

# BIO A01H3 Y

## *Life on Earth: Unifying Principles*

### Summer 2017 - COURSE SYLLABUS

#### Objectives and Outcomes

The primary goal of this UTSC course (BIO A01) is to provide students with the strong foundation needed to become a successful biologist. During the term you will learn:

1. the major principles of cellular organization and metabolic processes, the principles of gene action and inheritance; and the fundamentals of evolution, speciation and population genetics;
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. Cell Biology, Genetics and Evolutionary Biology). BIO A01 consists of thirty-six lectures on Biology content (three 50-minute lectures in one 3-hour session per week) and five labs (one 3-hour lab practical every two weeks throughout the term). The Biology lectures are on Tuesdays 12:00pm – 3:00pm in SW143.

There are **three modules consisting of approximately 12 lectures per module**. The **first 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 **second 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 **third module** will examine evolution as the framework in modern biology, and topics such as population, genetics, cladistics and speciation. The diversity of life is emphasized throughout this course with emphasis on prokaryotes, viruses/prions and protists covered during the “Tree of Life” lectures.

The Lab practicals will be scheduled on Tuesdays or Wednesdays (Labs are scheduled on Wednesdays only if supported by class enrollment) in SW240. See the attached schedule (on page 8) 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 <sup>1</sup>	Office and Office Hours <sup>2</sup>
Dr. Karen Williams	Instructor	E-mail: <a href="mailto:biolife@utsc.utoronto.ca">biolife@utsc.utoronto.ca</a> (include Williams in subject)	P104, RM 110 Hours: TU 5-6pm FR 2-3pm & TU 3-3:30pm (outside SW143)
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: <a href="mailto:biolife@utsc.utoronto.ca">biolife@utsc.utoronto.ca</a> (include Keir and A01 in subject) <sup>3</sup>	SW238 Hours: TU 3-4pm TH 3-4pm
Nicole Alber	Lecture/Lab – BIO Help TA	<a href="mailto:nikki.alber@utoronto.ca">nikki.alber@utoronto.ca</a> (include Biohelp in subject)	Please see Blackboard.
	Laboratory TA	TBA in your first lab	

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

<sup>2</sup>All Course Personnel are only available in their offices during stated office hours

<sup>3</sup>Karolyn 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 course webpage provided on Blackboard. Information such as contact information and office hours, lecture outlines and notes, assignment instructions, test dates and location and other useful resources will be posted on Blackboard throughout the semester. Announcements and the video-taped lectures will be posted on Blackboard. Exam marks will also be posted to the Blackboard course webpage.

Each lab practical section also has its own Blackboard webpage; TAs will post information related to their Lab practicals and course assignments on this webpage. Please check the BIO A01 course webpage frequently!

Always check the BIO A01 course webpage for information before contacting the Instructor, Course Coordinator or your TA.

**Students will use their UTORid to log on to the BIO A01 webpage. Log onto Blackboard by clicking the “Blackboard Portal” link on the UTSC homepage.**

### 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 Instructor and the Course Coordinator, please e-mail:

[biolife@utsc.utoronto.ca](mailto:biolife@utsc.utoronto.ca)

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

Please do not use professors' e-mail addresses for BIO A01 communication! 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 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* (2<sup>nd</sup> ed.) W.H. Freeman & Company: Macmillan Education Imprint. 1096pp.

### 2) LaunchPad Access (online learning tool)

LaunchPad is an additional, online supplement to help you master the material presented in BIO A01. With this digital resource (which accompanies the Morris 2<sup>nd</sup> edition textbook), you will have access to some exciting learning resources such as animations, videos, quizzes and simulations that can help your understanding and knowledge in BIO A01. You can purchase and access LaunchPad a few different ways:

- Packaged at no extra cost with the loose-leaf text (approx. \$129.99) or hard-cover text (approx. \$172.99) 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) Lab Manual

The lab manual is a separate e-publication that is required for all Lab Practicals. It is titled:

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

The lab manual can only be obtained from the Blackboard webpage in the folder labelled 'BIO A01 Lab Manual Summer 2017'. **The lab manual is not 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.

### 4) 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; refer to your manual for details). Disposable gloves and other supplies will be provided in the labs as needed. Students should bring pencils, pens, markers, rulers, erasers 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 twelve 3 – hour lectures and five 3 – hour labs. Students will be evaluated through quizzes, assignments, a formal lab report, a midterm and a final exam. All tests will be cumulative and use a multiple–choice question and short answer format. The time/date and location will be announced later and posted on the BIO A01 Blackboard webpage.

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

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

**Labs: Five labs x 3% each = 15% of final grade**  
**Laboratory Assignment = 3% of final grade**  
 (This will be handed out in Lab 5 and is due at a date to be announced; no late assignments will be accepted)

**Formal Lab Report (FLR) = 7% of final grade**  
 (Will be due in June, exact date will be made available in May)  
 A late penalty of 10% per day including weekends will apply. Your FLR will be submitted to Turnitin through Blackboard; failure to do so or failure to submit a Turnitin readable document will **result in a grade of zero for the FLR.**

**Lecture component of final grade = 75% (see breakdown below)**

**Quests = 5% of final grade**  
 (6 Blackboard online pop-quiz-tests)  
**Midterm (in-class on June 20<sup>th</sup>) = 30% of final grade**  
**Final Exam = 40% of final grade**

Statement regarding use of Turnitin

In BIO A01Y Summer 2017 we will be using Turnitin.com (through Blackboard) for the submission of the FLR. 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*)

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

### B. Lab Topics

Lab 1: Effect of Light Spectrum on Photosynthesis

Lab 2 and 3: Using a Single Nucleotide Polymorphism to Predict Bitter Tasting Ability & Investigating Mendelian Inheritance

Lab 4: Introduction to Microscopy using Algae

Lab 5: Reconstructing Evolutionary Relationships using the Principles of Parsimony

## Summer 2017 – Important Dates

<b>Monday, May 1</b>	Classes begin in F and Y courses.
<b>Sunday, May 7</b>	Last day for students writing deferred examinations in August to adjust their current course load (on ACORN only).
<b>Sunday, May 7</b>	Last day to add F and Y courses (for ACORN only).
<b>Monday, May 22</b>	Victoria Day → University closed.
<b>Monday, June 5</b>	Last day to drop F courses without academic penalty and have them removed from the transcript.
	Last day to add or remove the CN/NCR mode of assessment (on ACORN) for an F section course. (Note: for details go to <a href="http://www.utsc.utoronto.ca/registrar">www.utsc.utoronto.ca/registrar</a> )
<b>Monday, June 12</b>	Last date 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 assigned whether or not course work is completed (with a '0' assigned for incomplete work) and are calculated into GPAs. (Note: see <a href="http://www.utsc.utoronto.ca/registrar">www.utsc.utoronto.ca/registrar</a> for LWD dates for courses on other campuses)
	Last day of classes and last day for submission of term assignments in F courses.
<b>Tuesday, June 13 – Saturday June 17</b>	Reading Week (Note: Classes or exams may be held on other campuses).
	Final examinations in F courses.
<b>Monday, June 19</b>	Classes begin in S courses and resume in Y courses.
<b>Sunday, June 25</b>	Last day to add S courses.
<b>Monday, July 3</b>	Canada Day → University closed.
<b>Monday, July 17</b>	Last day to drop Y courses without academic penalty and have them removed from the transcript.
	Last day to add or remove the CN/NCR mode of assessment (on ACORN) for a Y section course. (Note: For details go to <a href="http://www.utsc.utoronto.ca/registrar">www.utsc.utoronto.ca/registrar</a> )
<b>Monday, July 24</b>	Last day to drop S courses without academic penalty and have them removed from the transcript.
	Last day to add or remove the CN/NCR mode of assessment (on ACORN) for an S section course. (Note: For details go to <a href="http://www.utsc.utoronto.ca/registrar">www.utsc.utoronto.ca/registrar</a> )
<b>Monday, July 31</b>	Last date to drop UTSC S and Y 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 assigned whether or not course work is completed (with a '0' assigned for incomplete work) and are calculated into GPAs. (Note: see <a href="http://www.utsc.utoronto.ca/registrar">www.utsc.utoronto.ca/registrar</a> for LWD dates for courses on other campuses)
	Last day of classes and last day for submission of term assignments in S and Y courses.
<b>Tuesday, August 1 – Saturday, August 5</b>	Study Break.
<b>Tuesday, August 1 – Saturday August 19</b>	Winter session deferred examinations.
<b>Monday, August 7</b>	Civic Holiday → University closed.
<b>Tuesday, August 8 – Saturday, August 19</b>	Final examinations in S and Y courses.
<b>Monday, August 14</b>	Last day to confirm intention to graduate at the 2017 Fall Convocation.
<b>November TBA</b>	2017 Fall Convocation. Check "Ceremony dates" at <a href="http://www.convocation.utoronto.ca">http://www.convocation.utoronto.ca</a> for the date of the UTSC ceremony.

## PRACTICAL SCHEDULE

<b>Week</b>	<b>Lab #</b>	<b>Practical</b>	<b>Dates (2017)</b>
<b>1</b>	<b>1</b>	<b>Odd numbered practicals</b> (eg. P0001, P0003, P0005....)	May 1 <sup>st</sup> – 5 <sup>th</sup>
<b>2</b>	<b>1</b>	<b>Even numbered practicals</b> (eg. P0002, P0004, P0006....)	May 8 <sup>th</sup> – 12 <sup>th</sup>
<b>1</b>	<b>2</b>	<b>Odd numbered practicals</b> (eg. P0001, P0003, P0005....)	May 15 <sup>th</sup> – 19 <sup>th</sup>
<b>2</b>	<b>2</b>	<b>Even numbered practicals</b> (eg. P0002, P0004, P0006....)	May 23 <sup>rd</sup> – 26 <sup>th</sup>
<b>1</b>	<b>3</b>	<b>Odd numbered practicals</b> (eg. P0001, P0003, P0005....)	May 29 <sup>th</sup> – June 2 <sup>nd</sup>
<b>2</b>	<b>3</b>	<b>Even numbered practicals</b> (eg. P0002, P0004, P0006....)	June 5 <sup>th</sup> – 9 <sup>th</sup>
<b>READING WEEK -&gt; NO LABS</b>			June 12 <sup>th</sup> – 16 <sup>th</sup>
<b>1</b>	<b>4</b>	<b>Odd numbered practicals</b> (eg. P0001, P0003, P0005....)	June 19 <sup>th</sup> – 23 <sup>rd</sup>
<b>2</b>	<b>4</b>	<b>Even numbered practicals</b> (eg. P0002, P0004, P0006....)	June 26 <sup>th</sup> – 30 <sup>th</sup>
<b>1</b>	<b>5</b>	<b>Odd numbered practicals</b> (eg. P0001, P0003, P0005....)	July 4 <sup>th</sup> – 7 <sup>th</sup>
<b>2</b>	<b>5</b>	<b>Even numbered practicals</b> (eg. P0002, P0004, P0006....)	July 10 <sup>th</sup> – 14 <sup>th</sup>

## 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 you're having difficulties understanding the concepts covered in lectures

### Attendance in Labs

Attendance in the labs is required to get credit for that lab and any work associated with the lab. Labs 2-5 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, you may write the quiz in the time remaining. The lab door will be closed 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 other labs missed will be assigned a grade of zero for any associated work. Any labs missed without valid documentation will be assigned a grade of zero.

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/assignments 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.utoronto.ca/registrar/deferred-exams](http://www.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 December 2017 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.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 the student's 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 or [ability@utsc.utoronto.ca](mailto:ability@utsc.utoronto.ca) or visit their website ([www.utsc.utoronto.ca/ability](http://www.utsc.utoronto.ca/ability)).

### 3) Information on Religious Observances

It is a 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 in this document. 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).**