



School of Science
BIOL 101
Ecology, Evolution, and Diversity
Fall 2025
3 credits

Course Outline

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OFFICE HOURS: Wed. 1:00 – 2:30

TIME/DATES: Lectures T & Th 10:30 am – 12:00 in A2103

Labs: Thurs. 2:30 – 5:20 **or** Fri. 9:00 – 11:50 in A2805 (the 'biology lab')

COURSE DESCRIPTION

This course is a core introductory science course, transferrable to most Canadian universities as one semester of a first-year level Biology course, emphasizing principles with wide applications to all living organisms, including the scientific process, principles of ecology, evolution via natural selection, and the origin and diversity of life. A comparative approach to the unity and diversity of organisms is stressed. Weekly mandatory lab sessions reinforce subject matter presented in lectures.

COURSE REQUIREMENTS

Prerequisite(s): *One of the following* is required (and more than one is recommended): Biology 11, Biology 12, or Chemistry 11 (or equivalent).

Corequisite(s): Math 12 (or equivalent) is recommended either as a pre-requisite or co-requisite. Students are expected to utilize basic mathematical skills.

EQUIVALENCY OR TRANSFERABILITY

This course transfers as one semester of first-year biology for Majors at most Canadian institutions, however, please be aware that receiving institutions determine course transferability. Find further information at:

<https://www.yukonu.ca/admissions/transfer-credit>

LEARNING OUTCOMES

Upon successful completion of the course, students will be able to:

1. use the scientific process and apply it to examples in biology,
2. give examples of the different levels of study in ecology and emergent properties at each level,
3. demonstrate understanding of genetics including mechanisms and patterns of inheritance,
4. demonstrate knowledge of principles of evolution via natural selection and other agents of evolution, and the origin of species,
5. demonstrate knowledge of the diversity of life across taxonomic groups,

6. conduct modern lab and field procedures safely and ethically, including microscope use, data collection, interpretation, and communication of results.

COURSE FORMAT

This course will be delivered with the following breakdown per week: three hours of lecture (in two 1.5-hour blocks), one three-hour lab, and zero hours of tutorial. Although it will vary from individual to individual, students should expect to spend 5-6 hours on course material outside of the classroom time (per week) on studying or completing assignments.

Delivery format

This course will be delivered in a face-to-face (in person) format.

EVALUATION

Lecture quizzes (5 in total)	40 %
Lab Assignments (weekly)	17.5 % (50% of Lab Mark)
Lab Quizzes (weekly)	17.5 % (50% of Lab Mark)
Final Exam	25 %
Total	100%

Please note that there is no midterm for this course. The midterm mark is based on lecture quizzes.

Lecture quizzes are given during normally scheduled class time and take 30 minutes to complete.

Lab quizzes are given at the start of each lab period (except the first lab) and take 15 minutes to complete. These are based on material covered in the previous lab and some questions on what will be done during that day's lab period. *Students are expected to read lab material before coming into the lab.* There is no final exam for the laboratory portion of the course.

Lab assignments are handed out at the beginning of lab sessions and are to be completed once lab exercises are completed. Some students finish assignments during the lab session, although they are not due until the next weekday at noon or otherwise determined by the lab instructor. Late assignments may be deducted -5% of marks per day.

Attendance in the laboratory is mandatory. *Students must pass the lab and lecture portions of the course independently.*

COURSE WITHDRAWAL INFORMATION

The last day to withdraw without academic penalty is Fri. Oct. 31, 2025. Please refer to the YukonU website for other important dates, <https://www.yukonu.ca/current-students/important-dates>

TEXTBOOKS & LEARNING MATERIALS

Students can purchase a textbook online or use eText access through the publisher (Pearson). There are also textbooks available for use *while in the lab* and several available in the library to borrow.

Campbell Biology, 4th Canadian Edition (2025).

Authors: L. A. Urry, M. L. Cain, S. A. Wasserman, P. V. Minorsky, R. B. Orr, K. L. Hull, N. A. Campbell, F. E. Rawle, D. Durnford, C. D. Moyes, and K. Scott. Publisher: Pearson

Lab materials (e.g., lab manuals) are provided in the form of three-hole punched pages in the first lab.

Laboratory coats are mandatory, and students can purchase these online ahead of time, or at the YukonU campus bookstore.

ACADEMIC INTEGRITY

Students are expected to contribute toward a positive and supportive environment and are required to conduct themselves in a responsible manner. Academic misconduct includes all forms of academic dishonesty such as cheating, plagiarism, fabrication, fraud, deceit, using the work of others without their permission, aiding other students in committing academic offences, misrepresenting academic assignments prepared by others as one's own, or any other forms of academic dishonesty including falsification of any information on any Yukon University document.

Please refer to Academic Regulations & Procedures for further details about academic standing and student rights and responsibilities. <https://www.yukonu.ca/policies/academic-regulations>

Please note that generative artificial intelligence (AI) tools such as ChatGPT can be useful in the same way as a web search. They can be a starting point but cannot be used to do the work for you. Simply copying the output and submitting it as your own work will be considered plagiarism the same as if you copied directly from a book, webpage, or a classmate. Furthermore, appropriate referencing is expected in submitted work. If generative AI is used as part of your writing workflow, this must be indicated as a footnote. Generative AI cannot be used as a reference source. AI tools are not actual sources of information and should not be referenced as such, much as you would not reference the results of a web search. References should be to the published scientific literature.

ACADEMIC ACCOMMODATION

Yukon University is committed to providing a positive, supportive, and barrier-free academic environment for all its students. Students experiencing barriers to full participation due to a visible or hidden disability (including hearing, vision, mobility, learning disability, mental health, chronic or temporary medical condition), should contact [Accessibility Services](#) for resources or to arrange academic accommodations, email: access@yukonu.ca or call 668-8780.

TOPIC OUTLINE

General topic	Chapters	Topics	# Lectures, quiz dates
1. Introduction	CH 1	Introduction to Biology and The Scientific Method	2
2. Ecology	CH 52	Biosphere Ecology	1
	CH 53	Population Ecology	2 Quiz 1 Sept. 18*
	CH 54	Community Ecology	1
	CH 51 <i>in part</i>	Behavioral Ecology	1
3. Genetics	CH 14	Mendelian Inheritance	1 Quiz 2 Oct. 2

	CH 15	Chromosomal Basis of Inheritance	1
<i>Fall Reading week Oct. 14 - 17</i>			
4. Evolution	CH 22, 23	Variation, Natural Selection	2 Quiz 3 Oct. 23
	CH 24	Speciation	1
5. The Diversity of Life	CH 25 <i>in part</i>	History of Life on Earth	1
	CH 27	Bacteria and Archaea	1 Quiz 4 Nov. 06
	CH 28	Eukarya: Protists	2
	CH 31	Fungi	1 Quiz 5 Nov. 20
	CH 29, 30	Plants	2
	CH 32, 33	Animals: Invertebrates	2
	CH 34	Animals: Vertebrates	3
	Review		Fri. Dec. 12 9 – 12:00
	Final Exam		

Please note that quiz dates are final, but exact quiz topics may change depending on how fast we move through material

Lab Schedule

Week	Topic
Lab 1 Sept. 4/5	Ecology 1- The Boreal Forest: Introduction to ecosystems, trophic structures, plant identification, dichotomous key (<i>Outside lab-bring appropriate clothes to be outside</i>)
Sept. 11/12	no lab this week to allow for other field trip
Lab 2 Sept. 18/19	Ecology 2- Population Ecology and Community Interactions, population density (partially outside, <i>bring appropriate clothes to be outside</i>)
Lab 3 Sept. 25/26	Behavioural Ecology – Field trip

Lab 4 Oct. 2/3	Genetics; Mendelian patterns of inheritance using <i>Drosophila</i> , introduction to a basic statistical test, the <i>chi-square</i>
Lab 5 Oct. 9/10	Evidence for Evolution, Evolution and Natural Selection
Oct. 14 - 17	Reading Week, no classes this week Thurs. or Friday
Lab 6 Oct. 23/24	Introduction to the Microscope The Evolution of Biological Diversity – Archaea, Bacteria, single-celled Eukaryotes
Lab 7 Oct. 30/31	Fungal Diversity, Plant Diversity Part 1 - Seedless Plants
Lab 8 Nov. 6/7	Plant Diversity Part 2 - Seed Plants
Lab 9 Nov. 13/14	Animal Diversity Part 1 – Sponges, Cnidaria, Platyhelminthes
Lab 10 Nov. 20/21	Animal Diversity Part 2 – Mollusca, Annelida, Nematoda
Lab 11 Nov. 27/28	Animal Diversity Part 3 - Arthropods, Echinoderms, Chordates