



BIOL*1020 Introduction to Biology

Fall 2023

Section(s): C01

Department of Molecular and Cellular Biology

Credit Weight: 0.50

Version 1.00 - September 07, 2023

1 Course Details

1.1 Calendar Description

This course will introduce concepts concerning the organization of life, from molecules to cells to ecosystems and discuss how they relate to day-to-day life. The dynamic and interactive nature of all living systems will be emphasized. The weekly tutorial will introduce students to the application of biology to daily life and emphasize critical thinking skills. This course will be valuable for students without Grade 12 or 4U Biology who are interested in environmental issues, medicine, agriculture, biodiversity and related topics.

Restrictions: BIOL*1050, BIOL*1070, BIOL*1080, BIOL*1090

1.2 Course Description

This course is offered jointly by the Departments of Molecular and Cellular Biology (MCB) and Integrative Biology (IB), both housed within the College of Biological Science.

1.3 Timetable

Classes:

Monday, Wednesday and Friday 9:30-10:20. Lectures are in-person in **MCKN 117**

Labs: Once per week in-person beginning the week of Sept 18.

BIOL1020*0101: Wednesdays 11:30-1:20 SSC 3315

BIOL1020*0102: Wednesdays 2:30-4:20 SSC 3315

BIOL1020*0103: Thursdays 2:30-4:20 SSC 3315

1.4 Final Exam

Final Exam: Dec 7th, 11:30-1:30. Location TBD.

2 Instructional Support

This course will consist of 2 instructors, each covering the lecture material for one half of the course. The labs will be conducted by the TA's

The instructor for the first half of the course is Dr. Terry Van Raay.

The instructor the second half of the course is Dr. Muhammad Zaman.

2.1 Instructional Support Team

Instructor: Terry Van Raay
Email: tvanraay@uoguelph.ca
Office: SSC 3247
Office Hours: Tuesday 9:30-10:20
 Wednesday 11:30-12:20

Instructor: Muhammad Zaman
Email: mzaman02@uoguelph.ca
Office: SSC 4252
Office Hours: Mondays 10:30-12:30pm

2.2 Teaching Assistants

Teaching Assistant (GTA): Sujani Rathnayake
Email: srathnay@uoguelph.ca
Teaching Assistant (GTA): Julia Mellary
Email: jmellary@uoguelph.ca

3 Learning Resources

3.1 Required Resources

Biology: Science for Life (with Physiology) (Textbook)

Biology. Science for Life (with Physiology). 6th ed. © 2018. Belk and Borden-Maier.

Note that a physical copy OR an e-book are OK.

Two copies are on reserve at the McLaughlin Library.

Below are several options for the textbook:

180 day eBook Access: <https://www.campusebookstore.com/link/?id=4590e46e-a76b-410e-908f-b70764d6f6cc>

Perpetual eBook Access: <https://www.campusebookstore.com/link/?id=a5f0b79f-5031-4893-9a3f-e76ec210e9c2>

Physical Textbook: Students still have the option to purchase physical Textbook at the book store or through our University Bookstore website <https://bookstore.uoguelph.ca/>

There might be second hand options available as well at the Coop bookstore located in the basement of Johnston Hall room 037 (<https://bookstore.coop/>). Be sure you have the 6th edition from 2018.

Courselink (Website)

<https://courselink.uoguelph.ca>

This course will make use of the University of Guelph's course website on D2L (via Courselink). Consequently, you are responsible for all information posted on the Courselink page for BIOL*1020. Please check it regularly.

Undergraduate Calendar (Website)

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/>

The Undergraduate Calendar is the source of information about the University of Guelph's procedures, policies and regulations, which apply to undergraduate programs.

3.2 Additional Resources

Campus Resources (Other)

If you are concerned about any aspect of your academic program:

Make an appointment with a program counsellor in your degree program. B.Sc. Academic Advising or Program Counsellors

If you are struggling to succeed academically:

There are numerous academic resources offered by the Learning Commons including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills. You can also set up individualized appointments with a learning specialist. The Learning Commons

If you are struggling with personal or health issues:

Counselling services offers individualized appointments to help students work through personal struggles that may be impacting their academic performance.

Student Health Services is located on campus and is available to provide medical attention.

4 Learning Outcomes

4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Describe the difference between anecdotal and scientific based information.
2. Apply critical thinking skills to current environmental and medical issues in the news.
3. Identify the various building blocks that make up living cells.
4. Explain the process of evolution by natural selection.
5. Understand energy flow with respect to life on Earth.
6. Understand the interconnectedness of all organisms on Earth.
7. Describe how life is organized in different forms: bacteria, fungi, protists, plants and animals.

5 Teaching and Learning Activities

Course Structure

Lectures

Lectures will focus on fundamental concepts of biology and discussions of biology in the news. Possible exam questions will be reviewed in class. Students are expected to view all lectures.

Labs

You are expected to participate in all laboratories. They are an important part of the course in which the basic biological concepts and science literacy taught in the lectures are integrated. You will be engaged in discussions of how biology and science, in general, are presented in the media. You will be submitting work to be graded from the laboratory sessions.

5.1 Lecture

Topics: **Lecture Topics**

BIOL1020 is divided into 2 parts. The first part will be taught by Dr. Terry Van Raay and will cover the first 18 lectures (1/2 of the course (Fri, Sept 8 to Fri Oct 20)). The material in the first half will cover the first 2 units in the textbook: Unit 1: Chemistry and Cells and Unit 2: Genetics. The midterm will be held on Wednesday, October 25 and will cover all of the first half of the course.

The lectures for these two units will closely follow the textbook.

Unit 1: Chemistry and Cells

Chapter 2 : Water, Biochemistry and Cells (Title: Science Fiction, Bad Science, and Pseudoscience)

Chapter 3: Nutrients and Membrane Transport (Title: Is It Possible to Supplement Your Way to Better Performance and Health?)

Chapter 4: Enzymes, Metabolism and Cellular Respiration (Title: Body Weight and Health)

Unit 2: Genetics

Chapter 6 : DNA synthesis and Mitosis (Title: Cancer)

Chapter 7 : Meiosis and Human Reproduction (Title: Fertility)

Chapter 8: Mendelian genetics (Title: Does Testing Save Lives)

Chapter 9: Complex Genetic Traits, Heritability, and DNA Profiling (Title: Biology of Wrongful Convictions)

Chapter 10: Gene Expression and Modification (Title: Genetically Modified Organisms)

The Second half the course will be taught by Dr. Muhammad Zaman.

Lectures for the second half will begin on Monday, Oct 23 and end on Friday, Dec 1. (Note that **Wednesday, October 25 is the midterm**). The final exam will only cover the second half of the course with some exceptions. See Assessments for more information.

Unit 3: Evolution and Unit 4 Ecology

Unit 3: Evolution.

Chapter 11: The evidence for evolution (Title: Where Did We Come From)

Chapter 12: Natural selection (Title: An Evolving Enemy)

Chapter 13: Speciation and Macroevolution (Title: Understanding Race)

Chapter 14: Biodiversity and Classification (Title: The Greatest Species on Earth?)

Unit 4: Ecology

Chapter 15: Population ecology (Title: Is the Human Population Too Large?)

Chapter 16: Community and ecosystem ecology (Title: Conserving Biodiversity)

Chapter 17: Climate and Biomes (Title: The Human Footprint)

5.2 Lab

Topics: Labs

The laboratories will begin on the week of Sept 18. You are expected to participate in all laboratories- a combination of group discussions, readings, and 'hands on' activities. The labs cover basic biological principals, science literacy and critical thinking exercises.

All labs are in **SSC 3315**

Section 01: Wednesdays 11:30 – 1:20

Section 02: Wednesdays 2:30 – 4:20

Section 03: Thursdays 2:30 – 4:20

Putative Labs (Subject to change)

Week of Sept 18: Lab 1: Can Science cure the common cold?

Week of Sept 25: Lab 2: Does chocolate cause weight loss?

Week of Oct 2: Lab 3: Evaluating claims in your kitchen

Week of Oct 9: Lab 4: Is a gluten-free diet good for you?

Week of Oct 16: NO LABS--Study for the Midterm

Week of Oct 23: NO LABS--Midterm

Week of Oct 30: Lab 5: Antibiotic Resistant Bacteria

Week of Nov 6: Lab 6: Natural Selection Simulation

Week of Nov 13: Lab 7: Biodiversity

Week of Nov 20: Lab 8: Feeding the Planet

6 Assessments

Assessment will consist of laboratories assignments, mid term and final exam.

6.1 Marking Schemes & Distributions

Laboratories (18%)

Date: during weeks with scheduled laboratories (8 total)

Learning Outcomes: 1, 2, 3, 4, 5, 6, 7

Best 6 of 8 laboratories will be graded. Each worth 3%

Students must attend the laboratory section which they are registered AND participate in class to receive the laboratory mark. No accommodations will be granted if more than 2 laboratories are missed.

Midterm Examination (41%)

Date: Oct 25 during lecture.

Learning Outcomes: 2, 3, 6, 7

This exam will cover content from lectures 1-18. The midterm exam is **compulsory** and will count for 41% of your final grade. the format of this exam will be multiple choice and short answer (subject to change).

Alternate times will be set for midterm exams only if there is a direct conflict with a Gryphon Varsity event on the day of the scheduled exam (confirmed by the team coach). Conflicts must be reported to the course coordinator no later than Friday, Sept 29th. **Only one alternative date will be provided.**

If the student does not write the midterm they will receive a grade of 0% unless proper documentation is presented to the course coordinator no later than 3 days after the scheduled exam. Students who are unable to write the midterm and provide proper documentation, will have a final exam that is re-weighted to 82% and will be required to write a separate final exam with 50% of the content from the first half of the course and 50% of the content from the second half of the course.

Final Exam (41%)

Date: Dec 7 11:30-1:30. Location to be determined.

Learning Outcomes: 4, 5, 6, 7

The final exam is a compulsory examination and will cover content from the second half of the course. The format of this exam will be multiple choice and short answer (subject to change).

Students who are unable to write the midterm exam will have to write a final exam with 50% of the content from the first half of the course (Units 1 and 2) and 50% from the second half of the course. The weight of the midterm will be transferred to the final exam (82%).

7 Course Statements

7.1 Netiquette Expectations

The course website is considered the classroom and the same protections, expectations, guidelines, and regulations used in face-to-face settings apply.

Inappropriate online behaviour will not be tolerated. Examples of inappropriate online behaviour include:

- Posting inflammatory messages about your instructor or fellow students;
- Using obscene or offensive language online;
- Copying or presenting someone else's work as your own;
- Adapting information from the Internet without using proper citations or references;
- Buying or selling term papers or assignments;
- Posting or selling course materials to course notes websites;
- Having someone else complete your lab or completing a lab for/with another student;
- Stating false claims about lost lab answers or other assignment submissions;
- Threatening or harassing a student or instructor online;
- Discriminating against fellow students, instructors, and/or TAs;

- Using the course website to promote profit-driven products or services;
- Attempting to compromise the security or functionality of the learning management system; and
- Sharing your username and password.

7.2 How do I find the answer?

Your instructors want you to enjoy the course material. Please ask questions in the lecture or during Office Hours sessions that will occur throughout the semester. Many of the answers to questions asked in lecture are also included at the end of the textbook.

8 Department of Molecular and Cellular Biology

Statements

8.1 Academic Advisors

If you are concerned about any aspect of your academic program:

- Make an appointment with a program counsellor in your degree program. [B.Sc. Academic Advising](#) or [Program Counsellors](#)

8.2 Academic Support

If you are struggling to succeed academically:

- Learning Commons: There are numerous academic resources offered by the Learning Commons including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills. You can also set up individualized appointments with a learning specialist.
<http://www.learningcommons.uoguelph.ca/>
- Science Commons: Located in the library, the Science Commons provides support for physics, mathematic/statistics, and chemistry. Details on their hours of operations can be found at: <http://www.lib.uoguelph.ca/get-assistance/studying/chemistry-physics-help> and <http://www.lib.uoguelph.ca/get-assistance/studying/math-stats-help>

8.3 Wellness

If you are struggling with personal or health issues:

- Counselling services offers individualized appointments to help students work through personal struggles that may be impacting their academic performance.
<https://www.uoguelph.ca/counselling/>

- Student Health Services is located on campus and is available to provide medical attention. <https://www.uoguelph.ca/studenthealthservices/clinic>
- For support related to stress and anxiety, besides Health Services and Counselling Services, Kathy Somers runs training workshops and one-on-one sessions related to stress management and high performance situations.
<http://www.selfregulationskills.ca/>

8.4 Personal information

Personal information is collected under the authority of the University of Guelph Act (1964), and in accordance with Ontario's Freedom of Information and Protection of Privacy Act (FIPPA) <http://www.e-laws.gov.on.ca/index.html>. This information is used by University officials in order to carry out their authorized academic and administrative responsibilities and also to establish a relationship for alumni and development purposes.

For more information regarding the Collection, Use and Disclosure of Personal Information policies please see the Undergraduate Calendar.
(<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/intro/index.shtml>)

8.5 Course Offering Information Disclaimer

Please note that course delivery format (face-to-face vs online) is subject to change up to the first-class day depending on requirements placed on the University and its employees by public health bodies, and local, provincial and federal governments. Any changes to course format prior to the first class will be posted on WebAdvisor/Student Planning as they become available.

9 University Statements

9.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

9.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals
<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration
<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions

<https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml>

9.3 Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

Associate Diploma Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml>

9.4 Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

9.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to make a booking at least 14 days in advance, and no later than November 1 (fall), March 1 (winter) or July 1 (summer). Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time.

For Guelph students, information can be found on the SAS website

<https://www.uoguelph.ca/sas>

For Ridgetown students, information can be found on the Ridgetown SAS website

<https://www.ridgetownc.com/services/accessibilityservices.cfm>

9.6 Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity, and it is the responsibility of all members of the University community-faculty, staff, and students-to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff, and students have the responsibility of supporting an environment that encourages academic integrity. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Undergraduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

9.7 Recording of Materials

Presentations that are made in relation to course work - including lectures - cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

9.8 Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars

<https://www.uoguelph.ca/academics/calendars>

9.9 Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g.. final exam or major assignment).
