

Department of Biology Course Outline

Fall 2024, SC/BIOL 1500 3.00 Introduction to Biology

Course Instructor: Charlotte de Araujo

How to address me: Prof. Charlotte

Personal Pronouns: (she/her/hers)

Email: cdearauj@yorku.ca

Note: If you have a question or would like to talk, you can visit me during student hours, or approach me before/after class. I will try to respond to emails within two working days (not including holidays/weekends), however this is not always possible, so please be patient.

Please remember to exercise proper etiquette in any correspondence:

- Always use your yorku.ca email address - email from other sources may be filtered out.
- Include the course code, section, and a brief indication of topic in the subject line.
- Include your full name and student number at the end of each email so that we can identify you.
- Please use full sentences and proper spelling and grammar for readability.
- Please do not use the eClass Messenger for contact. This system is not used for this course.
- Please note that course related issues will not be acknowledged/resolved over the phone.

It is the students' responsibility to check the eClass website frequently for course related information/updates from the Instructor (via yorku email address).

Use reputable sources for course information (e.g. eClass website). For more information, please see <http://www.yorku.ca/webclass/module4a.html>

What are 'Student Hours'?

Student hours are dedicated times through the week for the course instructor and possibly TAs to meet with YOU. Pop in to introduce yourself, ask questions about the course, or discuss content from the course.

Student Hours: Please review eClass for more information.

Prerequisites: None. This course may not be taken by any student who has taken or is currently taking another university course in biology. This course is not eligible for Biology credit towards a Biology, Biochemistry, or Environmental Biology program.

Office Location: 102B Life Sciences Building (LSB)

Class Times: Please consult York University Timetable for room locations.

Study Spaces on Campus:

<https://currentstudents.yorku.ca/study-spaces>

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Land Acknowledgement

York University recognizes that many Indigenous Nations have longstanding relationships with the territories upon which York University campuses are located that precede the establishment of York University. York University acknowledges its presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been care taken by the Anishinabek Nation, the Haudenosaunee Confederacy, and the Huron-Wendat. It is now home to many First Nation, Inuit, and Métis communities. We acknowledge the current treaty holders, the Mississaugas of the Credit First Nation. This territory is subject of the Dish with One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region. As settlers on this land, and as biologists, we have a responsibility to respect and care for this land and its resources. You can find out more about the traditional homelands that you occupy by heading to <https://native-land.ca>.

Welcome to this Course!

Welcome to BIOL1500! We're going to explore a range of foundational biology concepts as you gain a deeper understanding of scientific inquiry. We have a diverse group of students with varying biology backgrounds taking this course; some parts of it may be review while some parts may be brand new to you – that's ok! You will develop familiarity with the field of biology and develop scientific literacy and critical thinking skills that can be applied in other courses and other academic and non-academic settings. This course will include a number of approaches including a flipped classroom approach where class time will be student-centred and will focus on activities and discussions to help you develop knowledge and skills. Introductory courses like this one often appear to be composed of many facts that seem unchanging, however this is far from the truth! Biology is dynamic and continues to change. As new observations about the scientific world are made, we continually question and challenge existing hypotheses (through experimentation). So, make sure you think like a scientist; asking questions is an important skill in science!

Course Calendar Description: An introductory course in biology for students needing adequate preparation for SC/BIOL 1000 and SC/BIOL 1001. The course explores underlying theories and the unity and diversity of life. Topics include evolution, cell theory, introductory biochemistry, inheritance, biodiversity, and ecology.

Course level learning objectives:

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

Course Content

1. Discuss the process of biological inquiry.
2. Understand the difference between a hypothesis and prediction.
3. Discuss the process of evolution.
4. Describe how evolution is used to explain the unity and diversity of life.
5. Describe the properties and processes of life and the differing scales at which life is studied.
6. Describe the chemical nature of life and how biological molecules interact at the cell level.
7. Describe the major cellular processes of replication, metabolism and communication relating form and function in animal, plant, or prokaryotic cells.
8. Discuss the role of genetic information and the environment in shaping an organism's phenotype.
9. Relate genetic principles to population structure, speciation, and the evolution of organisms.
10. Describe the biosphere and identify defining features of aquatic and terrestrial biomes.
11. Describe the evolution of biological diversity and identify major features and properties of prokaryotes, protists, fungi, invertebrates, and vertebrates.
12. Discuss principles of population ecology, community, and ecosystem structure, within an evolutionary context and applying them to conservation efforts and restoration ecology.

Skills

1. Develop skills and strategies for effective communication and critical thinking.
2. Develop skills and strategies for wellness.
3. Work effectively, responsibly, and collegially with your peers in and out of class.
4. Synthesize and summarize key points from the literature to provide relevant information and support for an assignment, argument, etc.
5. Work effectively, within a group or individually, to gather, review and analyze biological information.
6. Understand academic integrity and what constitutes academic misconduct.
7. Create new knowledge (in the form of reflections, activities, and other course assignments) with academic integrity, acknowledging clearly which ideas are not your own.

Course Content

COURSE PART

TOPIC

PART 1: INTRODUCTION TO THE COURSE, BIOLOGY, & SCIENTIFIC METHOD

- 1.1 Introduction to the course, science, biology
- 1.2 Scientific Inquiry & the scientific method

PART 2: MOLECULES, MOLECULES EVERYWHERE

- 2.1 Chemistry basics, what is a molecule?
- 2.2 Water, what is a macromolecule?

PART 3: CELLS, CELLS EVERYWHERE

- 3.1 Cells & organelles
- 3.2 Prokaryotic cells
- 3.3 Eukaryotic cells

PART 4: ENZYMES & ENERGETIC PROCESSES	4.1 Membrane transport
	4.2 Energy & enzymes
	4.3 Metabolism, cellular respiration, fermentation
	4.4 Photosynthesis
PART 5: MAKING CELLS – MITOSIS & MEIOSIS	5.1 Cell cycle & mitosis
	5.2 Sexual reproduction & meiosis
PART 6: DNA, GENES & GENETICS	6.1 DNA, RNA, chromosomes, genes
	6.2 DNA replication
	6.3 Transcription
	6.4 Translation & gene control
PART 7: EVOLUTION & ECOLOGY	7.1 Evolution, processes of evolution
	7.2 Phylogenetic trees & classifying life
	7.3 Population growth, inter species relationships
	7.4 Biodiversity

Learning Materials

There is NO REQUIRED textbook for this course! There is an OPTIONAL textbook.

If you prefer to use one book/resource for the course, you can purchase the textbook, available as hardcopy or e-text, through the bookstore and through our eClass course site.

Biology: The Essentials, 4th Edition, by Hoefnagels (McGraw-Hill publishers)






Other readings and resources may be assigned during the course and will be made available to you.

iClicker Response System

- . Needed for in-class participation (part of activity grade).
- . Via mobile device or computer.
- . Registration details available on lecture course website.
- . Free of charge.

Website (eClass): <http://eclass.yorku.ca/>

Technology Checklist:

 <p>An internet-enabled computer to access eClass and materials</p>	 <p>Zoom software installed on computer</p>	 <p>Access to reliable internet</p>	 <p>Webcam</p>	 <p>Microphone</p>
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Note: If you don't have access to a computer, webcam, microphone, consider [borrowing a laptop from York U](#), [financial aid from York](#), and [single workspaces available for student use on campus at the library](#). (<https://www.library.yorku.ca/web/ask-services/printing-and-computing/computing/public-computers-labs/>)

Assessment in this Course

Research about learning strongly suggests that the most important factor in learning is doing the work of reading, writing, recalling, practicing, synthesizing, and analyzing. Learning happens best when people actively engage material on a consistent basis, and that is why we have high standards in this course. We are confident that, with appropriate effort, you **all** can meet those standards.

When possible, we also try to reduce unintentional bias in grading by, for example, grading assignments one question at a time (grading all of question 1 before grading any of question 2), grading anonymously, and using rubrics. These also help improve consistency in marking.

Crowdmark/eClass guidelines will be outlined along with assessments. Please note, for assessments students are required to attend in-person at York University, students will not be granted permission to write an online test or exam.

Grades will be posted when available.

Please note, missed work is not the responsibility of the course director if a student enrolls following the first day of classes. It is the students' responsibility to review the course content and course policies and resources outlined on eClass.

Grade Breakdown

COMPONENT	GRADE VALUE
MIDTERM	30%
ACTIVITY COMPONENT	35%
FINAL EXAM (CUMULATIVE)	35%

Midterm

The midterm will be held during the scheduled lecture period (Oct 29, 2024) and will be in-person. More details will be posted on eClass. Students are not permitted to use Internet sources or collaborate/communicate with any person during the assessments. Students may not share, post or upload any of the course material including any component of the midterm. Any violation will be addressed as outlined in the Senate Policy on Academic Honesty.

Missed midterm policy | Built-in Accommodation

If you miss the midterm (for any reason), the weight will be automatically redistributed to the final exam. Please do not submit any documentation. There will be no make-up midterms. You will not be able to re-write the midterm. The instructor will not reply to questions about the course in the 24 hours prior to the start of midterms.

Activity Component

Activities vary and are designed to enhance your learning. When used properly, the activity component can help you stay on track, help you understand the material, and help you identify what you do not understand.

Policy for a Missed Activity | Built-in Accommodation

Built into the assessment scheme, is accommodation for various unexpected situations (illness, technological difficulties, other life emergencies, etc.) with certain conditions, as described below:

- The lowest 20% of your activity points will be automatically dropped from your grade. This includes zeroes or missed activities. No notification or documentation is required, therefore please do not contact the instructor. Emails for extensions will not receive a response.

Final Exam

The exam will be cumulative and will take place during the Final Exam period. The date and time of the exam will be announced by the Registrar's Office. It is the student's responsibility to check the Registrar's Office website for final exam schedule.

Students are not allowed to consult or communicate with other students during any assessment (e.g., final exam). Evidence that students have collaborated during final exams will be followed up as a breach of the academic honesty policy. You will not be able to re-write the final exam. More information about the exam will be provided towards the end of the semester.

The weight of the midterm will be automatically transferred to the final exam, if the final exam grade is higher. This applies to the midterm only and includes a zero or a missed term test. No notification

or documentation is required. Given this accommodation, please note that there are no makeup midterms.

Policy for a Missed Final Exam

- If you miss the final examination, you must petition for deferred standing with appropriate documentation. The decision to grant deferred standing will be made by the appropriate petitions committee and not the instructor. Instructors may not grant deferred standing via a Deferred Standing Agreement Form (DSA).
- The format of the deferred final exam for this course may be essay, short answer, multiple choice, oral exam or a mix of these options.
- The instructor will not reply to questions about course material in the 24 hours prior to the start of final exams/final deferred exams.

Regrading/Reappraisal Procedures

For all re-grading requests, please submit your request in writing. In this request you will be asked to include your (1) Your Full Name and Student Number, (2) A summary of the request (e.g., the total was miscounted), and (3) a copy of the assessment within one week of the material being made available to you. If it is determined that you have provided sufficient academic grounds, the material will be regraded. We will strive to review all re-grading requests within 3-4 weeks. Please keep in mind that re-marking can result in your score being raised, confirmed, or lowered. Second round of re-marking will not be offered.

We appreciate that grades are important to you and all your classmates. To be fair and consistent with the entire class, individual grades are not negotiable. We cannot provide “extra credit” assignments or opportunities to re-write any assessments. Marks for assessments are not “rounded.” Final grades are not “rounded.” No marks can be transferred for any missed coursework.

*Academic grounds means you make an academic argument for why your answer is correct – statements such as “this grade does not reflect my knowledge” or “I really studied hard and I deserve a better grade” are not academic grounds.

General Grading Guidelines

- Grades will be posted when they are available.
- There are no “extra credit” assignments.
- Grades are not retained on eClass if you switch between sections. Please keep this in mind in case you elect to change sections.
- Please note that it is the responsibility of the student to review all information on eClass. Therefore, email or meeting requests for grade boosts or extra credit or rounding of grades will not

receive a response.

- As grades are shared on eClass for all students, requests for individualized course breakdowns will not receive a response.

Copyright Information

All material associated with this course is the intellectual property of the instructor and/or protected under Canadian copyright law.

All material, including lecture slides, personal recordings, activities, tests and assessments (see Course Policies below) are to be used for personal study purposes only. Unauthorized distribution can lead to a violation under Copyright law and to an academic honesty offense.

Policy for Recording Lectures

Photographs or video recordings of any portion of the lectures (including slides) are not permitted.

Images and material presented are subject to Canadian copyright law.

Audio recordings are permitted provided they are used only as a personal study aid. They may not be sold, passed on to others or posted online. Remember the lectures are the intellectual property of the professor and cannot be distributed without permission. Lectures can only be recorded from your seat. No recording devices are permitted at the front of the room, including front table(s), the lectern and computer area.

Lecture slides are posted on the website and are for personal use only. They may not be sold, passed on to others or posted online.

Community Guidelines

The following values are fundamental to academic integrity and are adapted from the International Center for Academic Integrity. In our course, we will seek to behave with these values in mind.

As students, we will...

Honesty	Honestly demonstrate our knowledge and abilities on assignments and exams Communicate openly without using deception, including citing appropriate sources
Responsibility	Complete assignments on time and in full preparation for class Show up to class on time, and be mentally/physically present Participate fully and contribute to team learning and activities
Respect	Speak openly with one another, while respecting diverse viewpoints and perspectives Provide sufficient space for others to voice their ideas
Fairness	Contribute fully and equally to collaborative work, so that we are not freeloading off others
Trust	Not seek unfair advantage over fellow students in the course Not engage in personal affairs while on class time Be open and transparent about what we are doing in class

Not distribute course materials to others without authorization

Courage

Say or do something when we see actions that undermine any of the above values
Accept a lower or failing grade or other consequences of upholding and protecting the above values

This class statement of values is adapted from Tricia Bertram Gallant, Ph.D.

University Policies

Important Dates

Last Day to drop the course without receiving a grade: Nov 8, 2024.

For important administrative dates, please consult the Registrar’s website > “Important dates.”

Grading Scheme

In accordance with the York University Undergraduate Calendar Regulations, the letter grades assigned in undergraduate courses at York conform to the descriptions and grade ranges shown here: <https://calendars.students.yorku.ca/2022-2023/grades-and-grading-schemes>

Academic Honesty and Integrity

Academic misconduct undermines the values of honesty, trust, respect, fairness, and responsibility that we expect in this class. York University provides supports such as academic integrity workshops to ensure that all students understand the norms and standards of academic integrity that we expect you to uphold.

York students are required to maintain the highest standards of academic honesty and they are subject to the Senate Policy on Academic Honesty (<http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/>). The Policy affirms the responsibility of faculty members to foster acceptable standards of academic conduct and of the student to abide by such standards. Please review and familiarize yourself with the policy.

There is also an academic integrity website with comprehensive information about academic honesty and how to find resources at York to help improve your research and writing skills, and cope with University life. Students are expected to review the materials on the Academic Integrity website:

Examples of actions that do not adhere to York’s Academic Integrity Policy include:

- Plagiarism (passing off someone else’s work as your own)
- Accessing unauthorized sites for assignments or tests
- Unauthorized collaboration on assignment and exams
- Uploading work to third party repository sites (e.g., Course Hero, One Class, etc.)
- Scanning, sharing, uploading, or publishing exams, tests, or scholarly work

For more information on what academic integrity is and why it is important see:

<https://spark.library.yorku.ca/academic-integrity-what-is-academic-integrity/>. Information on the process of investigations into breaches of academic honesty:

<https://spark.library.yorku.ca/academic-integrity-breach-of-policy-on-academic-honesty/>

Important Note from the FSc Committee on Examinations & Academic Standards (CEAS):

Numerous students in Faculty of Science courses have been charged with academic misconduct when materials they uploaded to third party repository sites (e.g., Course Hero, One Class, etc.) were taken and used by unknown students in later offerings of the course. Whenever a student submits work obtained through an external site (e.g., Course Hero, Chegg), the **submitting student will be charged with plagiarism** and the **uploading student will be charged with aiding and abetting**. To avoid this risk, students are urged not to upload their work to these sites.

Assistance for Students (Academic and Well-Being)

Academic Advising*: <https://www.yorku.ca/science/academic-advising/> * Departments also offer program-specific advising. Check with your Department's Undergraduate Office.

Centre for Human Rights, Equity, and Inclusion: <https://rights.info.yorku.ca>

Centre for Indigenous Students Services: <https://aboriginal.info.yorku.ca/>

Good2Talk 24-hour Ontario Student Helpline: 1-866-925-5454 /Text: GOOD2TALKON to 686868

Keep.meSAFE: <https://myssp.app/keepmesafe/ca/home>

Learning Commons (general academic learning supports including library research, time management, study skills, career planning, etc.): <https://learningcommons.yorku.ca/>

Peer Assisted Study Sessions (PASS): <https://www.yorku.ca/colleges/bethune/get-help/pass/>

Peer Tutoring: <https://www.yorku.ca/colleges/bethune/get-help/peer-tutoring/>

Sexual Violence Response and Support: <https://thecentre.yorku.ca>

Student Counselling, Health & Well-being: <https://counselling.students.yorku.ca/>

Support Services for International Students: <https://yorkinternational.yorku.ca/international-student-support/>

Writing Services: <https://www.yorku.ca/colleges/bethune/get-help/writing/>

York University Student Services: <https://family.yorku.ca/student-services/#SCD>

York University Student Well-being Resources: <https://www.yorku.ca/well-being/resources/students/>

Accessibility

York University is committed to principles of respect, inclusion, and equality of all persons with accessibility needs across campus. The University provides services for students with accessibility needs (including physical, medical, learning, and psychiatric needs) needing accommodation related

to teaching and evaluation methods/materials. These services are made available to students in all Faculties and programs at York University.

Students in need of these services are asked to register with accessibility services as early as possible to ensure that appropriate academic accommodation can be provided with advance notice. You are encouraged to schedule a time early in the term to meet with each professor to discuss your accommodation needs. Please note that registering with accessibility services and discussing your needs with your professors is necessary to avoid any impediment to receiving the necessary academic accommodations to meet your needs.

Additional information is available at the following websites:

Student Accessibility Services: <https://accessibility.students.yorku.ca>

York Accessibility Hub: <http://accessibilityhub.info.yorku.ca/>

Religious Observance Accommodation

York University is committed to respecting the religious beliefs and practices of all members of the community and making accommodations for observances of special significance to adherents. Should any of the dates specified in this syllabus for an in-class test or examination pose such a conflict for you, contact the Course Director within the first three weeks of class. Similarly, should an assignment to be completed in a lab, practicum placement, workshop, etc., scheduled later in the term pose such a conflict, contact the Course Director immediately. To arrange an alternative date or time for an examination scheduled in the formal examination periods (December and April/May), students must complete and submit an accommodation request form at least 3 weeks before the exam period begins. <https://secure.students.yorku.ca/pdf/religious-accommodation-agreement-final-examinations.pdf>

Student and Instructor Conduct in Academic Situations

Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect. The policy and procedures governing disruptive and/or harassing behaviour by students in academic situations is available at <http://secretariat-policies.info.yorku.ca/policies/disruptive-andor-harassing-behaviour-in-academic-situations-senate-policy/>.

Academic accommodation refers to educational practices, systems and support mechanisms designed to accommodate diversity and difference. The purpose of accommodation is to enable students to perform the essential requirements of their academic programs. At no time does academic accommodation undermine or compromise the learning objectives that are established by the academic authorities of the University.

University rules regarding registration, withdrawal, appealing marks, and most anything else you might need to know can be found on the university's website, here:

<https://calendars.students.yorku.ca/2021-2022/policies-and-regulations>