible with the testing lockdown browsers and Microsoft Office 365.

### Computer Software

Students have access to Microsoft Office 365 and Read & Write for free using Keyano credentials.

See [Recommended Technology](#) for more information.

### **Recording of Lectures and Intellectual Property**

Students may only record a lecture if explicit permission is provided by the instructor or Accessibility Services. Even if students have permission to record a lecture or lecture materials, students may not share, distribute, or publish any of the lectures or course materials; this includes any recordings, slides, instructor notes, etc., on any platform. Thus, no student is allowed to share, distribute, publish or sell course-related content without permission. It is important to recognize that the Canadian Copyright Act contains provisions for intellectual property. The [Academic Integrity Policy](#) provides additional information on Keyano College's expectations from students as members of the intellectual community.

### **ITS Helpdesk**

If you have issues with your student account, you can contact the ITS Helpdesk by emailing [its.helpdesk@keyano.ca](mailto:its.helpdesk@keyano.ca) or calling 780-791-4965.



## Specialized Supports

The Student Services Department is committed to Keyano students and their academic success. There is a variety of student support available at Keyano. All student services are available during Keyano business hours: Monday to Friday, 8:30 a.m. to 4:30 p.m. The College is closed on statutory holidays. If you require support outside of regular business hours, please inform the support service team, and they will do their best to accommodate your needs.

**Accessibility Services** provides accommodations for students living with disabilities. Students with documented disabilities or who suspect a disability can meet with an Access Strategist to discuss their current learning barriers and possible accommodations. Students who have accessed accommodations in the past are encouraged to contact the department to request accommodations for the following semester. Please note that requesting accommodations is a process and requires time to arrange. Contact the department as soon as you know you may require accommodations. For accessibility supports and disability-based funding, please book an appointment by emailing us at: [accessibility.services@keyano.ca](mailto:accessibility.services@keyano.ca).

Accessibility Services also provides individual and group learning strategy instruction for all students and technology training and support to enhance learning. You can meet with an Access Strategist to learn studying and test-taking strategies. In addition, you can schedule an appointment with the Assistive Technology Specialist to explore technology tools for learning. Book an appointment today by emailing: [accessibility.services@keyano.ca](mailto:accessibility.services@keyano.ca)

**Wellness Services** offers a caring, inclusive, and respectful environment where students can access free group and individual support to meet academic and life challenges. Mental Health Coordinators provide a safe and confidential environment for you to seek help with personal concerns. Our Wellness Navigator offers support with basic needs such as housing, financial and nutritional support, and outside referrals when needed. Wellness Services welcomes students to participate in group sessions that address topics including mindfulness and test anxiety throughout the academic year. Individual appointments can be made by emailing [wellness.services@keyano.ca](mailto:wellness.services@keyano.ca).

**Library Services** provides students with research, information, and educational technology supports as they engage in their studies. Library staff are available to help you online and in person throughout the semester. Librarians offer individual and small group consultations booked using the online [Book A Librarian calendar](#). The library also provides virtual research and subject guides to help you with your studies. Find the guide that supports your course-related research by viewing the complete list of online [Subject Guides](#). To start your research and access citation guides (APA, MLA, Chicago, or IEEE), visit the [Research Help page](#). The library's collections (including print and online materials) are searchable using [OneSearch](#). The library offers a Loanable Technology collection to support students accessing and using technology. For an up-to-date list of technology available for borrowing, visit the library's [Loanable Technology webpage](#). For a detailed list of library resources and services, go to [www.keyano.ca/library](http://www.keyano.ca/library). For all inquiries, please email [askthelibrary@keyano.ca](mailto:askthelibrary@keyano.ca) or [chat with us online](#).

The **Academic Success Centre** at Keyano College (CC-119) provides **free** academic support services to registered students, such as tutoring, writing support, facilitated study groups, workshops, and study space. Academic Content Specialists are available in Mathematics, Science, Trades, Power Engineering, Upgrading/College Prep, Human Services, English, Humanities, and more. Students are encouraged to visit the Academic Success Centre to discuss study strategies and academic concerns. For additional information, please email [Academic.Success@keyano.ca](mailto:Academic.Success@keyano.ca).

The **Academic Success Coach** is located in the Academic Success Centre and works with students to develop academic success plans, time management skills, study strategies, and homework plans. For additional information, please email [Academic.Success@keyano.ca](mailto:Academic.Success@keyano.ca).