

BIO A01F - *Life on Earth: Unifying Principles*

Fall 2012

COURSE SYLLABUS

Welcome to Introductory Biology at UTSC!

Objectives and Outcomes

The primary goal of this UTSC course (BIO A01F) 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 in science;
- (4) to combine the learning objectives mastered in items 1 to 3 to read relevant biology research articles, analyze data, communicate experimental results and to construct a biology knowledge-scaffold to serve as the foundation for upper year studies in the areas of cellular, molecular, physiological and evolutionary biology studies.

Overview

BIO A01F is taught in the Fall Term (September to December) and consists of thirty-six lectures on Biology content (three 50-minute lectures per week), 1 field trip (in the first week of classes) and five labs (one 3-hour lab practical every two weeks for the remainder of term).

The **Biology Lectures are on Tuesday, Thursday and Friday** (at times depending on your Lecture Section (LEC01 or LEC02)). There are **three modules consisting of 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 role of mitochondria and chloroplasts in cell metabolism is considered. 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 the prokaryotes, viruses/prions and protists.

The **Biology Labs are scheduled on Tuesdays, Wednesdays and Thursdays** (at times depending on your Practical Section (P0001 to P0036)). These labs are led by teaching assistants (TAs) and are designed to provide students with opportunities to develop a variety of important skills that will be beneficial throughout their university experience in biology. The key concepts in science writing, math, statistics and critical thinking that experience tells us are required to complete BIO A01F successfully will be integrated into the course content.

Course Personnel

There are **several key people** you should get to know in this course: (1) the Instructors, (2) the Course Coordinator, (3) the Bio-Help TAs, and (4) your Lab Practical TA.

(1) Instructors

You may contact Instructors or the BioHelp TA with questions about Lecture content and exams.

- **Dr. Bebhinn Treanor** is the Instructor for the first module of A01F for the Fall 2012 Term.

Office: **SW567**

Office Hours: **Tues. 2 pm – 4pm.** see also Module 1 Lecture Schedule

- **Dr. Karen Williams** is the Instructor for the second module of A01F for the Fall 2012 Term.

Office: **SW540B**

Office Hours: **Fri. 1- 3 pm** by Dr. Williams, see Module 2 Lecture Schedule

- **Dr. Mark Fitzpatrick** is the Instructor for the third module of A01F for the Fall 2012 Term.

Office: **SW 558**

Office Hours: **TBD** by Dr. Fitzpatrick, see Module 3 Lecture Schedule

All emails must be addressed to biolife@utsc.utoronto.ca. PLEASE INCLUDE Instructor Last Name in Subject Line, LEC01 or LEC02, AND your Student Number in email!!

Please send all emails from your University Email Accounts! Emails sent from outside accounts will not be answered.

(2) Course/Lab Coordinator

- **Dr. Robin Marushia** is the Course Coordinator for BIO A01F for the Fall 2012 Term. Dr. Marushia will deal with matters such as late enrollment, drop dates, missed tests, missed labs, marks management and general advising as related to the course as a whole.

Office: **SY246**

Office Hours: **by Appointment**

Email: biolife@utsc.utoronto.ca (include Marushia in subject line, see above!)

(3) Teaching Assistant (TA) – Bio-Help TA’s

There is a Teaching Assistant who will attend lectures, and who will be familiar with the lab content. This **Bio-Help TA will be available in the Library to answer your questions about course content and help with problems encountered with lab assignments.** The **times and locations when the Bio-Help TA is available in the Library will be posted on the Course Webpage (Blackboard and Intranet)** throughout the Fall 2012 Semester. Check for updates as the available hours will change as students’ needs change during the term.

Bio-Help TA: Julie Helson

Office: **Library, room AC254 (office hours only)**

Office Hours: **TBD (see Blackboard)**

Email: **biolife@utsc.utoronto.ca** (address “Helson” in Subject line.)

A second Bio-Help TA will be involved with administrative duties such as marks and exam processing; students will be informed if the second BIO-Help TA is also available for office hours.

(4) Teaching Assistant (TA) – Lab TA

The **BIO A01F Labs are located in Rooms SW-237 and SW-240.**

*Students **must attend the specific Practical (Lab Section) in which they are registered.***

Each lab is led by a **Teaching Assistant (= TA)**, who will guide you through the lab exercises/experiments. Learn your Teaching Assistant’s name and use the email address provided by your TA on BlackBoard to contact your TA if you have questions/concerns regarding your labs or lab assignments.

Communication within BIO A01F

The **key source for information for BIO A01F is on the Course Webpage provided on Blackboard.** Information such as Instructors’ contact information and office hours, biology lecture outlines and notes, assignment instructions, test dates and locations and other useful resources will be posted on Blackboard throughout the course. Lab information and marks will also be posted on Blackboard. Announcements for BIO A01F will be posted on Blackboard, so **make sure you set Blackboard to inform you when updates are made to the BlackBoard Course Page.** Always check the BIO A01F Course Webpage for information *before* contacting the Instructors/Coordinators or TAs.

Students should use their UTORid and password to log onto Blackboard.

Log onto Blackboard by clicking the “Portal” link on the UTSC Homepage.

NOTE: You will need a UTSC computer account in order to logon onto Blackboard.

- **Always use biolife@utsc.utoronto.ca for Instructors and Course Coordinator.**
- **Address emails to Lab TA's using their individual accounts (see Blackboard).**
- **Always use your UTSC email address** for contacting the Instructors, the Course/Lab Coordinator, and the Teaching Assistants (TAs).
Emails from other email addresses WILL NOT be answered.
Include the Instructor in the "Subject Line"

Course Materials:

(A) Textbooks and Lab Manual

1. The complete **Textbook Package can be purchased at the UTSC Bookstore** located above Tim Horton's in the Bladen Wing. It includes the following items:

(1) The **Textbook** for BIO A01F is:

Russell PJ, Wolfe SL, Hertz PE, Starr C, Fenton B, Addy H, Maxwell D, Haffie T, Davey K.
2012. Biology: exploring the diversity of life. (2nd Canadian ed.). 3-volume paperback.
Toronto: Nelson Education Ltd. 1256 p.

Textbook Policy: *We strongly recommend that students use the recommended textbook, but it is not required. Although the 2nd and 1st Eds. have much in common, the material in some chapters has changed substantially and Lecture material may refer to specific page numbers and Figures in the textbook. Therefore having the 2nd Ed. may improve your ability to follow the Lectures and study effectively. Previous textbooks will not include an ebook or Coursemate Study Guide. Regardless of the textbook you use, you are responsible for learning the material as presented in Lecture.*

(2) **Coursemate** is an additional, online supplement to help you master the material presented in BIO A01F.

(3) The **Textbook Website (ebook)** developed by the Publisher of the textbook has additional resources that students will find useful in both introductory biology courses (BIO A01F and BIO A02S). An Access Code to this site is included.

2. The **Lab Manual** is a separate publication that **can be purchased at the UTSC Bookstore** (available in mid-September 2011). The **2012 Lab Manual is required for all Lab Practicals**:

Rush S., E. Gladilina and R. Marushia. 2012. BIO A01F - Life on earth: unifying principles - lab manual for fall 2012. Toronto, Ontario: University of Toronto Scarborough Printing Services. 126 p.

Photocopies of old, and now out-of-date, lab manuals are NOT ACCEPTABLE.

(B) Lab Coats / Protective Eyewear

Lab coats are required for all Biology labs at UTSC; protective eyewear is required for some labs as indicated in your Lab Manual. **Lab coats and protective eyewear are sold in various locations on campus (BioSA, EPSA, Bookstore). Refer to your Lab Manual (and BIO A01 webpages) for details for locations and times.** Plastic 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.**

(C) Statement regarding Use of Turnitin

We will be using the program “Turnitin” for the submission of the Formal Lab Reports in BIO A01F. You will be provided login information by your Lab TA later in the term. For now, 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 essays 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 web site”.

Course Organization

The content in **BIO A01F** will be delivered through thirty-six 50-minute Biology lectures, 1 field trip (in the first week of classes) and five 3-hour labs. Students will be evaluated through quizzes, assignments, a formal lab report, two term tests and a final exam.

The students’ understanding of the material covered in the first module of the course (taught by Dr. Treanor) will be evaluated on a **term test**, using a multiple-choice question format. This test will be scheduled around early- to mid-October 2012; the date/time and location will be announced later and posted on the BIO A01F Course Webpage on Blackboard.

The students’ understanding of the material covered in the second module of the course (taught by Dr. Williams) will be evaluated on a **term test**, using a multiple-choice question format. This test will be scheduled around early- to mid-November 2012; the date/time and location will be announced later and posted on the BIO A01F Course Webpage on Blackboard.

The students’ understanding of the material covered in the third module of the course (taught by Dr. Fitzpatrick) will be evaluated on the **final exam**. The final exam is cumulative and will also include material from the ‘tree of life’ lectures and the labs. The final exam will also use a multiple-choice question format and will be scheduled in the UTSC Exam Period in December 2012; the details will be announced later and posted on the BIO A01F Course Webpage on Blackboard.

Course Evaluation

The final grade in BIO A01F will be determined as follows:

Labs - Module 1	10 %	of final grade
- Module 2	10 %	of final grade
- Module 3	10 %	of final grade
Mid-Term Test # 1 (Module 1)	20 %	of final grade
Mid-Term Test # 2 (Module 2)	20 %	of final grade
Final Exam (Module 3 +Tree of Life)	30 %	of final grade

Course Content

1. Lecture Topics

Module 1: Cell Biology and Metabolism

See Dr. Treanor Lecture Schedule

Module 2: Gene Action and Inheritance

See Dr. Williams Lecture Schedule

Module 3: Population Genetics and Evolution

See Dr. Fitzpatrick Lecture Schedule

Lecture

		<u>TIME</u>	<u>ROOM</u>
LEC01	TUES.	11:00 12:00	AA 112
	THURS	11:00 12:00	AA 112
	FRIDAY	10:00 11:00	AC 223
LEC02	TUES.	13:00 14:00	AC 223
	THURS	13:00 14:00	AC 223
	FRIDAY	12:00 13:00	AC 223

2. Lab Topics (Schedule, see pgs. 9 and 10)

Lab 1: Field Trip: Appreciating the Diversity of Life

Lab 2: Effect of Light and CO₂ Availability on Photosynthesis and Data Collection for Lab Report

Lab 3: DNA Extraction and Preparation of DNA Samples for PCR

Lab 4: Gel Electrophoresis of PCR Products and Data Analysis

Lab 5: Introduction to Microscopy using Algae

Lab 6: Classification, Phylogeny and the Comparative Method

Course Regulations

1. Attendance at Lectures

Attendance at the Lectures is **very highly recommended**. However students will also have the option to watch webcasts of the lectures online throughout the term. 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 Instructor mini-syllabi for Textbook references. 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
- to download any posted LECTURE material from the BIO A01F Webpage **before** each Lecture
- to come to the Lecture and **take your own notes** with the aim of understanding the main concepts covered; or watch the Lecture Webcast posted on Blackboard and **take your own notes**
- to re-read the relevant sections in your Textbook as needed **after** the Lecture and create your own study notes; review your notes frequently
- to arrange to see the Instructor(s) and/or Bio-Help TA, during scheduled office hours or by appointment, if you realize that you do not understand the concepts covered in the lectures or labs.

2. Attendance at Labs

Attendance in the Labs is required in order to get credit for that lab and any work associated with the lab. Labs will start with a weekly quiz on the lab activities. If you arrive at your lab late after the Lab door has been closed, you will have a zero mark on the Quiz and will not be admitted to the lab.

If you are late for a Lab or if you miss a Lab entirely, you may **discuss your situation with the Course Coordinator**, Dr. Robin Marushia.

You **will not be allowed to submit lab work for any Labs that you have not attended without a valid and documented reason, approved by Dr. Marushia.** Any lab work that you are allowed to submit late must be given to the Course Coordinator and will be assessed the appropriate late penalty (10% of the value of the work per day); **work will not be accepted if more than 5 days late.**

3. Tests / Exams

If you cannot attend Friday evening or Saturday tests / exams for religious reasons, please notify the Course Coordinator, Dr. Robin Marushia, in writing (by email) **within one week of the announced test or exam date**; an alternative time will be presented if appropriate.

If you miss the term test, the Course Coordinator, Dr. Marushia, must be **contacted within 72 hours (or 3 days) of the scheduled test in writing (by email)**. Only students with a note *from the UTSC Health Centre*, or a personal documented excuse (of an extreme nature) will be given any consideration for a make-up term test. Documentation must apply to the date/time of the original test. (**Note:** The format of the make-up test may differ from the original test while covering the same content).

Students who miss the final exam must contact the Registrar's Office at:

http://www.utsc.utoronto.ca/~registrar/current_students/deferred_exams

and follow the procedures outlined in order arrange to write a deferred final exam. The deferred final exam will be scheduled by the Registrar's Office during the April 2013 Exam Period. (Note: The format of the deferred final exam may differ from the original final exam while covering the same content).

4. Required Documentation for Missed Term Work (e.g. Assignments, Labs, Tests)

In order to be eligible for consideration for a missed term test or to receive credit (whole/partial) for missed labs (and associated assignments), students must provide a valid documented reason **to the Course Coordinator, Dr. Marushia, as soon as possible upon returning to UTSC.**

For medical reasons, the **attending physician must complete** the standard **University of Toronto Medical Certificate**. Copies of the standard University of Toronto Medical Certificate are available on the UTSC Registrar Office Website (see below). The date/time of the Lab or Test must be clearly indicated as well as a clear statement of the medical problem requiring the student's absence.

The University of Toronto Medical Certificate

can be downloaded from the following link:

http://www.utsc.utoronto.ca/~registrar/resources/pdf_general/UTSCmedicalcertificate.pdf

Students must present the completed Medical Certificate to the Lab Coordinator as soon as possible upon returning to UTSC and before any consideration will be given for missed work!

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, Dr. Marushia, as soon as possible.**

Students should always get valid and verifiable documentation for any situations that cause them to miss any course deadlines or commitments or tests.

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 this BIO A01F.

5. Procedures regarding Final Marks

The final mark in BIO A01F is based on term work (e.g. lab assignments, formal lab report, quizzes, mid-term test and a final exam; the evaluation breakdown is given in the Syllabus under "Course Evaluation". After the final exam, final marks are calculated and submitted to the Department of Biological Science for review. Once approved, the final mark for each student in the course will be released on ROSI.

NOTE: 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:

http://www.utsc.utoronto.ca/~registrar/current_students/petitions#deadlines

NOTE: There are no options to do special assignments or other work in order to raise a final mark; once **the final mark has been processed and released on ROSI, it is the final mark in BIO A01F.**

PRACTICAL SCHEDULE

WEEK #	LAB #	PRACTICALS	DATE (2012)
0	0	No Practicals (P0001 to P0035)	Sept. 10 to Sept. 13
N/A	1	All-numbered Practicals (P0001 to P0036)	Sept. 18 to Sept. 21 (AS INSTRUCTED, outdoor field)
1	2	Odd-numbered Practicals (e.g. P0001, P0003, P0005 . . .P0033, P0035)	Sept. 25 to Sept. 27
2	2	Even-numbered Practicals (e.g. P0002, P0004, P0006 . . .P0034, P0036)	Oct. 2 to Oct. 4
1	3	Odd-numbered Practicals (e.g. P0001, P0003, P0005 . . .P0033, P0035)	Oct. 9 to Oct. 11
2	3	Even-numbered Practicals (e.g. P0002, P0004, P0006 . . .P0034, P0036)	Oct. 16 to Oct. 18
1	4	Odd-numbered Practicals (e.g. P0001, P0003, P0005 . . .P0033, P0035)	Oct. 23 to Oct. 25
2	4	Even-numbered Practicals (e.g. P0002, P0004, P0006 . . .P0034, P0036)	Oct. 30 to Nov. 1
1	5	Odd-numbered Practicals (e.g. P0001, P0003, P0005 . . .P0033, P0035)	Nov. 6 to Nov. 8
2	5	Even-numbered Practicals (e.g. P0002, P0004, P0006 . . .P0034, P0036)	Nov. 13 to Nov. 15
1	6	Odd-numbered Practicals (e.g. P0001, P0003, P0005 . . .P0033, P0035)	Nov. 20 to Nov. 22
2	6	Even-numbered Practicals (e.g. P0002, P0004, P0006 . . .P0034, P0036)	Nov. 27 to Nov. 29

PRACTICAL	Week	Day	Time	Lab
P0001	1	Tuesday	12 to 3 p.m.	SW-237
P0002	2	Tuesday	12 to 3 p.m.	SW-237
P0003	1	Tuesday	12 to 3 p.m.	SW-240
P0004	2	Tuesday	12 to 3 p.m.	SW-240
P0005	1	Tuesday	3 to 6 p.m.	SW-237
P0006	2	Tuesday	3 to 6 p.m.	SW-237
P0007	1	Tuesday	3 to 6 p.m.	SW-240
P0008	2	Tuesday	3 to 6 p.m.	SW-240
P0009	1	Tuesday	6 to 9 p.m.	SW-237
P0010	2	Tuesday	6 to 9 p.m.	SW-237
P0011	1	Tuesday	6 to 9 p.m.	SW-240
P0012	2	Tuesday	6 to 9 p.m.	SW-240
P0013	1	Wednesday	10 a.m. to 1 p.m.	SW-237
P0014	2	Wednesday	10 a.m. to 1 p.m.	SW-237
P0015	1	Wednesday	10 a.m. to 1 p.m.	SW-240
P0016	2	Wednesday	10 a.m. to 1 p.m.	SW-240
P0017	1	Wednesday	1 to 4 p.m.	SW-237
P0018	2	Wednesday	1 to 4 p.m.	SW-237
P0019	1	Wednesday	1 to 4 p.m.	SW-240
P0020	2	Wednesday	1 to 4 p.m.	SW-240
P0021	1	Thursday	9 a.m. to 12 p.m.	SW-237
P0022	2	Thursday	9 a.m. to 12 p.m.	SW-237
P0023	1	Thursday	9 a.m. to 12 p.m.	SW-240
P0024	2	Thursday	9 a.m. to 12 p.m.	SW-240
P0025	1	Thursday	12 to 3 p.m.	SW-237
P0026	2	Thursday	12 to 3 p.m.	SW-237
P0027	1	Thursday	12 to 3 p.m.	SW-240
P0028	2	Thursday	12 to 3 p.m.	SW-240
P0029	1	Thursday	3 to 6 p.m.	SW-237
P0030	2	Thursday	3 to 6 p.m.	SW-237
P0031	1	Thursday	3 to 6 p.m.	SW-240
P0032	2	Thursday	3 to 6 p.m.	SW-240
P0033	1	Thursday	6 to 9 p.m.	SW-237
P0034	2	Thursday	6 to 9 p.m.	SW-237
P0035	1	Thursday	6 to 9 p.m.	SW-240
P0036	2	Thursday	6 to 9 p.m.	SW-240

Important University Policies

The University of Toronto 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 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/Lab Coordinator of any potential conflicts at least 7 days before to the date of the test or due date of the assignment. Failure to do so may result in special consideration not being granted; documentation may be required.

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 Course/Lab Coordinator (Mary Olaveson) or the Instructors in BIO A01F and/or the AccessAbility Services Office as soon as possible. BIO A01F Personnel will work with you and AccessAbility Services to ensure you can achieve your learning goals in this Course. The **UTSC AccessAbility Services Office** is located in **Room SW-302**. Qualified staff is available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations. Note all enquiries are confidential. You can contact **AccessAbility Services** at 416-287-7560 or ability@utsc.utoronto.ca. The sooner you let us know about your needs, the quicker we can help you get the assistance you need in achieving your learning goals in this Course.

3. Information on Academic Integrity

Academic integrity is essential to the pursuit of learning and scholarship in a University, and to ensuring 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 cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters outlines the behaviours (see <http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>) that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

(1) in term-work (e.g. papers, reports and assignments):

- using someone else's ideas or words without appropriate acknowledgement
- submitting your own work in more than one course without the permission of the instructor
- making up sources or facts
- obtaining or providing unauthorized assistance on any assignment

(2) on tests and exams:

- using or possessing unauthorized aids
- looking at someone else's answers during an exam or test
- misrepresenting your identity

(3) in academic work:

- falsifying institutional documents or grades
- falsifying/altering any documentation required by the University, including (but not limited to) doctor's notes

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your Instructor(s) or from other institutional resources (see http://www.utoronto.ca/academicintegrity/resourcesfor_students.html).