

Fundamentals: Organisms to Ecosystems

BIOL 103 Winter 2026

CALENDAR DESCRIPTION

The origins and diversification of multicellular organisms, their form, function and adaptation to stress and a changing world. Themes and case studies include energy flow from molecules to ecosystems, organismal interactions including parasitism and disease dynamics, and the impacts of human activity.

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Course Information

General Course Information

Course: BIOL 103

Course title: Fundamentals of Biology: Organisms to Ecosystems

Pre-requisites: none

Semester and year: Winter 2026

Number of credits: 3.0

Learning hours: 128

Modality: Blended

Classroom accessibility: All lecture theatres are accessible

Course Description

There has never been a more exciting time to study Biology, given the revolutionary breakthroughs of the last century in both our conceptual grasp of how the biotic world works and our tools of investigation. Biologists are relentlessly refining our understanding of the living world around us, and biological training is therefore a strong foundation for confronting some of the most pressing problems facing us, from human health to the functioning and future of our planet. From the organic molecules roaming around your cells to the complexity of the biosphere, biology explores it all! In Biol 103 we survey biological organization and diversity from animal physiology to ecosystems.

Take the time to read over the introductory notes and understand the organization of the course and the weekly duties and various time commitments. It is important that you establish and maintain an organized study schedule in the course. In general, the demands and workload will

increase as the course progresses. This is true of most 1st year courses. The introductory notes have suggestions on how to approach the material and prepare for quizzes and exams.

In this course we utilize strategies that encourage active, rather than passive, learning and take advantage of independent study as well as group activities to deliver and reinforce course content. Online resources and assignments are typically an important component of blended learning courses.

Topics

Week	Module	Topic
1	Module 1: Evolution	Evolutionary mechanisms
2	Module 1: Evolution	Populations and Species
3	Module 1: Evolution	Phylogenies and the history of life
4	Module 2: Physiological Communication & Coordination	Common themes in animal physiology; cell signalling and hormones
5	Module 2: Physiological Communication & Coordination	Neurons and nervous systems
6	Module 2: Physiological Communication & Coordination	Sensory biology
7	Module 3: Homeostasis, Immunity, Reproduction	Homeostasis and thermoregulation
8	Module 3: Homeostasis, Immunity, Reproduction	Osmoregulation, glucose & oxygen
9	Module 3: Homeostasis, Immunity, Reproduction	Immunity & reproduction
10	Module 4: Ecology	Behavioural ecology, sex roles and sex conflict
11	Module 4: Ecology	Species interactions and communities
12	Module 4: Ecology	Ecosystems

Course Learning Outcomes

On successful completion of this course, students should be able to:

1. Discuss the mechanisms by which evolution shapes biological diversity, citing examples from the history of life captured in the fossil record, in extant diversity, or through direct observation of evolution in action.
2. Compare the nature of interactions between organisms at the level of the population, the community and the ecosystem.
3. Describe the main cycles governing the flow of nutrients and energy through communities and ecosystems and recognize the importance of ecological interactions and biodiversity in building a sustainable future
4. Apply knowledge of tissue and organ system functioning and integration to diagnose or predict common diseases and organismal dysfunctions.
5. Describe the structure and function of nerves and muscles and explain how they contribute to physiological and behavioural processes.

6. Identify the roles of the major physiological systems in diverse animals and how they are regulated through electrical and chemical signals to achieve change or maintain homeostasis.

Important University Dates

Please visit the [Faculty of Arts and Sciences Sessional Dates website](#) for all academic deadlines.

Inclusion

Land Acknowledgement

Queen's University is situated on the traditional lands of the Haudenosaunee and Anishinaabek. To read more about the history of the land, see the [Queen's Encyclopedia](#) and to learn more about land acknowledgements, see the [Office of Indigenous Initiatives](#).

Equity, Diversity, and Inclusivity Statement

Queen's University recognizes that the values of equity and diversity are vital to and in harmony with its educational mission and standards of excellence. It acknowledges that direct, indirect, and systemic discrimination exists within our institutional structures, policies, and practices and in our community. These take many forms and work to differentially advantage and disadvantage persons across social identities such as race, ethnicity, disability, gender identity, sexual orientation, faith, and socioeconomic status, among other examples. In this class I will work to promote an anti-discriminatory, anti-racist and accountable environment where everyone feels welcome. Every member of this class is asked to show respect for every other member.

Building a Classroom Community

University is a place to share, question, and challenge ideas. Each student brings a different set of lived experiences. You can help to create a safer, more respectful classroom community for learners by following these guidelines:

- Make a personal commitment to learn about, understand, and support your peers.
- Assume the best of others and expect the best of them.
- Recognize and value the experiences, abilities, and knowledge each person brings to the course.
- Acknowledge the impact of oppression on other people's lives and make sure your words and tone are respectful and inclusive.
- Encourage others to develop and share their ideas.
- Pay close attention to what your peers say/write before you respond. Think through and re-read what you have written before you post online or send your comments to others.
- Be open to having your ideas challenged and challenge others with the intent of facilitating growth.
- Look for opportunities to agree with one another, building on and intentionally referencing peers' thoughts and ideas; disagree with ideas without making personal attacks, demeaning, or embarrassing others.

Fostering Accessibility

All of us have a shared responsibility for fostering accessibility and promoting meaningful inclusion of those with disabilities. The [Accessibility Hub](#) at Queen's University's Human Rights & Equity Office offer a host of [tutorials](#) that provide us all with practical tips for:

- creating accessible documents, e.g., to submit to your teaching team or share with peers in peer feedback activities/in a presentation,
- emails, e.g., while communicating with group members or your teaching team, and
- meeting practices (e.g., in tutorials/labs/seminars or virtual meetings).

Name/Pronoun

If, for whatever reason, you wish to change how your name appears in onQ and/or on class lists, please follow these steps. You may also use this process to add your pronouns to the appearance of your name.

1. Log into SOLUS.
2. Click on Personal Information tab.
3. Click on the Names tab
4. Click on the Add New Name tab
5. Choose Preferred from the Name Type drop down menu
6. Enter the name you would like to appear in onQ and/or on class lists.
7. Click Save.

Please allow 24 to 48 hours for your name to be registered within the system. If you have further questions or concerns, please contact ITS at Queen's University.

Course Materials & Technologies

Material costs Mandatory

Required Course Textbooks

Course Textbooks	Edition(s)	Publisher	For Purchase	Cost	At Queen's Library?
<i>Campbell Biology</i>	Canadian 4th Edition	Pearson	E-text available from the publisher or through the campus bookstore	\$119.99 (e-text bundle with Mastering Biology; 24mo)	Y or N?

Other Required Materials

Resource	Resource Type	Access	Cost	Further Information
Title.	Select Type.	How to access?		Add details.
Title.	Select Type.	How to access?		Add details.
Title.	Select Type.	How to access?		Add details.

Supplemental Materials

Resource	Resource Type	Access	Cost	Further Information
Title.	Select Type.	How to access?		Add details.
Title.	Select Type.	How to access?		Add details.
Title.	Select Type.	How to access?		Add details.

Educational Technologies, Help, Privacy, and Accessibility

This course makes use of the following website(s), program(s), and/or application(s) for specific educational use/purposes.

Privacy: Be aware that your independent use of the website(s), programs, and/or application(s) used in this course, *beyond what is required*, is subject to their terms of use and privacy policy. You are encouraged to review the applicable privacy statements before using the site. Please see below.

Notice of Recording

Synchronous (live) classes will be delivered in this course through Zoom and/or Teams, video conferencing platforms supported by the University. Steps have been taken by the University to configure these platforms in a secure manner. Classes will be recorded with video and audio (and, in some cases, transcription) and will be made available to students in the course for the duration of the term. The recordings may capture your name, image or voice through the video and audio recordings. By attending these live classes, you are consenting to the collection of this information for the purposes of administering the class and associated coursework. If you are concerned about the collection of your name and other personal information in the class, please contact the course instructor to identify possible alternatives.

To learn more about how your personal information is collected, used and disclosed by Queen's University, please see the [Notice of Collection, Use and Disclosure of Personal Information](#).

Copyright of Course Material

Course materials created by the course instructor, including all slides, presentations, handouts, tests, exams, and other similar course materials, are the intellectual property of the instructor. It is a departure from academic integrity to distribute, publicly post, sell or otherwise disseminate an instructor's course materials or to provide an instructor's course materials to anyone else for distribution, posting, sale or other means of dissemination, without the instructor's express consent. A student who engages in such conduct may be subject to penalty for a departure from academic integrity and may also face adverse legal consequences for infringement of intellectual property rights.

Communication

Questions about the Course and Contacting the Teaching Team

Prior to the course, contact the Teaching Team with any questions via the course email: BIOL103@queensu.ca.

During the course, post your content and logistical questions to the appropriate Help forum, where everyone can benefit from the exchanges. Requests that are confidential or urgent should be sent to BIOL103@queensu.ca.

Course Announcements

Any changes to the course or any other form of announcements are made via the course homepage. Students in the course are encouraged to sign up to automatically receive a notice that an new announcement has been posted.

Queen's Email

The university communicates with students via Queen's email. Please check your email regularly to ensure you do not miss important information related to your course.

Course Feedback

At various points during the course, you may be asked to take part in a variety of feedback activities, such as surveys and questionnaires. This feedback enables the teaching team to improve the course. All surveys are anonymous and are directly related to activities, assessments, and other course material.

Assessments

Weighting and Alignment with Course Learning Outcomes (CLOs)

Assessment	Alignment with CLOs	Weighting
Dynamic Study Modules	Various	8%
Online Quizzes	Various	20%
Lab Assignments & Quizzes	Various	32%
Midterm Exam	All	12%
Final Exam	All	28%

Total 100%

Assessment Flexibility & Assignment Submission Policy

For the lecture activities,

- There is no flexibility in the due dates for the DSMs. You must complete all questions to be considered to have completed the activity. These are open from the first day of classes and thus there are no extensions. Access to complete the DSMs.
- The Self-test quizzes are open Thursdays, due Saturday, with no penalty if they are completed by the following Tuesday. This policy is to reduce the need for requests from students who experience a short-term extenuating circumstance before the due date, with an additional 72h built in.
- The Midterm is completed in class, and any time- and space-based accommodations are arranged through the Exams Office. Students who miss the midterm, for any reason, will automatically have the marks applied to the final exam.

Long-term requests will be handled on a case-by-case basis if needed. All correspondence on

accommodations should be sent to the course email (biol103@queensu.ca), not individual members of the Teaching Team.

For the group learning activities:

- Labs include a series of individual and group activities that are hybrids between tutorial and lab. The pre-lab activities are completed individually before lab for group activities that are designed around the overarching lab learning objectives.
- Individual Activities are due on the Thursday preceding group work (11:59 PM). However, we offer a 72 h grace period and permit you to complete the activities as late as Sunday (11:59 PM) without penalty.
- Group Activities run in class in your lab sections. The reports are all Group Reports and must be handed in by the end of the class to be considered on time. More specific information for policies associated with Extenuating Circumstances that prevent you from participating in lab activity will be available in the onQ Syllabus.

Descriptions of Learning Activities and Assessments

Dynamic Study Modules

These are provided by the textbook publisher to reinforce content on a chapter by chapter basis. They are not timed and provide opportunities to re-answer questions after brief tutorials

Biweekly Quizzes

Online quizzes on recent course content – both text and lecture.

Lab Assignments

Short preparatory quizzes and written group exercises

Midterm

Covers Modules 1 & 2.

Final

Comprehensive but weighted. Sat during the exams period.

Proctored Exams

Timing of Final Examinations

Once the exam schedule has been finalized, the exam date will be posted on your SOLUS account. The exam dates for each term are listed on the Faculty of Arts and Science webpage under "[Important Dates](#)." Student exam schedules for the Fall Term are posted on SOLUS immediately prior to Thanksgiving and on the Friday before Reading Week for the Winter Term. Students should **delay finalizing any travel plans until after the examination schedule has been posted**. Exams will **not be moved or deferred** to accommodate employment, travel/holiday plans or flight reservations. For information regarding what is considered extenuating circumstances and qualifications for Academic Consideration, please visit the [Faculty of Arts and Science's Academic Consideration webpage](#).

If you are unable to attend an exam and receive approval for a deferred proctored exam, a further deferral of that exam will not be accommodated.

Policies

Class Attendance

Your presence and participation in class contributes to the knowledge and skills that you will develop throughout this course. I expect that you attend class regularly, participate in class conversations and learning activities. These types of activities provide active engagement, promote a deeper understanding of the course content, and contribute to your success in this course.

Academic Support

All undergraduate students face new learning and writing challenges as they progress through university: essays and reports become more complex; effectively incorporating research into writing becomes more important; the types of assignments become more diverse; managing your time and developing the skills you need to read and think critically gets more challenging. I encourage students to contact Student Academic Success Services (SASS). SASS offers many different ways to receive support:

- Free online or in-person [appointments](#) to get personalized support on writing and academic skills from expert staff and trained peers.
- [Workshops](#) and [drop-in programs](#). SASS' [Events Calendar lists events coming soon](#).
- [Online resources](#) that provide strategies for academic skills and writing development at university.
- If English is not your first language, SASS has specific resources for [English as Additional Language students](#), including weekly programs and EAL academic skills appointments. You can meet on an ongoing basis with an EAL consultant to work on your academic writing, speaking, listening, and reading skills.

Accommodations for Disabilities

Queen's University is committed to working with students with disabilities to remove barriers to their academic goals. Queen's Student Accessibility Services (QSAS), students with disabilities, instructors, and faculty staff work together to provide and implement academic accommodations designed to allow students with disabilities equitable access to all course material (including in-class as well as exams). If you are a student currently experiencing barriers to your academics due to disability related reasons, and you would like to understand whether academic accommodations could support the removal of those barriers, please visit the [QSAS website](#) to learn more about academic accommodations or start the registration process with QSAS by clicking **Access Ventus** button at [Ventus | Accessibility Services | Queen's \(queensu.ca\)](#)

VENTUS is an online portal that connects students, instructors, Queen's Student Accessibility Services, the Exam's Office and other support services in the process to request, assess, and implement academic accommodations.

To learn more go to: <https://www.queensu.ca/ventus-support/students/visual-guide-ventus-students>

Academic Consideration for Students in Extenuating Circumstances

Academic Consideration is a process for the University community to provide a compassionate response

to assist students experiencing unforeseen, short-term extenuating circumstances that may impact or impede a student's ability to complete their academics. This may include but is not limited to,

- Short term Physical or Mental Illness or Injury (stomach flu, anxiety/depression, mononucleosis, concussion, broken bones, surgery, medical treatments, etc.)
- Traumatic Event/Confidential (Bereavement, serious injury, illness or required treatment for a significant other/family member or a traumatic event such as divorce, sexual assault, social injustice, etc.)
- Requirements by Law or Public Health Authorities (court dates, jury duty, requirements to isolate, etc.)
- Significant Event (varsity athletic event, distinguished event, serving in the Reserve Forces, etc.)

Queen's University is committed to providing academic consideration to students experiencing extenuating circumstances. For more information, please see the [Senate Policy on Academic Consideration for Students in Extenuating Circumstances](#).

Each Faculty has developed a protocol to provide a consistent and equitable approach in dealing with requests for academic consideration for students facing extenuating circumstances. For more information, undergraduate students in the Faculty of Arts and Sciences should consult the Faculty's webpage on [Academic Consideration in Extenuating Circumstances](#) and submit a request via the [Academic Consideration Request Portal](#). Students in other Faculties and Schools who are enrolled in this course should refer to the protocol for their home Faculty.

Students are encouraged to submit requests as soon as the need becomes apparent and to contact their instructor and/or course coordinator as soon as possible once academic consideration has been granted. Any delay in contact may limit the options available for academic consideration.

For more information on the Academic Consideration process, what is and is not an extenuating circumstance, and to submit an Academic Consideration request, please see the Faculty of Arts and Science's [Academic Consideration website](#). ASO courses include links to information on **Academic Consideration** on your **Course Homepage** in onQ.

Please see the Teaching Team page for contact information for your instructor and TA(s), where relevant.

Queen's Policy Statement on Academic Integrity

Queen's University is dedicated to creating a scholarly community free to explore a range of ideas, to build and advance knowledge, and to share the ideas and knowledge that emerge from a range of intellectual pursuits. Queen's students, faculty, administrators and staff therefore all have responsibilities for supporting and upholding the fundamental values of academic integrity. Academic integrity is constituted by the five core fundamental values of honesty, trust, fairness, respect and responsibility and by the quality of courage. These values and qualities are central to the building, nurturing and sustaining of an academic community in which all members of the community will thrive. Adherence to the values expressed through academic integrity forms a foundation for the "freedom of inquiry and exchange of ideas" essential to the intellectual life of the University.

The following statements from "The Fundamental Values of Academic Integrity" (2nd edition), developed by the International Center for Academic Integrity (ICAI), contextualize these values and qualities:

1. **Honesty** Academic communities of integrity advance the quest for truth and knowledge through intellectual and personal honesty in learning, teaching, research, and service.
2. **Trust** Academic communities of integrity both foster and rely upon climates of mutual trust. Climates of trust encourage and support the free exchange of ideas which in turn allows scholarly inquiry to reach its fullest potential.
3. **Fairness** Academic communities of integrity establish clear and transparent expectations, standards, and practices to support fairness in the interactions of students, faculty, and administrators.
4. **Respect** Academic communities of integrity value the interactive, cooperative, participatory nature of learning. They honor, value, and consider diverse opinions and ideas.
5. **Responsibility** Academic communities of integrity rest upon foundations of personal accountability coupled with the willingness of individuals and groups to lead by example, uphold mutually agreed-upon standards, and take action when they encounter wrongdoing.
6. **Courage** To develop and sustain communities of integrity, it takes more than simply believing in the fundamental values. Translating the values from talking points into action -- standing up for them in the face of pressure and adversity — requires determination, commitment, and courage.

Students are responsible for familiarizing themselves with and adhering to the Senate [regulations](#) concerning academic integrity, along with [Faculty or School](#) specific information. Departures from academic integrity include, but are not limited to, plagiarism, use of unauthorized materials, facilitation, forgery and falsification. Actions which contravene the regulation on academic integrity carry sanctions that can range from a warning, to loss of grades on an assignment, to failure of a course, to requirement to withdraw from the university.

Syllabus statements for Generative Artificial Intelligence (AI) Tools (select one of the following)

Sample 1: Permitted with citation

Students must submit their own work and cite the work that is not theirs. Generative AI writing tools such as ChatGPT are welcome in this class, provided you cite the material that they generate. Any other use constitutes a Departure from Academic Integrity.

Sample 2: Permitted in specific assignments, with citation

Students must submit their own work and cite the work that is not theirs. Generative AI writing tools such as ChatGPT are only permissible when explicitly noted in the assignment instructions. In these cases, be sure to cite the material that they generate. Any other use constitutes a Departure from Academic Integrity.

Sample 3: Not permitted

Using generative AI writing tools such as ChatGPT in your submitted work is not permitted in this class. This type of use constitutes a Departure from Academic Integrity.

Original work, completed wholly by you, is expected to be submitted in this course. The use of an artificial intelligence tool like ChatGPT is not permitted.

Queen's [Student Academic Success Services](#) (SASS) offers a self-directed, online academic integrity module which we encourage all students to take which will help with:

- Understanding the nature of the academic integrity departure
- Understanding the expectations of and role of sources in scholarly writing

- Integrating sources into your writing (paraphrasing, quoting, summarizing)
- Understanding when and how to cite your sources
- Managing your time effectively to avoid the need for shortcuts
- Taking effective notes to ensure accuracy of source material and correct attribution

Turnitin Statement

This course makes use of Turnitin, a third-party application that helps maintain standards of excellence in academic integrity. Normally, students will be required to submit their course assignments through onQ to Turnitin. In doing so, students' work will be included as source documents in the Turnitin reference database, where they will be used solely for the purpose of detecting plagiarized text in this course. Data from submissions is also collected and analyzed by Turnitin for detecting Artificial Intelligence (AI)-generated text. These results are not reported to your instructor at this time but could be in the future.

Turnitin is a suite of tools that provide instructors with information about the authenticity of submitted work and facilitates the process of grading. The similarity report generated after an assignment file is submitted produces a similarity score for each assignment. A similarity score is the percentage of writing that is similar to content found on the internet or the Turnitin extensive database of content. Turnitin does not determine if an instance of plagiarism has occurred. Instead, it gives instructors the information they need to determine the authenticity of work as a part of a larger process.

Please read Turnitin's [Privacy Policy](#), [Acceptable Use Policy](#) and [End-User License Agreement](#), which govern users' relationship with Turnitin. Also, please note that Turnitin uses cookies and other tracking technologies; however, in its service contract with Queen's University, Turnitin has agreed that neither Turnitin nor its third-party partners will use data collected through cookies or other tracking technologies for marketing or advertising purposes.

For further information about how you can exercise control over cookies, see [Turnitin's Privacy Policy](#).

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