

BIOA01H3 Y

Life on Earth: Unifying Principles

Summer 2021

COURSE SYLLABUS

Objectives and Outcomes

The primary goal of BIOA01 is to provide students with the strong foundation needed to become a successful biologist. During the term you will learn:

1. the fundamentals of evolution, speciation and population genetics, the major principles of cellular organization and metabolic processes, and the principles of gene action and inheritance;
2. the essential skills to become an active learner of science;
3. about some basic laboratory techniques that are required to pursue your chosen field of science;
4. some approaches for finding and reading relevant biology research articles;
5. the proper approach to collecting and analyzing data and then communicating the results using the writing and critical thinking skills presented in labs

Course Personnel

Name	Title	How to contact ¹	Remote Office Hours ²
Dr. Mark Fitzpatrick	Instructor	E-mail: biolife.uts@utoronto.ca (include Fitzpatrick in subject line)	Please check Quercus for scheduled remote office hours for all course personnel (where applicable)
Chris Armstrong	Lab/Course Coordinator for BIOA01 - contact regarding late enrollment, missed tests or lab submissions, marks management and general advising as related to the course	E-mail: biolife.uts@utoronto.ca (include Armstrong in subject line) ²	
Meagan Kindree	BIO Help TA	meagan.kindree@mail.utoronto.ca (include BioHelp in subject)	
	Laboratory TA	TBA in the first week of classes	

¹All e-mails must be sent from your University – issued e-mail account (@mail.utoronto.ca)

²Chris Armstrong will only respond to e-mails during regular business hours (Mon – Fri, 9am – 5pm)

Online learning in BIOA01

This summer semester, we still find ourselves in unprecedented circumstances. With the health and safety of our students at the forefront of our concerns, we still are unable to offer BIOA01 in a traditional manner. Our instructors, staff and teaching assistants have worked hard over the past year to make the transition to online learning seamless for all our students. Our objectives and outcomes outlined on the first page of this syllabus remained unchanged. Despite the lack of in-person laboratory experiments, we feel that the combination of learning resources we are implementing in BIOA01 will leave students with the same knowledge and skills as students who took the course in a more traditional manner.

Communicating information within BIOA01

Proper communication in BIOA01 is of the utmost importance. In addition to the syllabus, there is more information found posted about this course on our BIOA01 Quercus page. These resources should be able to answer the majority of questions that you may have regarding the course.

However, we understand that not all questions will be answered by these materials and we encourage students to e-mail the correct course staff (whether that be the instructor, the course coordinator or your practical's TA) at the appropriate e-mail address.

Please understand that while this course is much smaller than when offered in the Fall, our course personnel will only be able to answer so many e-mails in a timely manner. We ask that you please read through all of the materials available to you on the course Quercus page and look through other resources readily available to all students via the University's website (<https://www.utoronto.ca/home/>) and our Department of Biological Sciences website (<https://www.utoronto.ca/biosci/welcome-biological-sciences>) to attempt and answer your own questions first. If you still cannot answer your question, please contact the appropriate course personnel.

Quercus (q.utoronto.ca)

As this is an online course, all information will be posted on the BIOA01 Quercus page. Information such as contact information, virtual office hours, lectures, videos and notes, online labs, test dates and grades will be posted on Quercus throughout the semester. Information related to your lab practical will also be posted here. It is your responsibility to check the BIOA01 Quercus page frequently and set notifications so you do not miss any important information. We also encourage students to use the discussion board found on the course Quercus page to ask appropriate questions. There will be discussion boards set up and they will be moderated regularly. Checking these regularly may help answer questions you have that another student may have already asked!

Log on to Quercus by clicking the "Quercus" icon in the top left corner on the UTSC homepage and using your UTORid and password.

E-mail

To help the course personnel stay organized and answer your e-mails quickly and effectively, one central e-mail address serves BIOA01. To communicate with your Instructor and the Course Coordinator, please e-mail:

biolife.utoronto.ca

Include the name of the person you wish to e-mail, and a brief description for the reason of your e-mail in the subject line to help direct it. **If there is no name listed in the subject line, your e-mail will not be answered.**

Remember to always contact the Instructor, Course Coordinator and TAs using your UofT issued e-mail address. E-mails from other addresses (@gmail, @hotmail, @yahoo, etc.) will not be answered.

Required course materials:

1) Textbook

The complete textbook package can be purchased remotely from the UTSC Bookstore. The purchase of a textbook is required for BIOA01.

The textbook for BIOA01 is:

Morris J, Hartl D, Knoll A, Lue R, Michael M. 2019. Biology How Life Works (3rd ed.) W.H. Freeman & Company: Macmillan Education Imprint.

Purchasing the textbook can be done at: https://uoftbookstore.com/buy_textbooks.asp?

2) Achieve Access (formerly known as LaunchPad; online learning tool)

Achieve is an additional, online learning tool to help you master the material presented in BIOA01. You can purchase and access Achieve through the UTSC Bookstore website as a bundle with the required textbook for the course or directly through the MacMillan website (<http://www.macmillanlearning.com/catalog>). **For technical support, please call: 1-800-936-6899**

Instructors for the course will assign Adaptive quizzes (the names for the assessments used within Achieve) that will be marked for credit in the course (see course evaluation section of the syllabi for how these assessments are weighted). You will have to create an account and add the course to access the assigned learning curves using the link provided below.

The BIOA01 Summer 2021 LaunchPad site for registration can be found at:

<https://achieve.macmillanlearning.com/courses/reuxpk>

It is important to note that you will be asked to provide information to create an account. Please ensure that you are using your UofT student information (your UofT issued e-mail address, your student number, etc.) when enrolling. If you use a non UofT e-mail or an incorrect student number, your submissions will not align with your information on Quercus and **you may receive a grade of 0 for all Adaptive quizzes** if we are unable to decipher a student's identity.

3) Labster Experimental Simulations

Labster simulations will be used to run through simulated labs and is graded as part of the laboratory portion of BIOA02. All Labster simulations will be available through the Quercus course page as an assignment (this will link you to an external site for running through the simulation). More instructions on how to access these will be available on Quercus. Grades will automatically upload to Quercus upon your completion of the simulation.

If you have any technical issues running the simulations, we ask that you contact [Labster's Student Support](#). Any other questions / concerns can be sent to the Course Coordinator, Chris Armstrong, by sending an email to biolife.utsc@utoronto.ca. **Please note that Labster is only optimized for running in the Google Chrome web browser.** Make sure you are also on a stable internet connection, as Labster simulations tend to freeze / crash when using internet provided through tethering or low bandwidth wireless connections (like those offered in places with free Wi-Fi).

****Please note that only your first completed attempt of each Labster simulation will be counted towards your final grade so make sure you only begin a simulation when you intend to finish it!**** Please see the announcement "Labster simulations Information" on Quercus for further details.

Course Evaluation

Your final grade in BIOA01 will be determined as follows:

Laboratory component of final grade = 25% (see breakdown below)

Labs: 6 online lab assessments with associated Labster simulations x 2.5% = 15%

Every two weeks you will be responsible for completing 1-3 Labster lab simulations as well as additional exercises that will be posted to Quercus. Your mark for each lab will be comprised of your Labster score/scores, as well as an additional assignment. All of these assessments will be available to see on the course Quercus page and in the "Lab Topics and Schedule" section of the syllabus.

Formal Lab Report (FLR) = 10%

You will complete a formal lab report write up for a lab that will be outlined to you in detail on Quercus. Real data will be collected from this experiment by a laboratory technician and you will be responsible for analyzing and interpreting these data. This lab report will be submitted online through Quercus. Due date and time as well as more information pertaining to this report will be available on Quercus.

Writing Assignment = 6%

You will be responsible for completing one writing assignment, selecting a topic from one Module of BIOA01. The writing assignment consists of three parts. More information regarding this writing assignment will be posted to Quercus in a comprehensive document outlining topics to choose from, instructions and due dates.

Lecture component of final grade = 69% (see breakdown below)

Online Adaptive quizzes via Achieve = 9%

Midterm = 25%

Final Exam = 35%

****Announcements regarding the content of the midterm and final exam will be posted in advance on the BIOA01 Quercus page****

Statement regarding use of Turnitin

In BIOA01, we will be using Turnitin (through Quercus) for the submission of the writing assignments and the FLR. Failure to submit or failure to submit a Turnitin readable document will result in a grade of 0. You should be aware of the following policy for the use of Turnitin at the University of Toronto:

"Normally, students will be required to submit their course essays to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their reports to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com website."

Course Content

A) Lecture Topics and Lecture Schedule

Tuesday 1200-1500				
Date	Topic	Morris 3 Chapter	Adaptive Quizzes*	Module
	Introduction & Syllabus			
11-May	Life & the Universe	1	Ch 2	
	Molecules of Life	2		Cells
	DNA: The Basics	3		
18-May	Mitosis & Meiosis	11	Ch 11	Genetics
	DNA: Transcription	3		
25-May	DNA: Translation	4	Ch 4	Genetics
	Central Dogma	4		
	DNA: Replication	13		
01-Jun	DNA: Regulation	18	Ch 13	Genetics
	Mutation & Genetic Variation	14		
	Mendelian Inheritance	15		
08-Jun	Sex Chromosomes & Linkage	16	Ch 15	Genetics
	Genes, Environment, & Complex Traits	17		
	Microevolution & Population Genetics	20		
15-Jun	Hardy-Weinberg & Agents of Evolution	20	Ch 20	Evolution
	Darwin & Evolution			
22-Jun	READING WEEK			
29-Jun	TERM TEST 1 (June 29, 12-2pm)			
	Selection & Maintaining Variation	20		
06-Jul	Evidence for Evolution I	22	Ch 22	Evolution
	Evidence for Evolution II	22		
	TOL: Classification & Phylogeny	21		
13-Jul	Phylogeny II & Species	21	Ch 21	Evolution
	Speciation	21		
20-Jul	Evolution & Development	19		Evolution
	TOL: Prokaryotes	24		
27-Jul	Organizing Principles of Cells	5	Ch 5	Cells
	Capturing & Using Energy	6		
03-Aug	Cellular Respiration	7	Ch 7	Cells
	Photosynthesis	8		
	Cell Signaling	9		
10-Aug	Cell & Tissue Architecture	10	Ch 9	Cells
	TOL: Eukaryotic Diversity - Protists	25		
	* due Thursdays at 23:59 EST			

B) Lab Topics and Schedule (all times are EST)

	Lab topic with accompanying assessment	Labster simulations to complete	Date materials accessible	Due date and time for all assigned assessments
Lab 1	Appreciating the Diversity of Life	Two – Biodiversity; Biomes	Monday May 10 th	Friday, May 21st by 5:00pm
Lab 2	Polymerase Chain Reaction and Gel Electrophoresis	Two – PCR; Gel electrophoresis	Monday May 24 th	Friday June 4th by 5:00pm
Lab 3	Mendelian Inheritance	Two – Mendelian Inheritance; Meiosis	Monday June 7 th	Friday, June 18th by 5:00pm
Lab 4	Microscopy	Two – Microscopy; Light Microscopy	Monday June 28 th	Friday July 9th by 5:00pm
Lab 5	Phylogenetic analysis	Two – Evolution: taxonomy ; Evolution: Identification	Monday, July 12 th	Friday July 23rd by 5:00pm
Lab 6	Photosynthesis	Two – Photosynthesis: ETC; Algae pigment analysis	Monday July 26 th	Friday August 6th by 5:00pm

List of practical sections times on Blackboard (BB) collaborate for contact with your TA

Practical #	Day and Time to attend BB collaborate (all times are EST)
0001	Tuesdays 10:30 – 12:00pm
0002	Tuesdays 10:30 – 12:00pm
0003	Tuesdays 3:00 – 4:30pm
0004	Tuesdays 3:00 – 4:30pm

Course Regulations

Lectures

To get maximum benefit from the lectures in this course, students are advised to:

- a. **read the relevant sections in your textbook before the lecture.** Do not take extensive notes or memorize the material at this stage – just read and become familiar with the terms and concepts to be covered
- b. **download posted lecture material** from Quercus before each lecture
- c. **during lectures, take your own notes** with the aim of understanding the main concepts covered
- d. re-read the relevant sections in your textbook as needed after lecture and create your own study notes; review your notes frequently
- e. **arrange to speak with the Instructor** during scheduled online office hours or by appointment if having difficulties understanding material covered in lectures

Engaging in Online Labs and BlackBoard collaborate meetings

Make sure you have enrolled yourself in a lab practical for BIOA02 on ACORN. Your submitted course assessments will not be marked if you have not enrolled in a lab practical and you will receive a 0 for all assessments until you do so.

The lab practicals will be offered in bi-weekly 90-minute scheduled meetings with your practical TA (who will introduce themselves in the first meeting). These sessions are meant to be utilized as a way to have your TA relay important information to you as it pertains to BIOA01 and to go over information pertaining to the current lab assessments that students will be working on. TAs will also help facilitate learning by offering engaging topics and engagement activities related to the topic of the labs as well as to ask questions that will stimulate conversation between students and the TA. TAs will also be able to answer student questions during these periods.

Attendance at these BB collaborate lab practicals will be mandatory in BIOA01. If you miss attending your assigned lab practical, you will be given a grade of 0 for any associated work with that lab (lab assessment and any Labster simulations). These sessions will occur on BlackBoard (BB) collaborate which is accessible via the course Quercus page. You will be able to join these sessions via computer or by mobile device. You will need a microphone if you wish to engage and ask questions during the meetings. We ask that you please be respectful when participating in these meetings, as there will be other students attending these meetings listening intently to the information being conveyed. Mute your microphone when not speaking and use the chat function to ask questions when applicable.

To make sure everyone is clear when they should be attending their BB collaborate meetings, there is a list of the practical schedule posted in the syllabus and on the Quercus course page. These BB collaborate meetings only take place for each student once every two weeks. **Odd-numbered practicals** will attend their BB collaborate meetings during the first week each new lab is available (eg. PRA 0001 would attend their scheduled BB collaborate meeting for Lab 1 on Tuesday May 11th at 10:30am EST) while **even-numbered practicals** will attend in the second week (eg. PRA 0002 would attend their BB collaborate meeting for Lab 1 on Tuesday May 18th at 10:30am EST). Make sure to check this information and remember your practical schedule; these will be your only regularly scheduled meetings with your TA for the semester and missing them means missing out on valuable information and an opportunity for (digital) face-to-face interaction! If you have an issue with attending your scheduled BB collaborate meeting, please contact the course coordinator.

Completion of lab simulations, online lab assessments, lab reports and any other associated work is mandatory in BIOA01. NO late assignments will be accepted without proper documentation (see procedures for accommodation requests). **Late formal lab reports and writing assignments** will have a late penalty automatically applied (10% of the mark per day including weekends); work will not be accepted if more than 5 days late. Times and dates to hand in late materials will be posted on Quercus.

There are lab exercises that will ask you to complete the tasks assigned by yourself, either in the comfort of your home or by venturing outside. We ask that you please follow all health and safety protocols when doing so (washing hands regularly, avoiding contact with your face and eyes, practicing social distancing, wearing a face covering when appropriate and staying home if sick). Please contact the Course Coordinator if there are issues with performing these tasks.

Procedures for accommodation requests for course work and term tests

In order to be eligible for consideration for a missed term test or to submit lab assignments or the FLR late, students must provide a valid documented reason to the Course Coordinator.

Please note that the course coordinator will not be accessing ACORN to check for students using this resource to declare illness, as ACORN declarations do not include student contact information, course code or what work is being missed. The ONLY methods accepted in this course for accommodations are outlined below

1. To submit late lab assignments or FLR (without academic penalty):

You must contact the Course Coordinator before the end of the relevant due date to be eligible for accommodation. Please include a digital copy of your self-declaration form with your e-mail or indicate when you plan to submit this form

If you are ill during the term, and this illness influences your ability to meet a deadline for submission of a term assignment, you can submit a Self-Declaration of Student Illness form, indicating the days in which you were ill. This form is meant to take the place of the more typical medical form, and is available at:

<https://www.utoronto.ca/biosci/missed-term-work-policy>

Please note the following aspects related to this Self-Declaration of Student Illness form:

1. Similar to the submission of a medical form, YOU ARE RESPONSIBLE for contacting the Course Coordinator to make arrangements for an accommodation for your missed deadline.
2. You may use the Self-Declaration of Student Illness form ONLY for term assignments and the FLR. For any term tests in this course you will need to submit a Verification of Student Illness form (See "For Missed Midterm"). For the final exam you will need to follow the typical procedures for petitioning to write a deferred exam.
3. You may use the Self-Declaration of Student Illness form up to ***two times*** in this course. If you require an additional accommodation for a term assignment, you must then use the standard Verification of Student Illness form.
4. Submitting a false Self-Declaration of Student Illness form constitutes academic misconduct, and could be subject to sanctions under the Code of Behaviour on Academic Matters.

Please submit any Self-Declaration of Student Illness forms to the Course Coordinator as soon as possible.

2. For Missed Midterm:

***** You must contact the Course Coordinator within 48 hours of the end of your scheduled term test to be eligible to write a make-up term test*****

Please submit a completed University of Toronto Verification of Illness or Injury Form. Form can be found here:

<http://www.utsc.utoronto.ca/registrar/verification-illness-or-injury>

The date/time of the original test that was missed must be clearly indicated as well as a clear statement of the medical issue.

If you cannot write a Friday evening or Saturday term tests for religious reasons, please notify the Course Coordinator in writing by e-mail within one week of the announced midterm test date; an alternative time will be presented if approved by the Instructor.

3. For missed Final Exam:

Students must contact the Registrar's office (www.utsc.utoronto.ca/registrar/deferred-exams) and follow the procedures outlined in order to arrange to write a Deferred Final Exam (DFE). The DFE will be scheduled during the Fall 2021 Exam Period taking place in December 2021. Please note that the format of the DFE may differ from the original while covering the same content.

All of the forms and more information are also available on our department website found at the link provided for the Self-Declaration of Student Illness form.

Important UTSC Policies

UTSC is dedicated to fostering an academic community in which the learning and scholarship of every member may flourish, with vigilant protection for individual human rights and a resolute commitment to the principles of equal opportunity, equity and justice.

1) Information on Academic Integrity

Academic integrity is essential to the pursuit of learning and scholarship in a University, and to ensure that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters outlines behavior that constitutes academic dishonesty and the process for addressing such offenses (see <http://www.governingcouncil.utoronto.ca/policies/resourcesforstudents.html>).

2) Information Regarding AccessAbility Services at UTSC

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to e-mail the instructors in BIOA01 and/or the AccessAbility Services Office as soon as possible. Please note that all inquiries are confidential. You can contact AccessAbility Services at 416-287-7560, by e-mailing ability@utsc.utoronto.ca or visiting their website (www.utsc.utoronto.ca/ability).

3) Information on Religious Observances

It is policy at UTSC to provide special consideration for recognized holy days which may be observed by our students. Though not all holy days require students to be absent from school, accommodations may still be necessary in some cases. As a student, it is your responsibility to check the due dates for all course work and scheduled dates for tests/exams on a regular basis. Inform the Course Coordinator of any potential conflicts at least 7 days prior to the date of the test/assignment. Failure to do so may result in special consideration not being granted (documentation may be required).

4) Procedures Regarding Final Marks

The final mark in BIOA01 is based on term work; the evaluation breakdown is given in this syllabus. After the final exam, marks are calculated and submitted to the Department for review. Once approved, the final mark for each student in the course will be released on ROSI/ACORN.

Final marks are not negotiable and instructors are not permitted to discuss final marks with students. If students have concerns about their final mark, they should consult the proper procedures to be followed as outlined by the Registrar's office:

<https://www.utoronto.ca/registrar/petitions>

Once final marks are posted, it is an academic offense to ask for your mark to be changed (See Academic Handbook).

Department of Biological Sciences Statement on Equity, Diversity and Inclusion

The Department of Biological Sciences acknowledges the barriers that people of colour and other marginalized groups face, particularly in science and academia. As a department, we are highly committed to creating a welcoming scientific community where everyone feels safe, comfortable participating, and which provides the necessary support to thrive. We acknowledge and are disheartened that Black, Indigenous and other marginalized communities are, and always have been, disproportionately impacted by systemic racism and face barriers within academia. In August 2020, our department formed an equity and inclusion task force that will meet regularly to discuss equity and inclusion and enact improvements to our departmental practices by actively engaging with the literature on best practices, and seeking ongoing input from all members of the department including students, post-doctoral fellows, staff and faculty. Among our main priorities will be a commitment to hire and support faculty and staff that are representative of our diverse student population, and to promote a departmental culture that will foster inclusive teaching and research excellence.