

BIOL 030A, Biology 30

5 Credits, 12 hours lecture + 3 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

Linda Milette
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Office Hours

Monday - Friday 12:30 pm – 1:30 pm

Hours of Instruction

Monday – Friday 9:00 am – 11:50 am Room S207**

Lab dates on the Calendar, page 4: meet in the **ENVT LAB S114

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 Required Supplies:

Calculator - scientific

Lab Coat—must be knee-length (*available at Keyano Bookstore*)

Lab Pants that cover the ankle

Extra-Large Zip Lock Bag (*for lab, available at Keyano Bookstore*)

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

Moodle Quizzes	20 %
Lab Work / Report	20 %
Midterm Exam (Unit 1 + 2)	30 %
Final Exam (Unit 3 + 4)	30 %
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TOTAL	100 %

The minimum pre-requisite for progression is 1.7 (refer to Grading System below)

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

<u>Units of Study</u>	<u>Text References</u>	<u>Labs</u>
Unit 1 – The Organization of Life		
<ul style="list-style-type: none"> ▪ 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		
<ul style="list-style-type: none"> ▪ 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 1 & 2 + Lab Content)		
Unit 3 – The Organization of Human Support Systems		
<ul style="list-style-type: none"> ▪ circulation, blood ▪ digestion ▪ respiration and excretion 	Ch. 12 Ch. 14 Ch. 15, 16	#3 #4
Unit 4 – The Organization of Human Control Systems		
<ul style="list-style-type: none"> ▪ nervous system and senses ▪ musculoskeletal system ▪ endocrine system ▪ reproduction and development 	Ch. 17, 18 Ch. 19 Ch. 20 Ch. 21	#5
FINAL EXAM (Unit 3 & 4 + Lab Content)		

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	May 6 Ch. 1 Intro / Ch. 3-Cell Structures	7 Ch.4-Cell Membrane	8 LAB INTRO Start Ch.25-DNA	9 Ch.25-Gene Expression	10 Ch.27-Evolution
2	13 Ch.27 continued	14 Ch.34-Ecology	15 LAB # 1 Lab Report Details	16 Ch. 2 Organic Molecules	17 Finish Ch. 2 / Ch. 6- Enzymes HARDY-WEINBERG LAB REPORT IS DUE
3	20 VICTORIA DAY HOLIDAY	21 Finish Ch.6-Enzymes Ch. 11 – Organization	22 Finish Ch. 11 LAB # 2	Midterm Exam	23 Ch.12- Circulatory System
4	27 Finish Ch. 12	28 Ch.15 – Respiratory System	29 Finish Ch. 15 LAB # 3	30 Ch. 16 – Excretory System	31 Ch.16-continued
5	June 3 Chapter 14 – Digestive System	4 Ch.17 – Nervous System	5 LAB # 4	6 Ch.17 – continued Ch.18 Senses	7 Ch.19 – Musculoskeletal System
6	10 Ch.20 – Endocrine System	11 Ch. 20 - continued	12 Ch. 21/22 - Reproduction LAB # 5	13 Ch.21/22 Reproduction	June 14 Final Exam

Please Note:

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

Course Specific Policies

1. **Attendance Policy:** Biology 030 Section B 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
 - b. finding a “classroom buddy” whom you can contact for details regarding what you have missed.
 - c. check your Keyano email frequently, as notices posted to the ilearn forum automatically go there.
2. **Electronic devices policy:**
 - a. Texting and personal web browsing is **NOT permitted** during class lecture time.
 - b. Some students find usage of tablets and laptops to follow slides very helpful during lectures, so you are welcomed to bring these to class **for instructional purposes only**.
 - c. 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. **Please note that 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 person on the due date.
 - b. the earned grade, minus 10%, for each day late.
 - c. a mark of zero if received after I have returned the assignment. I do not accept work pushed under my office door.
 - d. No late work will be accepted once keys are posted or marked assignments are returned.
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 biology.
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. MOODLE quizzes will not be reopened for ANY reason.
 - d. In-class quizzes cannot be rewritten, as these are meant to give you immediate feedback on your progress. A quiz can be omitted with valid medical documentation (**excludes Spring session**).
 - e. 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.
 - f. 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, please contact Keyano College Information and Technology Services (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 and therefore students must complete the *WHMIS for Students* online training course on Moodle (ilearn.keyano.ca) 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.

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.

Specialized Supports

The Student Academic Support Services (SASS) department: Accessibility Services, Skill Centre and Wellness Services, work together to support student success at Keyano College.

Accessibility Services (CC167) supports student success through group and individualized instruction of learning, study and test taking strategies, and adaptive technologies. Students with documented disabilities, or who suspect a disability, can meet with the Learning Strategists to discuss accommodation of the learning barriers that they may be experiencing. Students who have accessed accommodations in the past are encouraged to visit our office at their earliest opportunity to discuss the availability of accommodations in their current courses. Individual appointments can be made by calling 780-791-8934

Skill Centre (CC119) provides a learning space where students can gather to share ideas, collaborate on projects and get new perspectives on learning from our tutorial staff. Students visiting the centre have access to one-to-one or group tutoring, facilitated study groups, and assistance in academic writing. The Skill Centre's Peer Tutor program provides paid employment opportunities for students who have demonstrated academic success and want to share what they have learned. Tutoring is available free to any students registered at Keyano College on a drop in basis, from 9:00 am to 5:00 pm Monday through Friday. Additional evening hours are subject to tutor availability and are posted in the Skill Centre.

Wellness Services (CC260) 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 offer a safe and confidential environment to seek help with personal concerns. The Mindfulness Room in CC260 is available as a quiet space for students to relax during regular office hours. Wellness Service welcomes students to participate in any of the group sessions offered throughout the academic year addressing such topics as Mindfulness and Test Anxiety. Individual appointments can be made by calling 780-791-8934.

Please watch your Keyano email for workshop announcements from our Student Academic Support Services team.