



BIOL*1020 Introduction to Biology

Fall 2022

Section(s): C01

Department of Integrative Biology

Credit Weight: 0.50

Version 1.00 - September 07, 2022

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 Sciences

1.3 Timetable

Classes: Monday, Wednesday and Friday 9:30-10:20. While lectures are in-person, they will be recorded and can be viewed at any time. ALEX 100.

Labs: Once per week in-person on Wednesday 10:30-12:20 (section 1), Wednesday 2:30-4:20 (section 2) or Thursday 2:30 – 4:20 (section 3). Labs start on the week of 19th September. SSC 3315.

1.4 Final Exam

There is no final exam for BIOL*1020 for the F21 semester. Please see "Assessment" for

details on how you will be evaluated.

2 Instructional Support

2.1 Instructional Support Team

Instructor:	Dr. Muhammad Zaman
Email:	mzaman02@uoguelph.ca
Office:	SSC 4441
Office Hours:	12pm-2pm Tuesdays and Thursdays

2.2 Teaching Assistants

Teaching Assistant (GTA):	Kasra Foroughi
Email:	kforough@uoguelph.ca
Teaching Assistant (GTA):	Amanda Whitehead
Email:	awhite32@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 soft copy OR an e-book are OK.

Two copies are on reserve at the McLaughlin Library

No Expiry eBook

<https://www.campusebookstore.com/integration/AccessCodes/default.aspx?permalinkId=5F2FE02E-9F6D-4E61-8B7F-9E3FF1F7F5FF&frame=YES&t=permalink>

180 day eBook Access

<https://www.campusebookstore.com/integration/AccessCodes/default.aspx?permalinkId=AD3B2FBC-7253-4544-838A-74F4771D4788&frame=YES&t=permalink>

Students still have the option to purchase physical Textbook options as well that can be ordered through our University Bookstore website <https://bookstore.uoguelph.ca/> .

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 Campus Resources

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. Counselling Services
- Student Health Services is located on campus and is available to provide medical attention. Student Health Services
- 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. Stress Management and High Performance Clinic

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.
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5 Teaching and Learning Activities

Course Structure

Lectures

The classroom time will be used for lectures on fundamental concepts of biology and discussions of biology in the news. Possible exam questions will be reviewed in class. Students are expected to attend all lectures and participate in class discussions.

Labs

You are expected to attend all laboratories. They are an important part of the course in which 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 participate in a field trip to the Arboretum on campus to collect your own data set. You will not be able to complete the assignments without attending. You can also be tested on material from the labs in the midterms and the final exam.

5.1 Lecture Schedule

September 8, 2022: Introduction to the class.

Topic1: Biology is a science

Biology in the News: Evaluating cures for the common cold

Readings (Textbook): Chap. 1. Can science cure the common cold?

Topic2 : Water, biochemistry and cells

Biology in the News: Can dead humans come back as zombies?

Readings (Textbook): Chap. 2. Science fiction, bad science, pseudoscience

Topic 3: Nutrients and membrane transport

Biology in the News: Do sports drinks enhance athletic performance?

Readings (Textbook): Chap. 3. Is it possible to supplement your way to better performance and health?

Topic 4: Enzymes, metabolism and cellular respiration

Biology in the News: Are overweight people less healthy than thin people?

Readings (Textbook): Chap. 4. Body weight and health

Topic 5: Photosynthesis and climate change

Biology in the News: Will there be polar bears in 2100?

Readings (Textbook): Chap. 5. Life in the greenhouse

Topic6 : DNA synthesis, cell cycle

Biology in the News: What is a genome screen?

Readings (Textbook): Chap. 6. Cancer

Topic7 : Meiosis

Biology in the News: Why are siblings not identical?

Readings (Textbook): Chap. 7. Fertility

Topic 8: Mendelian genetics

Biology in the News: Are you the product of your genes?

Readings (Textbook): Chap. 8. Does testing save lives

Topic 9: Complex genetic traits, heritability, and DNA profiling

Biology in the News: What are your chances of inheriting a family trait?

Readings (Textbook): Chap. 9. Biology of wrongful convictions

Topic 10: Gene expression, mutation, stem cells and cloning

Biology in the News: GMOs yes or no?

Readings (Textbook): Chap. 10. Genetically modified organisms

Topic 11: The evidence for evolution

Biology in the News: Why are some people skeptical about evolution?

Readings (Textbook): Chap. 11. Where did we come from?

Topic 12: Natural selection

Biology in the News: Antibiotics – take them all or ditch them if you feel well?

Readings (Textbook): Chap. 12. An evolving enemy

Topic 13. Biodiversity and classification

Biology in the News: Are humans more “evolved”?

Readings (Textbook): Chap. 13. Understanding Race

Chap. 14. The greatest species on Earth?

Topic 14. Animal and plant tissues

Biology in the News: Trafficking in kidneys – good or bad?

Does agriculture cause environmental damage?

Readings (Textbook): Chap. 18. Organ donation

Chap. 25. Feeding the World

Topic 15. Population ecology

Biology in the News: Are we headed for a global famine?

Readings (Textbook): Chap. 15. Is the human population too large?

Topic 16. Community and ecosystem ecology

Biology in the News: Would you care if mosquitoes went extinct?

Readings (Textbook): Chap. 16. Conserving biodiversity

5.2 Laboratories

The laboratories will start the second full week of classes (the week of September 19, 2022) and will be offered in a remote format. You are expected to participate in all laboratories- a combination of online group discussions, readings, and 'hands on' activities. For example, you will be sent a package in the mail that includes materials for you to grow your own plants at home. The labs cover basic biological principals, science literacy and critical thinking exercises.

Section 01: Wednesdays 10:30 – 12:20

Section 02: Wednesdays 2:30 – 4:20

Section 03: Thursdays 2:30 – 4:20

Lab 1: Does chocolate cause weight loss?

Lab 2: Why do people drink bottled water?

Lab 3: Evaluating claims in your kitchen

Lab 4: Is a gluten-free diet good for you?

Lab 5: Feeding the Planet

Lab 6: Antibiotic Resistant Bacteria

Lab 7: Biodiversity

Lab 8: Natural Selection Simulation

5.3 Important Dates

6 Assessments

6.1 Marking Schemes & Distributions

Name	Scheme A (%)
Quizzes X 6	60
Lab Assignments (8 X 5%)	40

Name	Scheme A (%)
Total	100

6.2 Mid-term and final exams

Multiple choice and short answer questions covering lecture and lab materials. Sample exam questions given weekly in lecture.

6.3 Lab assignments

Includes a combination of on-line searches for information, surveys, self-monitoring and reading articles before the lab, designing posters, and final short write-ups, as outlined to you in lectures, labs and on courselink.

Some of the Pre-Lab Assignments and Lab Assignments will be done on an individual basis, and others will be done in groups. For Assignments that are to be done on an INDIVIDUAL basis you can discuss the answers with members of your group, but your submission must be YOUR OWN work, i.e. your answers should be different from the answers submitted by your group members. For Assignment that are done on a GROUP basis, it is expected that ALL members of the group should contribute information. If a group member did NOT participate and contribute to the submission then their name should NOT be listed on the assignment. For GROUP assignments all members of the group will get the same grade.

Pre-Lab Assignment Assignment

Lab 1 Individual	Individual
Lab 2 Individual	Individual
Lab 3 Individual	Individual
Lab 4 Individual	Individual
Lab 5 Individual	Individual
Lab 6 Individual	Group
Lab 7 Individual	Individual

Lab 8 Individual

Group

7 Course Statements

7.1 E-mail Etiquette

When emailing the course instructors, please use formal salutations: "Dear Prof. (name) or "Dear Dr. (name)". Use proper spelling, grammar and punctuation. (It should not read like a text message!). Be polite and considerate. Do not email detailed questions about course content (see below "How do I find the answer?")

7.2 How do I find the answer?

Your instructors want you to enjoy the course material and feel free to ask questions. If you have a question about lecture material, do not hesitate to raise your hand in class or see the Instructor before or after class. Also take the opportunity to ask your TA questions in the weekly labs. If you require more time to discuss course materials, please email the Instructor to request an appointment.

7.3 Academic Misconduct

If you have any concerns or questions about how to avoid plagiarism or other forms of academic misconduct, please contact Drs. Nassuth or her fellow instructor.

See below for additional information.

8 Department of Integrative 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 Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email.

This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

9.10 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).

9.11 Covid-19 Safety Protocols

For information on current safety protocols, follow these links:

- <https://news.uoguelph.ca/return-to-campusess/how-u-of-g-is-preparing-for-your-safe-return/>
- <https://news.uoguelph.ca/return-to-campusess/spaces/#ClassroomSpaces>

Please note, these guidelines may be updated as required in response to evolving University, Public Health or government directives.