

BIO A01H3 F

Life on Earth: Unifying Principles

Fall 2017 - COURSE SYLLABUS

Objectives and Outcomes

The primary goal of BIO A01 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. 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

Overview

BIO A01 is a lecture and laboratory course designed to encourage students to think broadly and critically about some major areas of study in Biology (eg. Evolutionary Biology, Cell Biology and Genetics). BIO A01 consists of thirty-six lectures (three 1-hour lectures per week) and five labs (one 3-hour lab practical every two weeks throughout the term).

There are **three modules** consisting of approximately 12 lectures per module. The **first module** will examine evolution as the framework in modern biology, and topics such as population, genetics, cladistics and speciation. An appreciation for the diversity of life is emphasized throughout this course with emphasis on prokaryotes, viruses/prions and protists. The **second module** of the course will introduce students to cell structure and then explore the principles of energetics and cellular metabolism, using respiratory and photosynthetic pathways as two important examples. The **third module** will focus on the role of the nucleus in cellular function, cell proliferation and inheritance and examine processes including DNA synthesis, protein synthesis, cell division (mitosis, meiosis) and genetic principles.

The schedule and location for these lectures can be found on page 9 of this syllabus. The lab practicals will be scheduled Mondays, Tuesdays, Wednesdays and Thursdays in both SW237 and SW240 (see the attached schedules on pgs. 9 – 10 to see when to attend your practical).

Course Personnel

There are several key people you should get to know in this course:

Name	Title	How to contact ¹	Office and Office Hours ²
Dr. Mark Fitzpatrick	Instructor – Module 1	E-mail: biolife@utsc.utoronto.ca (include Fitzpatrick in subject)	SW558A
Dr. Shelley Brunt	Instructor – Module 2	E-mail: biolife@utsc.utoronto.ca (include Brunt in subject)	SW563A
Dr. Aarthi Ashok	Instructor – Module 3	E-mail: biolife@utsc.utoronto.ca (include Ashok in subject)	SW521D
Karolyn Keir	Lab/Course Coordinator for BIO A01 - contact regarding late enrollment, missed tests or labs, marks management and general advising as related to the course	E-mail: biolife@utsc.utoronto.ca (include Keir and A01 in subject) ³	SW238 Hours: TU 2-3pm TH 2-3pm
Terrence Chang	BIO Help TA – Lecture material	terrence.chang@mail.utoronto.ca (include Biohelp in subject)	Please see Blackboard
Nicole Alber	BIO Help TA – Lab material	nikki.alber@utoronto.ca (include Biohelp in subject)	Please see Blackboard
	Laboratory TA	TBA in your first lab	

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

²All Course Personnel are only available in their offices during stated office hours. Office hours for course instructors will be posted on Blackboard.

³Karolyn Keir will only respond to e-mails during regular business hours (Mon – Fri, 9am – 5pm)

Communication within BIO A01

Blackboard Portal

The main source of information for BIO A01 is the Blackboard course page. Information such as contact information and office hours, lecture outlines, videos and notes, assignment instructions, test dates and locations and grades will be posted on Blackboard throughout the semester.

Each lab practical also has its own Blackboard webpage; TAs will post information related to their lab practicals and course assignments here. Please check the BIO A01 Blackboard page frequently and consult for information before contacting the Instructors, Course Coordinator or your TA.

Log onto Blackboard by clicking the “Blackboard Portal” link at the top of the UTSC homepage and using your UTORid and password.

Intranet

Some events are visible through the ‘Events’ function of the UTSC Intranet. Official announcements of these events will come through Blackboard once confirmed. You will use your UTORid and password to access the Intranet from the UTSC homepage (link in the upper right-hand corner of homepage).

E-mail

To help your professors stay organized and answer your e-mails more quickly and effectively, one central e-mail address serves BIO A01. To communicate with your Instructors and the Course Coordinator, please e-mail:

biolife@utsc.utoronto.ca

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

Please do not use professors’ e-mail addresses for BIO A01 communication!

Remember to always contact the Instructors, 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 at the UTSC Bookstore (located above Tim Horton's in the Bladen Wing). The purchase of a textbook is required for BIO A01.

The textbook for BIO A01 is:

Morris J, Hartl D, Knoll A, Lue R, Michael M. 2016. Biology How Life Works (2nd ed.) W.H. Freeman & Company: Macmillan Education Imprint. 1096pp.

2) LaunchPad Access (online learning tool)

LaunchPad is an additional, online learning tool to help you master the material presented in BIO A01, as well as complete the online assessments associated with each module. You can purchase and access LaunchPad a few different ways:

- Packaged at no extra cost with the loose-leaf text (approx. \$138.00) or hard-cover text (approx. \$205.35) purchased through the UTSC Bookstore
- As a stand-alone item that includes the e-text for \$88.99. This can either be purchased through the UTSC Bookstore website or directly through the MacMillan website (<http://www.macmillanlearning.com/catalog>)

For technical support, please call: 1-800-936-6899

3) Reef Classroom Polling

Reef classroom polling is a cloud-based student response software by iClicker. This will help BIO A01 instructors understand what you know, give everyone a chance to participate in class, and allow you to review the material after class.

You will need to create an iClicker Reef Student account to participate in class using your laptop, smart phone, or tablet connected to the University Wi-Fi.

Creating your iClicker Reef Student Account

Go to iclicker.com/students or download the iClicker Reef Student app for your Apple or Android device to sign up for a Reef account. You should use your University e-mail address and your U of T student number in the student ID field. You can edit your e-mail address, password, or student ID from your account profile. Do **not** create and use more than one Reef account.

Your subscription to use Reef is included with the purchase of the textbook for BIO A01.

Add this course to your Reef account

Please pay attention to Blackboard for further announcements as to how to connect this course with your Reef account.

Troubleshooting

You can find the answers to many of your questions on the iClicker student support site (<https://community.macmillan.com/community/iclicker-support/iclicker-student-support>). If you continue to experience issues, please contact support via phone (866.209.5698) or e-mail (support@iclicker.com). Live support is available Monday – Thursday from 9AM – 11PM EST and Friday 9AM – 9PM EST.

4) Lab Manual

The lab manual is a separate publication that is required for all lab practicals. It is titled:

Keir K, Gladilina E, Armstrong C. 2017. *BIO A01 – Life on Earth: Unifying Principles – Lab Manual for Fall 2017*. Toronto, Ontario.

The lab manual is for sale at the UTSC Bookstore. Photocopies of old, now out-of-date manuals are NOT ACCEPTABLE. Reports at the end of each lab for 2017 are unique to this version of the manual and originals are required to receive credit for your practicals. **Copies of reports will not be provided by your TA!**

Students must have their own copy of the appropriate lab information when they come to their practical. It is the responsibility of each student to read each lab in advance and bring the manual to each of their scheduled practicals.

5) Lab Coat and Protective Eyewear

Lab coats and protective eyewear are required for all biology labs at UTSC. Lab coats and protective eyewear are sold in various locations on campus (BioSA, EPSA, Bookstore). Disposable gloves and other supplies will be provided in the labs as needed. Students should bring pencils, pens, rulers and calculators to all labs. Always check your lab manual for any special requirements for each of your labs.

Course Evaluation

The content in BIO A01 will be delivered through attending lectures and labs. Students will be evaluated through quizzes, assignments (both in-lab and online), a formal lab report and three module tests. Tests will not be cumulative and use a multiple-choice question and short answer format. The time/date and location for each module test will be posted on the BIO A01 Blackboard webpage.

The final grade in BIO A01 will be determined as follows:

Laboratory component of final grade = 31% (see breakdown below)

Labs: Six labs x 3% each = 18% of final grade
Laboratory Assignment = 4% of final grade
 (This will be distributed in Lab 2 and is due at the start of your Lab 3; no late assignments will be accepted)

Formal Lab Report (FLR) = 9% of final grade
 (Will be due in October; exact date will be made available in September)
 A late penalty of 10% per day including weekends will apply.
 1% of the FLR mark will come from the successful completion of two online modules
 (details will be posted on Blackboard)

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

Term Test for Module 1 = 20% of final grade
 Online assessments for Module 1 = 3% of final grade
 Term Test for Module 2 = 20% of final grade
 Online assessments for Module 2 = 3% of final grade
 Term Test for Module 3 = 20% of final grade
 Online assessments for Module 3 = 3% of final grade

Statement regarding use of Turnitin

In BIO A01, we will be using Turnitin.com (through Blackboard) for the submission of 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 (*tentative; may change over course*)

Module 1: Evolution	<p>Lecture topics include:</p> <ul style="list-style-type: none"> - Population biology - Microevolution - Tree of Life: Classification and Phylogeny - Evo – Devo - Tree of Life: Protists
Module 2: Cell Biology and Metabolism	<p>Lecture topics include:</p> <ul style="list-style-type: none"> - Tree of Life: Prokaryotes - Cells - Respiration - Photosynthesis
Module 3: Gene Action and Inheritance	<p>Lecture topics include:</p> <ul style="list-style-type: none"> - DNA: the stuff of heredity - Peas, Pedigrees and Probability - Transcription and Translation - Tree of Life: Viruses & Prions

B. Lab Topics

Lab 1: Field trip + scavenger hunt (completed between Sept 5th – 15th; details in manual)

Lab 2: Reconstructing Evolutionary Relationships using the Principles of Parsimony

Lab 3: Effect of CO₂ Availability on Photosynthesis – Collection of data for FLR

Lab 4: Introduction to Microscopy using Algae

Lab 5 and 6: Using a Single Nucleotide Polymorphism to Predict Bitter Tasting Ability & Investigating Mendelian Inheritance

Facilitated Study Groups (FSGs)

BIO A01 is supported by facilitated study groups. These weekly study sessions are open to all BIO A01 students. Attendance is voluntary, but students who regularly attend often earn higher grades. If you have questions, visit the FSG website at: <http://ctl.utsc.utoronto.ca/home/fsg>

Fall 2017 – Important Dates

Monday September 4	Labour Day → University closed
Tuesday September 5	Classes begin in F and Y courses
Monday September 11	Last day for students writing deferred examinations in December to adjust their current course load
Monday September 18	Last day to add F and Y courses
Monday October 9	Thanksgiving Day → University closed
Saturday October 7 – Friday October 13	Reading Week (Note: Classes may be held on other campuses)
Monday November 20	<ul style="list-style-type: none"> • Last day to drop F courses without academic penalty and have them removed from the transcript • Last day to add or remove the CR/NCR mode of assessment (on ACORN) for an F section course (for details go to www.utsc.utoronto.ca/registrar)
Monday December 4	<ul style="list-style-type: none"> • Last day of classes and last day for submission of term assignments in F courses • Last day to drop UTSC F courses on eService and have them remain on the transcript with a grade of LWD indicating withdrawal without academic penalty. After this date grades are recorded on transcripts whether course work is completed or not (with a '0' assigned for incomplete work) and they are calculated into GPAs (Note: see www.utsc.utoronto.ca/registrar for LWD dates for courses on other campuses)
Tuesday December 5 – Wednesday December 6	Study break
Tuesday December 5 – Wednesday December 20	Summer session deferred examinations
Thursday December 7 – Wednesday December 20	Final examinations in F courses
Thursday December 21 – Tuesday January 2	December break → University closed

LECTURE INFORMATION

	DATE	TIME	LOCATION
LEC01	Tuesday	11 – 12	IC 130
	Thursday	11 – 12	IC 130
	Friday	10 – 11	AC 223
LEC02	Tuesday	1 – 2	AC 223
	Thursday	1 – 2	AC 223
	Friday	11 – 12	AC 223
LEC60	Online lecture		

LAB PRACTICAL SCHEDULE (date/time and locations on pg. 9)

*NOTE: Lab 1 is the field trip exercise and will be available Sept 5th – 15th and does not require you to attend your regular practical until Lab 2.

Week	Lab #	Practical	Dates (2017)
1	2	Odd numbered practicals (eg. P0001, P0003, P0005....)	Sept 11 th – 14 th
2	2	Even numbered practicals (eg. P0002, P0004, P0006....)	Sept 18 th – 22 nd
1	3	Odd numbered practicals	Sept 25 th – 28 th
2	3	Even numbered practicals	Oct 2 nd – 5 th
READING WEEK → NO CLASSES			Oct 9 th – 12 th
1	4	Odd numbered practicals	Oct 16 th – 19 th
2	4	Even numbered practicals	Oct 23 rd – 26 th
1	5	Odd numbered practicals	Oct 30 th – Nov 2 nd
2	5	Even numbered practicals	Nov 6 th – 9 th
1	6	Odd numbered practicals	Nov 13 th – 16 th
2	6	Even numbered practicals	Nov 20 th – 23 rd

NOTE: Practicals 0041 to 0044 run on Mondays; see pg. 9 for more details

PRACTICAL	Week	Day	Time	Lab
P0001	1	Tuesday	9am to 12pm	SW-237
P0002	2	Tuesday	9am to 12pm	SW-237
P0003	1	Tuesday	9am to 12pm	SW-240
P0004	2	Tuesday	9am to 12pm	SW-240
P0005	1	Tuesday	12pm to 3pm	SW-237
P0006	2	Tuesday	12pm to 3pm	SW-237
P0007	1	Tuesday	12pm to 3pm	SW-240
P0008	2	Tuesday	12pm to 3pm	SW-240
P0009	1	Tuesday	3pm to 6pm	SW-237
P0010	2	Tuesday	3pm to 6pm	SW-237
P0011	1	Tuesday	3pm to 6pm	SW-240
P0012	2	Tuesday	3pm to 6pm	SW-240
P0013	1	Tuesday	6pm to 9pm	SW-237
P0014	2	Tuesday	6pm to 9pm	SW-237
P0015	1	Tuesday	6pm to 9pm	SW-240
P0016	2	Tuesday	6pm to 9pm	SW-240
P0017	1	Wednesday	10am to 1pm	SW-237
P0018	2	Wednesday	10am to 1pm	SW-237
P0019	1	Wednesday	10am to 1pm	SW-240
P0020	2	Wednesday	10am to 1pm	SW-240
P0021	1	Wednesday	1pm to 4pm	SW-237
P0022	2	Wednesday	1pm to 4pm	SW-237
P0023	1	Wednesday	1pm to 4pm	SW-240
P0024	2	Wednesday	1pm to 4pm	SW-240
P0025	1	Thursday	9am to 12pm	SW-237
P0026	2	Thursday	9am to 12pm	SW-237
P0027	1	Thursday	9am to 12pm	SW-240
P0028	2	Thursday	9am to 12pm	SW-240
P0029	1	Thursday	12pm to 3pm	SW-237
P0030	2	Thursday	12pm to 3pm	SW-237
P0031	1	Thursday	12pm to 3pm	SW-240
P0032	2	Thursday	12pm to 3pm	SW-240
P0033	1	Thursday	3pm to 6pm	SW-237
P0034	2	Thursday	3pm to 6pm	SW-237
P0035	1	Thursday	3pm to 6pm	SW-240
P0036	2	Thursday	3pm to 6pm	SW-240
P0037	1	Thursday	6pm to 9pm	SW-237
P0038	2	Thursday	6pm to 9pm	SW-237
P0039	1	Thursday	6pm to 9pm	SW-240
P0040	2	Thursday	6pm to 9pm	SW-240
P0041	1	Monday	1pm to 4pm	SW-237
P0042	2	Monday	1pm to 4pm	SW-237
P0043	1	Monday	1pm to 4pm	SW-240
P0044	2	Monday	1pm to 4pm	SW-240

Course Regulations

Attendance at Lectures

It is **highly recommended that you attend all scheduled lectures**. In order to get maximum benefit from the lectures in this course, students are advised to:

- **read the relevant sections in your textbook before the lecture** (see lecture schedule). 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
- **download posted lecture material** from Blackboard before each lecture
- **come to lecture and take your own notes** with the aim of understanding the main concepts covered
- re-read the relevant sections in your textbook as needed after lecture and create your own study notes; review your notes frequently
- **arrange to see the Instructor and/or BIO-Lecture Help TA** during scheduled office hours or by appointment if having difficulties understanding material covered in lectures

Attendance in Labs

Attendance in the labs is required to get credit for that lab and any associated work. **Labs 2 – 6 will start with a quiz** on the lab background information so **BE ON TIME!** If you arrive at your lab within 10 minutes of the scheduled start time (ie. between the top of the hour and 10 after the hour), you may write the quiz in the time remaining. The lab door will close at the end of the quiz while the TA introduces the lab. If you arrive late and the door is closed, you will have missed the pre-lab talk by the TA and will not be allowed to participate in the lab. If you are more than 10 minutes late or miss your lab entirely, **you may discuss your situation with the Course Coordinator, Karolyn Keir.**

You are only allowed to miss one lab practical with valid documentation during the course of the term. Any labs missed without valid documentation or any subsequent labs missed will be assigned a grade of zero for any associated work.

Students who attend lab practicals that they are not registered in (without prior discussion with the Course Coordinator) will be assigned a grade of zero for any associated work. You must attend the practical that you are registered in!

You will not be allowed to submit lab reports for labs that you have not attended. Any reports / assignments / FLRs with permission to be submitted late must be given to the Course Coordinator and will be assessed the appropriate late penalty (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 material will be posted on Blackboard; assignments will not be accepted on either Saturdays or Sundays.

Tests / Exams

If you cannot attend Friday evening or Saturday midterm 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.

Students who miss the midterm test must contact the Course Coordinator within 3 days of the scheduled exam (via e-mail). Only students with a valid, documented and verifiable reason will be given consideration for a make-up midterm test. **Documentation must apply to the date/time of the originally scheduled test.** Please note that the format of the make-up may differ from the original while covering the same content.

Students who miss the final exam 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 Winter 2018 Exam Period. Please note that the format of the DFE may differ from the original while covering the same content.

Required documentation for Missed Term Work (eg. assignments/labs/tests)

In order to be eligible for consideration for a missed term test or for missed lab work, students must provide a valid documented reason **to the Course Coordinator within 1 week of the missed evaluation.** Note: photocopies of term work will be graded ZERO; all work submitted must be original.

For medical reasons, **the attending physician (who must be registered with the COLLEGE OF Physicians and Surgeons) must complete the Standard University of Toronto Medical Certificate.** Copies of the standard certificate can be found by following the link below:

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

The date/time of the original lab/test that was missed MUST BE CLEARLY INDICATED as well as a clear statement of the medical problem. Make sure that your name and student number are clearly indicated.

For other reasons (death in family, car accident/problems, transportation issues, students must provide verifiable documentation as appropriate to the situation and discuss the situation with the Course Coordinator as soon as possible. Students should always get valid and verifiable documentation for any situation that causes them to miss any course-related work.

NOTE: reasons such as work, vacation, sleeping in, other tests/exams and assignments in other courses are NOT ACCEPTABLE reasons for not completing work in BIO A01.

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 approach the instructor in BIO A01 and/or the AccessAbility Services Office (Room SW302) 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 BIO A01 is based on term work; the evaluation breakdown is given on page 5. 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.utsc.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).