Syllabus BIOL102

General Course Information

BIOL 102: Fundamentals of Biology: Molecules to Cells 3.0 CR Blended and Fully On-line
Winter 2024 (Jan to Apr 2024) Pre-requisites: none

Instructor Information

Information on the teaching team (professors, lab coordinator, and teaching assistants) is available via the course website, accessible to all students enrolled in the course. Specific office hours for professors differ and change, but will be advertised on the course website. For questions of an urgent or personal nature, reach out by email Biol1012103.online@queensu.ca to ensure that your questions are addressed by the right people in a timely manner.

Important University Dates

Visit https://www.queensu.ca/artsci/events for an up-to-date list of important dates.

Welcome Message

Welcome to the course. This is a foundational course in Biology that serves to bring all students up to a common background critical for further courses in Biology. Students come to the course with diverse biology backgrounds, and as a result, student support needs are very diverse. We do our best to create a supportive learning environment and maximize the opportunities for peer-to-peer learning.

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.

Land Acknowledgement

We acknowledge that Queen's is situated on traditional Anishinaabe and Haudenosaunee territory. We are grateful to be able to be live, learn and play on these lands. – Four Directions Indigenous Student Centre, Queen's University

Expectations

Students will interact with their peers and have opportunities to learn from their colleagues during learning activities that include collaborative approaches. You are expected to behave with integrity and respect at all times when engaging with each other online. See the netiquette and discussion guidelines below which each participant in the course adheres to when interacting with one another whether in person or online.

Throughout this course, there will be many opportunities for you to interact with your instructor and the teaching team. You can expect your teaching team to be supportive in helping you manage the course logistics, progress through the activities, and master the content. The key to getting prompt responses is ensuring that you are using the proper platforms to reach out for help.

The nature of the support in the course depends on the problems students encounter. There are OnQ Discussion forums to post most questions about how the course runs as well as general questions about the material. We emphasize these forums so that the whole community can learn together. If the nature of the problem is unique, personal or timely, reach out by email Biol1012103.online@queensu.ca to discuss the next steps.

Course Learning Outcomes

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

1. Explain how the biochemistry of molecules influences how they function in cells, and apply these principles to novel scenarios.
2. Describe the parts of a cell and how they work on their own and in conjunction with other components to carry out complex cellular processes.
3. Understand how cells use reactions and metabolic pathways to produce ATP, sugars, and other compounds, and the roles of thermodynamics and enzymes in regulating metabolism.
4. Explain the similarities and differences between cellular respiration, fermentation and photosynthesis, considering the nature of the pathways, their roles in cells and how they are regulated.
5. Describe and distinguish between DNA, chromatin, genes, chromosomes and genomes, explaining how various features influence their structure, expression, and regulation; how they change with mitosis and meiosis; and how they vary over evolutionary time.
6. Understand how cells regulate genes to make mRNA and protein, identifying critical steps in the regulation of the processes of transcription and translation.
7. Describe the basic tools in cell biology and genetics and how they are used in biotechnology.

Course Materials

Course Text: Campbell Biology, Canadian 3rd Edition by Urey, Cain et. al., 2020, published by Pearson. See bookstore for specific details on the different purchase options. Dates and details of readings will be posted on the course website in OnQ.

The Core Content of the course will be available via recorded lectures, with slides and transcripts available. The notes should be treated as a starting point for you to collate and reorganize in ways that support your learning. Students often augment scripts with their own notes, adding in comments, hyperlinks, definitions, etc-anything that helps you flesh out the story.

Each iteration of the course has different approaches to group learning, which relies on materials posted online in conjunction with Core Content.

- Tutorials focus on concepts using scenarios that require integrating content and applying web-based freeware as tools to address realistic questions that might arise in the discipline. They can be challenging, particularly for students who are determined to work in isolation. The group approach is designed to create a framework for students to engage with peers to solve problems.
- Study Sessions are discussions based around questions posted to the forum, where students get credit for engaging productively and effectively with the group to explore the breadth of the questions.

Course Timeline

The specific events in the course are available on the course homepage, but an abbreviated version is below.

- Weeks 1-4 Cellular Function
- Weeks 5-8 DNA and Chromosomes
- Weeks 9-12 Gene Expression and Applications

Suggested Time Commitment

In this course, you should expect to invest on average 8 to 10 hours per week. This will include the time you spend in class, studying course material, and completing weekly homework or preparing for your larger assignments and exams. You are encouraged to use a term at a glance and a weekly study schedule (visit SASS) that distributes the 8-10 hours per week and avoid 'cramming'. This way you will be more likely to complete the course successfully and remember what you learned longer.

Timing of Final Examinations

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 via SOLUS immediately prior to the Thanksgiving holiday; they are posted on the Friday before Reading Week for the Winter Term and for the summer term, they are individually noted on the Arts and Science Online syllabi. **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.**

Assessment

9% DSMs: 3 sets of DSMs, complete by the deadline for 3 marks each
33% Content Quizzes: 3 marks for self-study, 3x10 marks for unit quizzes
30% Tutorials: 3x10: each with an individual quiz (3), group project (5), and participation (2)
15% Study Sessions: 3x5 marks
13% Student Lecture: Individual activity (3), Lecture (7), participation (2)

There is no required Final Exam, but we schedule a final exam for students who missed activities with approved accommodations.

Essential requirements and flexibility to succeed

For the core content, recorded lectures are all available from the first day of classes. Students are encouraged to start early and keep on top of the material. It is essential that you complete your review of the recordings prior to assessments.

The Dynamic Study Modules (DSMs) are a series of adaptive learning modules linked to the textbook and available through Mastering Biology. You require a subscription to Campbell Biology to gain access to these resources. If you run into technical problems, you address them directly through Pearson Support. There is a due date posted on the course website intended to align with optimal preparation for the assessments. However, for students who run into extenuating circumstances, we have programmed an additional 7 days into Mastering. There are no further extensions. You must complete all questions to be considered to have completed the activity.

The Content Quizzes have a **due date**, which is when we expect all students to complete the activity. Due to unavoidable delays in processing 72h Extenuating Circumstances documents, we have built in an automatic 3-day extension (the **end date**). Thus, if you run into problems before the due date that would necessitate a 72h extension, you do not need to submit documentation, but you do need to complete by the end date. However, if you run into short-

term problems after the due date, there are no additional extensions. Long-term requests will be handled on a case-by-case basis if needed.

Tutorials include a series of individual and group activities that are hybrids between tutorial and lab. The pre-tutorial activities are completed individually before the deadline. Only those students who complete the Individual Activities will be placed in groups for the next phase. This is because the Group Activities build on the Individual Activities, and it is not fair to the group if members join without having demonstrated mastery of those skills. If you do not complete the individual work by this deadline, you are considered to have opted out of this activity in its entirety and will not be placed in a group. You can make up the missing 10 marks via the Final Exam.

Study sessions precede the Content Quizzes. You have several days to interact with your group to address challenging questions posted to your forum. The goal here is to demonstrate an investment in your learning, actively discussing problems in the forum. If you are experiencing extenuating circumstances that prevent you from contributing to the discussion, then you must ensure that you have accommodations in place. The missing marks are made up via the final exam.

Student lectures are group activities that build on course material. You are asked to choose a scientific paper from a list of options, and individually answer some basic questions about that paper. You will then work in groups with other students to use that paper as the basis of a presentation consisting of a few slides and transcript that integrates into an existing lecture. If you are unable to do this activity, ensure that you have accommodations in place. The missing marks are made up via the final exam.

Note that for many of these activities, there are alternatives built in place to support students experiencing short-term or long-term challenges. Your accommodations state that it is important that you reach out to the Teaching Team promptly to let us know that your accommodations apply to each activity you miss for the reasons noted in your accommodations. Ensure that you send in a request for consideration and that you have received a response for each activity that you miss.

Grading Scheme and Grading Method

When letter grades are employed, the following scale will be employed for purposes of calculating your course average:

Assignment mark	Numerical value for calculation of final mark	Assignment mark	Numerical value for calculation of final mark
A+	93	C	65
A	87	C-	62
A-	82	D+	58
B+	78	D	55
B	75	D-	52
B-	72	F48 (F+)	48
C+	68	F24 (F)	24
		F0 (0)	0

Your course average will then be converted to a final letter grade according to Queen's Official Grade Conversion Scale:

Grade	Numerical Course Average (Range)	Grade	Numerical Course Average (Range)
A+	90-100	C+	67-69
A	85-89	C	63-66
A-	80-84	C-	60-62
B+	77-79	D+	57-59
B	73-76	D	53-56
B-	70-72	D-	50-52
		F	49 and below

Questions about the Course and Contacting the Teaching Team

Please use the various Help forums to post questions about the course. Anything personal or urgent, reach out to the Teaching Team by email Biol1012103.online@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.

Course Feedback

At various points during the course, we may ask you to take part in a variety of feedback activities, such as surveys, questionnaires, and exit tickets. This feedback enables the teaching team to make any adjustments necessary to improve your learning environment. Additional

feedback will be sought throughout the course. All surveys are anonymous and are directly related to activities, assessments, and other course material.

Accommodations for Disabilities

Queen's University is committed to achieving full accessibility for people with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all their academic activities. The Senate Policy for Accommodations for Students with Disabilities was approved at Senate in November 2016. If you are a student with a disability and think you may need academic accommodations, you are strongly encouraged to contact the **Queen's Student Accessibility Services (QSAS)** and register as early as possible. For more information, including important deadlines, please visit the QSAS website.

Institutional Expectations for 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 health issues (e.g., stomach flu, pneumonia, COVID diagnosis, vaccination, etc.)
- Responses to traumatic events (e.g., Death of a loved one, divorce, sexual assault, social injustice, etc.)
- Requirements by law or public health authorities (e.g., court date, isolation due to COVID exposure, 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. Arts and Science undergraduate students can find the Faculty of Arts and Science protocol and the portal where a request can be submitted. Students in other Faculties and Schools who are enrolled in this course should refer to the protocol for their home Faculty.

For guidance on **submitting requests**, please see refer to the Resource Guides available on the Academic Consideration website under "Applying for Academic Consideration."

N.B: The COVID-19 pandemic is an evolving situation. If you have symptoms or are deemed a close contact of someone with COVID, please access our **COVID-Related Absence Reference Guide** on the Academic Consideration website. This guide will provide you with information on applying for consideration, the types of documentation (including non-medical documentation) you can use to support your request, as well as insight into how the Faculty office will assess these requests.

Students are encouraged to submit requests as soon as the need becomes apparent and to contact their Professor as soon as possible once Consideration has been verified. Any delay in contact may limit the Consideration options available.

Please follow up with via email within 3 days of receiving verification of your Consideration request.

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 our website.

Academic Integrity

Many of the activities in the course are designed around peer-based learning. We create these activities to help you engage each other in a collaborative setting. With other activities, you are expected to demonstrate your individual mastery of the material, and because of this, you are expected to complete the work on your own.

Students are responsible for familiarizing themselves with the regulations concerning academic integrity and for ensuring that their assignments and conduct conform to the principles of academic integrity. Information is available in the Arts and Science Calendar[1] (see on the Arts and Science website[2], and at Biology's website[3]. Departures from academic integrity include plagiarism, use of unauthorized materials, facilitation, forgery and falsification, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulations on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the university.

Copyright of Course Materials

Unless otherwise stated, the material on the course website is copyrighted and is for the sole use of students registered in BIOL103. The material on the website may be downloaded for a registered student's personal use but shall not be distributed or disseminated to anyone other than students registered in this course.

[1] http://www.queensu.ca/artsci/academic-calendars/regulations/academic-regulations,
[2] http://www.queensu.ca/artsci/academics/undergraduate/academic-integrity
[3] http://www.queensu.ca/biology/undergrad/integrity.html

Technology Requirements

Computer Expectations

Please note that mobile devices are not recommended for the course as they cause several known issues in onQ.

Computer Specifications

- Windows 8.1 or newer
- OS X 10.13 (High Sierra) or newer
- Dual Core 2 GHz processor
- 4 GB RAM
- Soundcard
- USB headset
- Webcam

Supported Browsers

- Chrome (preferred - latest version)
- Firefox (latest version)
- ***Safari is not recommended as it causes several known issues in onQ***
- ***Edge is not recommended as it causes several known issues in onQ***

Internet Connection

- Wired high speed access: Cable or better
- ***Wifi is not recommended***
- A minimum download speed of 10 Mbps and up to 20 Mbps for multimedia is recommended
- Click here for an Internet speed test

Java: Latest version

Media Player: HTML5 compatible

Adobe Reader: Latest Version

Remote Proctoring Statement

At this point, the only assessment requiring remote proctoring is the final exam for those students who (i) are distance students who (ii) missed activities for which the final exam is the make-up activity. This assessment may use remote proctoring provided by Examity, which is a third-party, cloud-based service that enables the completion of a proctored exam or test from

an off-campus location, through onQ. This cloud-based proctoring solution was chosen as part of the approach to maintaining academic integrity when remote proctoring is required. Precise details about how remote proctoring will be used in this course will be provided by the instructor.

Queen's has conducted an extensive privacy and security review of Examity and has entered into a binding agreement with terms that address the appropriate collection, use and disclosure of personal information in accordance with Ontario's privacy legislation. You should also take measures yourself to protect your information by keeping your NetID password and challenge questions private, closing all applications prior to starting an exam/test, and ensuring your device is updated and safeguarded against malware. For more information about remote proctoring, please see *http://www.queensu.ca/registrar/students/examinations/exams-office-services/remote-proctoring*