# BIOB51 – EVOLUTIONARY BIOLOGY
# WINTER 2020
### COURSE SYLLABUS

**Lectures: Tuesday & Thursday, 10:00-11:00, AC223**
**Tutorial: Thursday, 17:00-19:00, AC223**


**Professor:** **Dr. Mark Fitzpatrick**
biob51@utsc.utoronto.ca
Office: SW558

Office Hours: Mon 11:00-12:00
Thurs 12:00-14:00
Online: Thurs 21:00-22:00
(Bb Collaborate on Quercus)

**Course Coordinator:** **Jennifer Campbell**
jac.campbell@utoronto.ca
Office: SW421D

Office Hours: Mon 10:00-11:00
Tues 14:00-15:00
Wed 14:00-15:00
Thurs 10:00-11:00
Fri by appointment

**TA Support:**
**Course TAs**
Nishant Singh (course content) Online Discussion: tba
Vanessa Luzuriaga (course content) Online Discussion: tba
Menilek Beyene (marking)

**Integrative Poster Assignment**
Madison Marshall Office Hours: tba
bioposterhelp@utsc.utoronto.ca

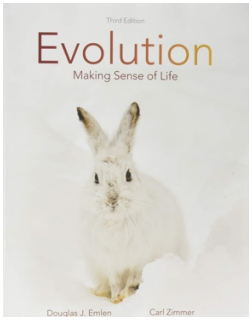

**COURSE DESCRIPTION:** Evolutionary Biology is the study of the diversity, relationships, and change over time in organisms at all scales of organization (from individuals to populations to higher taxonomic groups). The theory and principals of evolutionary biology give critical insight into a wide range of fields, including conservation, medicine, pathogenesis, community ecology, and development. This lecture-based course will give you a firm grounding in modern Evolutionary Biology. Course material i) reinforces the logic and methods that underlie this field, ii) illustrates these with key historical and modern research studies, and iii) makes clear the importance of links to other areas of Life Sciences. This course assumes an introductory-level knowledge of Evolution.

**LEARNING OBJECTIVES:**

1. Understand the basic principles of Evolutionary Biology, and be able to outline links between mechanisms of evolutionary change and patterns of diversity within as well as across species.
2. Be able to suggest appropriate methodologies and approaches for testing predictions arising from hypotheses in different areas of Evolutionary Biology.
3. Be able to explain how Evolutionary Biology links to other fields of Biology.
4. Be able to make logical inferences from a variety of different types of data, and evaluate how well or poorly a given dataset supports an argument or assertion.
5. Be able to identify, read, and evaluate scientific research papers from the primary literature.
6. Understand how to motivate, support, and engage in productive collaborative work in a professional context.

**REQUIRED TEXTBOOK:**

Emlen, D.J. & C. Zimmer (2020) Evolution: Making Sense of Life. 3rd Edition. Macmillan. New York.




**READINGS:** Readings in support of lecture material are on the lecture schedule. You should ensure that you UNDERSTAND everything you read, KNOW the theory and examples outlined in lecture and videos and ensure you can follow the additional examples given in the textbook.

**LECTURE SLIDES:** will be posted to Quercus as pdf files by the night prior to the lecture to allow you to fill in details or refer to figures/tables/references.

*ATTENDING LECTURE AND TAKING EFFECTIVE NOTES*
*ARE CRITICAL FOR SUCCESS!*
*WebOption is not available for this course. Studying from the raw PowerPoint slides is insufficient.*

**Being present in class allows you to ask questions as they arise,**
**or otherwise signal to me the need for more explanation.**
**You will keep up with the course material, know where you need**
**help, and improve my ability to assist your learning.**

**TUTORIALS:** Tutorials are Thursdays from 17:00-19:00 in AC223. Many weeks these are reserved for the integrative poster assignment. Only a couple of tutorials will be specific to BIOB51 (dates TBA).

**ANNOUNCEMENTS**: It is your responsibility to be aware of announcements made in class. Major announcements will be posted to Quercus. Reminders are usually on the first couple of lecture slides.

**GRADING & EVALUATION:**

| | |
|---|---|
| Quizzes<br>'Lock it in' Evo-shorts (2 x 1% each)<br>'Evolution! Documentaries' (2 x 2% each) | 6% |
| Problem Sets 1 & 3 (2 x 2.5% each)<br>(#2 is not marked) | 5% |
| Integrative Biology Poster Assignment | 10% |
| Term Test | 35% |
| Final Exam (comprehensive) | 44% |

**Aids to Understanding: Quizzes & Practice Problems**

**(A) Examinable Videos & Quizzes.** Videos that complement and expand on the lecture material will be made available on the Quercus homepage (see links under the appropriate weekly 'Modules'). *These contain examinable material.*

Examinable Videos.

1. *Evolution! Documentarie*s. (x2). These are full-length films – 'oldies but goodies'– which are excellent reviews of some particular area of Evolutionary Biology. The examples used are classics.
2. *Lock it in! Evolution-Shorts.* (x2). These brief films expand on research in one particular system that is relevant to lecture material. These are intended to 'Lock in' your understanding of lecture material.

Quizzes.
There will be a Quercus quiz associated with each of these videos that will contribute to your final grade (see 'Grading & Evaluation' above) and highlight the examinable material from each video. Each quiz must be completed as outlined on the schedule, usually about a week after it is assigned (see schedule for specific dates). Answer keys will be posted after the due dates and can be used as study guides for quiz material.

**(B) Problem Sets**. Three problem sets will be posted on Quercus during the term. Two of these must be submitted through Quercus and will contribute to your final grade (see 'Grading & Evaluation' above). These problem sets are study tools that test your understanding prior to the term tests & the final exam. They are due by the date/time listed on the schedule, after which answers will be posted.

*Quizzes and Problem Sets will be graded as pass/fail only.*

A **pass (and full marks)** requires that you submit a reasonable attempt at answering every question (whether it is correct or not) by the posted due date and time. You may complete quizzes and practice problem sets in multiple sessions. Quercus will save your answers as you proceed through the quiz. *Be sure to click 'Submit Quiz' only after you have finished all the questions*. Assignments are due by 11pm on the posted due date.

**Quiz & Problem Set Group Work/Collaborators**: Working with others in a study group can be an effective way of exploring your understanding of material. If your preferred learning style involves discussing questions or a video with classmates, that is fine. Note the following mandatory rules for assignment collaboration: (1) you must declare the full names of your collaborators on the quiz or problem set (the last option on each assignment provides this opportunity); (2) while you may discuss questions/problems, *you MAY NOT write the answers collaboratively*. Written answers to questions and the actual calculations *must* be done independently. *Collaboratively written answers are a form of plagiarism, and a violation of the academic code (see below).*

**(C) Ask the Prof!**
**Drop-in Office hours:** Room: SW558; Monday 11:00-12:00 & Thursday 12:00-14:00
This is a great chance to get help, discuss the material, or just think about questions other students are asking. Course content questions may also be submitted to the discussion board.

**Online Office hours:** dates and times TBA
Join online office hours using the 'Bb Collaborate' link on the Quercus navigation bar. This will be moderated by either the TAs or the professor.

**Discussion Board:** There are two discussion boards, one for student communication with each other (I will not comment on discussions on this board), and one which directs comments/questions to me (although students are also welcomed to comment on threads on this board as well). As always, inclusive and civil discussion conforming to the Student code of conduct is expected. Disagreements and challenging opinions are welcome, but harassment or disparagement of others is not acceptable and will be dealt with promptly.

**Email:** You may email questions to biob51@utsc.utoronto.ca. Note that this email is checked once per week, and response time varies accordingly. The email will be monitored by the Instructor and the TAs. Faster responses are possible via Office hours, immediately after lecture, or via the Discussion Board. For course administration questions (e.g., I missed the midterm, I just joined the course) email Jennifer Campbell (jac.campbell@utoronto.ca).

**INTEGRATIVE BIOLOGY POSTER ASSIGNMENT:**
In this assignment you will develop your scientific communication skills by working with a group of peers (collaborators) to create and informative scientific poster which you will present to your peers, professors, and TA's in a poster session modelled on those held at most major scientific conferences. A major goal of this assignment is to recognize and highlight the links between different fields of study in the Biological Sciences. Your poster will explore a topic or question in biology for which insight can be gained by considering empirical research from at least 2 different fields of study (represented by the 3 winter-term B-level core courses in the Department of Biological Sciences at UTSC). More information will be provided on the "Integrative Research Poster Project – Winter 2020" Quercus site and tutorial sessions.

**TERM TEST & FINAL EXAM:**

*Format.*

The Term Test will include 2-3 written answer questions and 40-60 multiple choice and/or matching questions. Topics covered are specified on the lecture schedule, and materials for which you are responsible include lecture material and online video content. The Registrar will schedule the date for the test, likely in the week prior to or after Reading Week, after which the material covered will be confirmed. The Term Test will be 1.5-2 hrs.

The *Final Exam* will consist of approximately 75-95 multiple choice and/or matching questions, will be 3 hrs in duration, and is scheduled by the Registrar during the Final Exam Period. Roughly 2/3 of the exam will focus on material since the Term Test and 1/3 will be an inclusive exam with questions spanning the entire course.

*Content.*

The Term Test and Final Exam will focus on material covered in lecture, assigned videos, and material form the text to which I have specifically directed you during the lecture. Questions will focus on your understanding of theory, hypothesis testing and mechanisms, evidence in support of these, as well as testing your ability to make inferences from novel examples or data. Straight recall of examples or vocabulary will also be required.

The best way to study for these tests is to:

1) do the quizzes and practice problems and be sure you understand the answers,
2) read and think about examples in the text and in lectures – what do they demonstrate and why? To what theory do they apply?
3) discuss, debate, and converse about the course materials with your peers.

**ACADEMIC INTEGRITY:**

The University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (http://www.governingcouncil. utoronto.ca/policies/behaveac.htm) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences in papers and assignments include 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. On tests and exams cheating includes using or possessing unauthorized aids, looking at someone else's answers during an exam or test, misrepresenting your identity, or falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

**ACCESS FOR STUDENTS WITH DISABILITIES:** 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 me and/or the AccessAbility Services Office as soon as possible. AccessAbility Services staff (located in Rm AA142) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations 416-287-7560 or email ability@utsc.utoronto.ca. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

**ENGLISH LANGUAGE SUPPORT:** The academic English used in science texts (and by Professors) tends to be concise with complex grammar that can make it challenging to interpret. Academic English is new to most students in University. If you want help mastering scientific texts, consider taking the free, 20-minute, confidential, Academic English Health Check (AEHC) (link below) and use the free support available at the English Language Development Centre to support your learning (link below).

Academic English Health Check: https://www.utsc.utoronto.ca/eld/academic-english-health-check-aehc
English Language Development Centre: https://www.utsc.utoronto.ca/eld/english-language-development-support-consultations

**MISSED DEADLINES FOR QUIZZES & PROBLEM SETS:**
Since answer keys are posted after the due date, extensions and make-ups are not possible. Failure to submit as specified, on time, and complete will results in a "0" grade for that component. The ONLY exceptions are for students who add the course after an assignment was due or they are registered with AccessAbility. If this is the case, you must contact Jennifer Campbell immediately after adding the course or recognize the need for accommodation.

**MISSED TERM TEST:**
Students that are unable to attend the Term Test for religious reasons, short-term illness, or several personal circumstance must notify the Course Coordinator (Jennifer Campbell) by email within 3 working days and submit documentation. Students that are unable to attend due to an AccessAbility issue should inform that office and Jennifer Campbell to arrange an accommodation. Students who miss the midterm for a medical reason must present a completed UTSC medical certificate (available via the registrar's website) that confirms their illness, and medical attention, at the time of the exam. *Medical certificates will be verified*.

**There will be a single make-up for the Term Test for students with a documented excuse or accommodation, as validated by Jennifer Campbell.** Alternative arrangements are *NOT* possible, except as arranged by AccessAbility. The date of the make-up test will be announced on Quercus and it is the *SOLE RESPONSIBILITY* of the affected student to ensure they are aware of this date. Students that miss a term test with no acceptable, documented excuse will receive a "0" grade for that test. Students that miss a term test and the make-up and have documented, confirmed excuses for both will have their final grades adjusted accordingly.

Students that **miss the Final Exam** must petition the Registrar to write a deferred exam.

**INTELLECTUAL PROPERTY:**
Recording or photographing any aspect of a university course - lecture, tutorial, seminar, lab, studio, practice session, field trip etc. – without prior approval of all involved and with written approval from the instructor is not permitted.

**DISCLAIMER:** The instructor reserves the right to modify this syllabus and lecture schedule as necessary throughout the term to better achieve course objectives and/or enhance the quality of instruction. As such, the lecture and tutorial outlines provided below are tentative. Notification of changes will be made in class and the most up-to-date version will always be the one available on Quercus. You are responsible for being aware of the contents of this syllabus.