Course Outline

University Studies

Fall, 2023

BIOL 108A
Introduction to Biodiversity

3 Credits, 3 hours lecture, 3 hours lab per week
Our planet supports a remarkable diversity of life. This course will address the history of life on earth, the evolutionary processes that gave rise to the biodiversity of earth, and how the relationships among organisms are reflected in their classification. Principles that unite all living things as well as unique adaptations that characterize major lineages will be discussed using examples from the three Domains of life. Laboratory exercises will investigate the diversity of biological form and function, and introduce students to scientific methodology, data collection and scientific writing.

Prerequisites BIOL 030

Instructors

Dr. David Smith (lecture only)
S209B
780-791-4997
david.smith@keyano.ca

Dr. Blaine Legaree (labs only)
S209D
780-792-5616
blaine.legaree@keyano.ca

Office Hours
All office hours are in S209B (Smith) or S209D (Legaree)

Monday - Friday 12:00 – 1:00 D. Smith

Monday 10:00-11:00 B. Legaree
Tuesday 9:00-10:00 B. Legaree
Wednesday 1:00-2:00 B. Legaree
Thursday 9:00-10:00, 1:00-2:00 B. Legaree

Hours and Location of Instruction

Lectures: Tuesday, Thursday 8:00-8:50 S207, Fridays 2:00-2:50 S207
BIOL 108X Lab: Wednesday 2:00 – 4:50 CC234
BIOL 108Y Lab: Wednesday 9:00 – 11:50 CC234

Required Resources

Textbook title,
* Urry, L.A. et al. 2021. Campbell Biology, Third Canadian Edition. Pearson Canada. ISBN-10: 0134851714 • ISBN-13: 9780134851716
** The 9th edition and the 1st and 2nd Canadian edition of Biology are also acceptable*

Course Outcomes

Upon successful completion of this course, students will be able to:
1) Explain basic principles of ecology, evolution, and Mendelian genetics, with a focus on the origin and diversity of life.

2) Use current phylogenetic and taxonomic nomenclature to describe the diversity of life on earth, and explain how evolutionary history is reflected in the nomenclature of organisms, including reference to major evolutionary innovations.

3) Use scientific inquiry to ask and answer questions about the world around them. This includes understanding the strengths and limitations of scientific inquiry and recognizing common mis-uses/mis-understandings.

Evaluation

Lab Assignments	10%, due every 3 weeks
Midterm	25%, week of Oct. 19
Lab exam	25%, week of Nov. 27
Final Exam	40%, weeks of Dec. 4-11
Total	100%

A grade of C- is required for progression or transfer.

Grading System

Descriptor	Alpha Grade	4.0 Scale	Percent	Rubric for Letter Grades
Excellent	A+	4.0	> 92.9	Work shows in-depth and critical analysis, well developed ideas, creativity, excellent writing, clarity and proper format.
	A	4.0	85 – 92.9	
	A-	3.7	80 – 84.9	
Good	B+	3.3	77 – 79.9	Work is generally of high quality, well developed, well written, has clarity, and uses proper format.
	B	3.0	74 – 76.9	
	B-	2.7	70 – 73.9	
Satisfactory **Progression**	C+	2.3	67 – 69.9	Work has some developed ideas but needs more attention to clarity, style and formatting.
	C	2.0	64 – 66.9	
	C-	1.7	60 – 63.9	
Poor **Minimum Pass**	D+	1.3	55 – 59.9	Work is completed in a general way with minimal support, or is poorly written or did not use proper format.
	D	1.0	50 – 54.9	
Failure	F	0.0	< 50	Responses fail to demonstrate appropriate understanding or are fundamentally incomplete.

Proposed Schedule of Lecture Topics

Lecture Topic – (week of:)	Textbook Reading
Aug. 28 - Introduction – The scientific method and the scale of biology	1.1-1.3
Sep. 4 - Darwin and natural selection	22.1-22.3
Sep. 11 - Evolution of populations (microevolution)	14.1-14.2; 23.1-23.4
Sep. 18 - The origin of species (speciation)	24.1-24.4
Sep. 25 - Taxonomy, systematics, phylogeny, and classification	26.1-26.5
Sep. 25 - A brief history of time: the origin of life, fossils and their relevance	25.1-25.4
Oct. 2 - Prokaryotes	27.1-27.6
Oct. 9 - Endosymbiosis and the evolution of eukaryotes	25.3, 26.6
Oct. 9 - Reproductive strategies: why does sex exist?	12.1-12.2; 13.1-13.4
Oct. 16 – Protists	28.1-28.7
Oct. 23 - Plant diversity I: bryophytes and pteridophytes	29.1-29.3
Oct. 30 - Plant diversity II: seeded plants	30.1-30.4
Oct. 30 - Functional anatomy of seed plants	35.1-35.4; 36.3-36.4
Nov. 6 – Fungi	31.1-31.5
Nov. 13 - Animal development and classification	32.1; 32.3-32.4
Nov. 20 - Animal diversity I: invertebrates	33.1-33.5
Nov. 27 - Animal diversity II: chordates and vertebrates	34.1-34.8

Proposed Schedule of Laboratory Topics (week of:)

Aug. 28	No lab
Sep. 4	Lab 1 – Biological tools and aseptic techniques, discuss primary literature assignment
Sep. 11	Lab 2 – Mechanisms of evolution (dot lab)
Sep. 18	Lab 3 – Population genetics (bead lab) Assignment on Labs 1-3 – 2% due Friday Sep. 29
Sep. 25	Lab 4 – Domain Bacteria and sterile technique Lab report assigned for “Efficacy of Antimicrobial Products”, worth 3%, report due Friday Oct. 14
Oct. 2	Lab 5 – part 1. Domain Bacteria and Kingdom Plantae: bryophytes, pteridophytes (data collection from bacteria lab)
Oct. 9	Lab 6 – part 2. Kingdom Plantae: seeded plants
Oct. 16	Lab 7 - Student presentations of primary literature – 3%
Oct. 23	Lab 8 - Kingdom Fungi
Oct. 30	Lab 9 – Kingdom Animalia – part 1
Nov. 6	Lab 10 – Kingdom Animalia – part 2 Assignment on Labs 5, 6, 8-10 due Friday Nov. 25 – 2%
Nov. 13	No Lab – Fall Reading Week
Nov. 20	Review
Nov. 27	Lab Exam

Please Note:
Date and time allotted to each topic is subject to change.

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 Withdrawal/Drop Form. All forms are available on the College website. Please refer to the important dates listed in the Academic Schedule in the Keyano College credit calendar and/or on the College website. It is the responsibility of each student to be aware of the guidelines outlined in the Student and Academic 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.

Course Evaluation

Midterm exams and term work is to be completed at the time/date indicated in your course syllabus. It is the expectation of the College that students make every reasonable effort to complete all course evaluation, including, quizzes, midterms, and exams, as scheduled. In the event of an emergency, rescheduling of exams and/or extensions are only provided at the discretion of the course instructor. Students should contact the instructor as soon as they are able, to notify them of missing an evaluative component. Instructors will use discretion in deciding whether circumstances justify granting a reschedule and/or extension.

Regular term quizzes, midterms, and exams are not eligible for deferral and/or date extension accommodations. Students with accommodations, please refer to Accessibility Services.

Final Exams are subject to deferral processes, please refer to the current Keyano College Credit Calendar.

Academic Integrity & Misconduct

Academic integrity requires commitment to the values of honesty, trust, fairness, respect, and responsibility. It is expected that students at Keyano College will adhere to these ethical values in all activities related to learning, teaching, research, and service. Any action that contravenes this standard, including misrepresentation, falsification, or deception, undermines the intention and worth of scholarly work and violates the fundamental academic rights of members of our community.

Academic 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),
- Using Artificial Intelligence (AI) to complete coursework (without instructor approval),
- 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.

In all academic work, the ideas and contributions of others must be appropriately acknowledged and work that is presented as original must be, in fact, original. Using an AI-content generator (such as ChatGPT) to complete coursework without proper attribution or authorization is a form of academic dishonesty. If you are unsure about whether something may be plagiarism or academic dishonesty, please contact your instructor to discuss the issue.

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 & Academic Policies* 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, Academic Integrity, and Non-Academic Misconduct 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.

Specific Department Requirements

Business and OA programs require Windows 10 or higher.
Other programs may utilize Windows-based tools as well.

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 or calling 780-791-4965.

Specialized Supports

Keyano College 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.

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

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.

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. For all inquiries, please email 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.

Specialists in the Academic Success Centre also work with students to develop academic success plans, time management skills, study strategies, and homework plans. For additional information, please email Academic.Success@keyano.ca.

Authorization

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

Dr. David Smith, Instructor

Dr. Marie-France Jones, Chair — Date Authorized

Dr. Coert Erasmus, Dean — Date Authorized

Signed copies to be delivered to:
Instructor
Registrar's Office