

Course Information

General Course Information

Course: BIOL 200

Course title: Diversity of Life

Pre-requisites: None. Recommended preparatory courses: BIOL 102/3.0 and BIOL 103/3.0.

Semester and year: Winter 2025

Number of credits: 3

Learning hours: 120

Modality (on campus, blended, or online): On campus

Course Description

One of the most wondrous features of Biology is how evolution has developed so many different ways for organisms to grow, survive, and reproduce. The overall course goal is to provide students with the background knowledge and interpretive skills needed to recognize and appreciate the diversity of life and the evolutionary mechanisms that generated it, so that their future studies of individual organisms or biological processes can be set in an appropriate evolutionary and ecological context. Patterns of organizational complexity and species diversity since life originated are explained throughout the course in the mechanistic context of evolutionary processes using concepts such as adaptive radiation, endosymbiosis, structure-function relationships, horizontal gene transfer, and ecological impacts of changing environments. This course provides a phylogenetically-based overview of biodiversity across the Tree of Life and explicitly includes viruses, archaea, bacteria, algae, fungi, plants, invertebrates and vertebrates.

Topics

Week	Topic	Tutorial
1	1. Introduction to the Diversity of Life 2. Systematics and Viruses 3. Prokaryotes: Bacteria (I)	
2	4. Prokaryotes: Bacteria (II) and Archaea 5. Eukaryotes: Structure and Origin 6. Eukaryotes: Reproduction, and Introduction to the Protists Topic	Tutorial 1 Cladistics Part A
3	7. Algae (Reds and Greens) 8. Introduction to the Fungi 9. Fungi (Asco- and Basidiomycota)	Tutorial 1 Cladistics Part B
4	10. Fungal Symbioses 11. Origin, Evolution and Classification of Land Plants 12. Bryophytes and Seedless Plants	Tutorial 2 Natural Selection Part A
5	13. Evolution of the Seed Plants 14. Origin and Evolution of the Angiosperms 15. Reproduction in the Angiosperms	Tutorial 2 Natural Selection Part B
6	16. Overview: Evolutionary Trends and Synthesis	

Reading Week		
7	17. Zoological Concepts 18. Animal-like Protists 19. Basal Animal Phyla	
8	20. Platyhelminthes 21. Mollusca 22. Annelida	Tutorial 3 Species Identification Part A
9	23. Nematoda 24. Arthropoda (1) 25. Arthropoda (2)	Tutorial 3 Species Identification Part B
10	26. Echinodermata 27. Hemichordata and Chordata 28. Fishes	Tutorial 3 Species Sampling Curves Part A
11	29. Amphibia 30. Reptilia (1) 31. Reptilia (2: Aves)	Tutorial 3 Species Sampling Curves Part B
12	32. Mammalia	

Course Learning Outcomes

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

1. Describe and discuss the diversity of living organisms across the 'Tree of Life' from both evolutionary and ecological perspectives
2. Explain the primary and secondary mechanisms that generate biological diversity across the 'Tree of Life'
3. Recognize, describe, and compare the principal unique features of a wide range of organisms including bacteria, archaea, algae, fungi, plants, and invertebrate and vertebrate animals
4. Identify the phylogenetic relationships among the major groups of organisms, and distinguish their key characteristics using conventional taxonomic terminology and nomenclature
5. Interpret the relative success and diversity of the major groups organisms in terms of adaptations for growth, survival and reproduction
6. Describe the timelines of major steps in evolution

Important University Dates

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

Inclusion

Land Acknowledgement

Let us acknowledge that Queen's University occupies traditional Anishinaabe and Haudenosaunee territory. To acknowledge this traditional territory is to recognize its longer history, one predating the establishment of the earliest European colonies. It is also to acknowledge this territory's significance for the Indigenous Peoples who lived, and continue to live, upon it and whose practices and spiritualities are

...tied to the land and continue to develop in relationship to the territory and its other inhabitants today. Indigenous communities in Kingston/Katarokwi continue to reflect the area's Anishinaabe and Haudenosaunee roots. There is also a significant Métis community and First Peoples from other Nations across Turtle Island present here today. 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. Each and every student and instructor 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)
- 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** (pending change approval of Academic regulation 7.2.1)

Required Course Textbooks

Course Textbooks	Edition(s)	Publisher	For Purchase	Cost	At Queen's Library?
Campbell's Biology (Textbook sections used in BIOL 200 <u>complement</u> rather than overlap with BIOL 102, 103 and 212).	Canadian 3 rd or 4 th edition	Campbell/Pearson Authors: Urry et al, 2021/2024	Campus Bookstore; Second-hand copies from other sources are perfectly acceptable.	\$235 (new)	Yes
Diversity of Life	Modified text book developed by Instructor	McGraw Hill	Campus Bookstore Second-hand copies of this text that was used last year are perfectly acceptable.	\$140.95 (new)	No

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.

Accessibility: Queen’s University is committed to developing courses that are accessible. For further information on accessibility compliance of the website(s), program(s) application(s) used in the course, please consult the links below.

Copyright of Course Material

Course materials created by the course teaching team, including all slides, presentations, handouts, tests, exams, and other similar course materials, are the intellectual property of the teaching team. It is a departure from academic integrity to distribute, publicly post, sell or otherwise disseminate course materials or to provide course materials to anyone else for distribution, posting, sale or other means of dissemination, without the teaching team’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

Drs. Grogan, Birt, and Rooke as appropriate for lecture, tutorial, and personal issues

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
Lecture Quizzes (4 x 2.5%)	#1 – 6	10%
Tutorial Activities (x4; A:2.5% + B:5%)	#2 – 5	30%
Midterm Exam	#1 – 6	25%
Final Exam	#1 – 6	35%

Total 100%

Assessment Flexibility

Tutorial Part A may be completed in-person (participation based) or by doing an online quiz (traditionally graded). You will have 3 attempts on the quiz and the highest score will be retained. Students are welcome to complete both the in-person Part A tutorial and the online quiz, and we will retain the highest score achieved.

Descriptions of Learning Activities and Assessments

There are four Tutorial Topics in BIOL200 this year. Each topic is divided into three parts: Part A and the online content are designed to help prepare you for Part B assignments. Part B assignments are designed to assess your core understanding of the topics presented. See Timeline for dates. In-person activities must be completed during the tutorial section you are registered for in SOLUS.

Tutorial Part A (2.5%)

Part A can be completed either in-person or online. In-person activities occur during your scheduled tutorial section and are graded via participation; you will receive full marks if you participate fully in the activities. We chose to use this approach to encourage students to think creatively and experiment during the sessions without the stress of worrying about grades. The teaching team reserves the right to adjust credit based on actual participation; if you complete only half the assignment, show up to tutorial late, or spend the whole time on your phone, you will not receive the full participation credit. You do not need to do any preparation before attending Part A in-person.

Online content

Everyone must work through the posted online tutorial content before attending Part B. The online content includes a quiz; students who did not attend Part A must complete this quiz for grades. You will get 3 attempts on the quiz and your highest score will replace your Part A participation grade. Students who did attend Part A are also welcome to complete the quiz if they choose to; we will accept either the Part A or the quiz score as your final grade, whichever is higher.

Tutorial Part B (5%)

Everyone must work through the posted online tutorial content before attending the Part B Tutorial. This material includes important concepts that you will need to complete the Part B assignment. Part B includes a group assignment that must be completed in-person during your scheduled tutorial session. Attendance in the Part B Tutorial is required. The assignment is traditionally graded, completed on hardcopy paper, and is due at the end of the tutorial session. If you are unable to attend Part B Tutorial and have an approved Academic Consideration (or applicable Academic Accommodations) you will be eligible for a make-up assignment which is completed online within 2 weeks after the scheduled in-person activity.

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.

Assignment Submission Policy

Online lecture-material quizzes: These quizzes do NOT have built-in grace periods because of potential academic integrity issues.

Tutorial activities

- Tutorial Part A in-person activities may require a very brief submission as proof of participation. This will be submitted in hardcopy before you leave the tutorial session.
- Online Tutorial content quizzes are due before your Part B session begins (i.e. if your registered tutorial starts on Friday at 8:30 am, you must have submitted your online tutorial quiz before Friday at 8:30 am on the week of Part B activity). Only students who do not attend Part A Tutorial are required to complete the online tutorial quiz.
- Tutorial Part B group assignments are submitted in hardcopy before you leave the tutorial session.

Please see the Academic Considerations for Students with Extenuating Circumstances and Accommodations for Disabilities sections of the syllabus for more information.

Policy Review of Graded Work

Teaching Assistants are trained on how to grade your assessments and exams using standardized criteria. But mistakes can happen. If you feel that a grading mistake has been made, you can submit a regrade request to the Regrade Request folder in onQ. In your request you should carefully describe which assessment you are asking about, and where and why you feel marks are missing. Be specific - generic requests for a regrade without an explanation of your concerns will not be considered.

Your regrade request must be made within one week of receiving your graded assessment. Requests after one week will not be considered. Note that all parts of the assessment may be regraded. We will respond to your request in this folder within one week.

Policies

Attendance in Lecture

Your presence and participation in class contributes to the knowledge and skills that you will develop throughout this course. We 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.

Attendance in Tutorial

Regular attendance and participation in Tutorial activities promotes deeper understanding of course content and is typically correlated with student success in this course. However, we recognize that sometimes life disrupts our academic responsibilities. We have mechanisms built-in to our tutorial structure which help provide flexibility when dealing with unanticipated disruptions to academic work:

- Part A Tutorials: If you are unable to attend in-person Part A tutorials you can complete the online tutorial quiz instead. Anyone who does not sign the sign-in sheet during the in-person tutorial will automatically have their Part A grade based on the online tutorial quiz. You do not need to submit for Academic Consideration: we trust that you tried your best to participate but were unable to, and we will switch your grade to the online quiz in good faith.
- Part B Tutorials: If you are unable to attend in-person Part B Tutorials and have an approved Academic Consideration you will be eligible to complete a make-up assignment online within 2 weeks of the in-person session. We will automatically make this assignment folder available to you in onQ once we receive confirmation that your Consideration request has been approved.

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>

The most common accommodation is time extensions for quizzes and tests. We will automatically apply time extensions accommodations to timed online quizzes based on the information available in Ventus (e.g. your QSAS Letter of Accommodation). Students with accommodations for group work or in-person participation, and who need to use these accommodations for Part B Tutorials, should reach out to the course inbox and we will either arrange for you to complete the assignment individually during the tutorial period, or we will arrange for the online make-up assignment to be available. We cannot accept individual submissions after group feedback has been released, so it is important to contact us as soon as possible to make arrangements. We are happy to help implement all QSAS registered accommodations in BIOL200 whenever possible.

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 use the course inbox (biol200@queensu.ca) when submitting for Academic Consideration. You DO NOT need to submit for Academic Consideration for missed Part A Tutorials, but you do need Consideration for missing Part B Tutorials.

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 Centre 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.

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.

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 may make 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 analysed 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.

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