SYLLABUS
GENE 3000: Evolutionary Biology (Fall 2020)

Meets Tuesday and Thursday 9:35 – 10:50 a.m.
Taught Synchronously and Remotely *via* Zoom
With 1 additional required discussion section *via* Zoom per week (starting August 24)

For Fall 2020, this course will be taught entirely online with lectures and discussion sections taught synchronously *via* Zoom. There is no attendance requirement for the lecture portion of the class, although quizzes will be given almost every class period and you must be in attendance online to take these quizzes. You are required to attend the discussion section for which you are registered and attendance does count towards your discussion grade.

1) COURSE DESCRIPTION AND PREREQUISITES
An introduction to biological evolution, from the level of genes to species. The prerequisite for this course is BIOL 1107. You should have a firm grasp of Mendelian genetics. Since evolutionary biology has a substantial mathematical component, you should feel comfortable with algebra.

2) COURSE OBJECTIVES AND EXPECTED LEARNING OUTCOMES
Evolution is the major organizing principle of all the life sciences. The National Science Foundation identifies evolution as 1 of only 5 "core concepts for biological literacy." Current research in evolutionary biology is very active, with applications to agriculture, medicine, conservation, computer science and industry. Darwin's description of evolution by natural selection is one of the key intellectual achievements of humanity and all educated people should understand the basic concepts of evolution.

The course objectives are for students to:

A. Be able to explain evolutionary concepts and apply them to new situations, including:
   - The origin and role of genetic variation in populations
   - Adaptive genetic change in populations
   - Non-adaptive genetic change in populations
   - A basic mathematical description of the changes of gene frequencies in a population
   - How evolutionary relationships can be understood using phylogenies
   - Origin and extinction of species and biodiversity
   - Human evolution
   - Evidence for evolution and how evolution is studied

B. Be able to explain evolution concepts to non-biologists.

C. Explain the benefits of research in evolutionary biology to other fields of inquiry.

D. Explain the benefits of research in evolutionary biology to society, and how it helps us solve problems in our lives.

E. Explain the contribution of evolutionary biology to environmental questions, particularly the impact of human activity on biodiversity, including the maintenance of genetic variation in populations, the concept of gene flow in maintaining genetic diversity, and how humans impact the genetic structure of natural populations.

Because of this last course objective, this course fulfills the **University of Georgia's Environmental Awareness Requirement**. To achieve the goals of this requirement, students must take a course that provides a basic understanding of the interactions between human activity and the environment and includes enough natural science for students to make sense of the environmental problem under study.

3) FACULTY

Dr. Rodney Mauricio
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4) GRADUATE TEACHING ASSISTANTS

Andrew Duitsman
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5) OFFICE HOURS

If you have any questions or doubts, please address them to the graduate teaching assistant in the weekly discussion sections. Office hours with the faculty and GTAs are by appointment and will be done remotely.

6) COMMUNICATION

The primary means of communication will be the course ELC site. You are responsible for checking the course ELC site daily for communications from the instructor; you will find critical information there. If you have questions on course material, please ask them at the discussion sections. The University requires you to contact the instructor using only your UGA email account; I will not respond to any emails from a non-UGA email account. Never send email using the ELC mail function: we do not check email sent within ELC.

7) DISCUSSION SECTIONS

This is a 4-credit course and you are required to attend a weekly 50-minute section, in addition to the lectures. Attendance will be taken. You must have your video on for the entire class period for your attendance to count for that day and points will be assigned for active participation in the section. A graduate teaching assistant will lead each section. These sections are an opportunity for you to learn to read the primary scientific literature. Sections begin the week of August 24.

Day	**Time**
Monday	9:10 – 10:00 a.m.
Monday	4:10 – 5:00 p.m.
Tuesday	3:55 – 4:45 p.m.
Tuesday	11:10 – 12:00 p.m.
Tuesday	12:45 – 1:35 p.m.
Wednesday	3:00 – 3:50 p.m.
Thursday	11:10 – 12:00 p.m.
Friday	9:10 – 10:00 a.m..

8) MANDATORY COURSE QUIZZES

You must complete the online syllabus quiz and score 100% before 11:59 pm on August 27. You will be withdrawn from the course if you fail to complete the quiz with a perfect score by that time. You must also complete the evolution pre-test (as well as a post-test at the end of the semester). You must complete the pre-test by 11:59 pm on August 28 or you will be withdrawn from the course. You will also have to complete a mandatory post-course assessment at the end of the semester to pass the course. Students failing to complete that assessment will receive a grade of 'I' for the course.

9) REQUIRED BOOKS

There are 5 required books for this course. The required textbook is:

- Bergstrom, C.T. and L.A. Dugatkin. *Evolution, 2nd edition*. Norton. You must purchase access to the InQuizitive modules (that access should be free if you purchase the book).
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If you have any question about purchasing or renting the textbook, and access to InQuizitive, please direct them to W.W. Norton. The instructors have no information about access to the textbook or to InQuizitive.

The required books are:

- Nesse, R.M. and G.C. Williams. *Why We Get Sick*. Vintage Books
- Weiner, J. *The Beak of the Finch*. Vintage Books
- Wells, S. *The Journey of Man*. Random House

- Shubin, N. *Your Inner Fish*. Vintage Books

The books are assigned to provide you a broader view of evolutionary biology. You should carefully read each book, noting both broad themes and connections between the concepts covered in class and the books. There will be in-class quizzes to test your comprehension of these books (see dates above for these quizzes).

10) POWERPOINT SLIDES
I will post my slides to ELC but only after the class period, and only if at least 80% of enrolled students are actually logged into Zoom during the class period. Students often ask that slides be available before lecture to alleviate the pressure of taking notes. Educational research has shown that such a practice greatly increases the passivity of learning, which is why I will not distribute the slides before class. You should spend more time listening and less time writing notes. The best strategy for learning is to listen carefully to lecture, try to identify the broad concepts and especially important points during lecture (jot those down) and then download the slides and go over them carefully after class, reconciling your notes with the slides.

11) VIDEO QUIZZES AND HOMEWORK ASSIGNMENTS
There will be a number of videos posted to the ELC site that you must watch, with associated quizzes meant to test whether you have viewed the videos. These assignments should always be done without assistance. In addition, there will be several homework assignments that you will complete online.

12) INQUIZITIVE
The textbook is tied to an adaptive interactive online learning system called Inquizitive. You must purchase access to the Inquizitive modules (you should get it for free if you purchase the book). If you have any questions about access to InQuizitive, you should contact customer support at Norton. **Please note that you MUST always access InQuizitive assignments through the link in our ELC course, never through the Norton web site; that is the only way you can get credit for completing the assignments.** You should read the assigned chapters and sections of the textbook before attempting the assigned Inquizitive modules. Inquizitive is designed so that you must accumulate a minimum number of points to complete the assignment (and can adjust the number of points you gain for correct answers and lose for incorrect answers!) although you can continue answering questions and accumulating points. These assignments should always be done without assistance.

13) IN-CLASS QUIZZES
Because this course will be taught entirely online, we will not have standard exams in this class, but will have in class quizzes that will give you the opportunity to demonstrate your understanding of the course material in both the lectures and the textbook. You should expect that quizzes will be given in every class period and thus you should be prepared for a quiz at every class. All quizzes are cumulative (meaning that the quiz might include any material covered in class up to that point), although they will focus more on material in that unit. **You must be in class to complete the daily quiz. The quiz will only be available for a brief period of time, so if you miss that window for any reason, you will not have access to the quiz and will receive a zero on that quiz.** No excuses. These quizzes are closed-note, closed book and you are required to take the quizzes without any assistance. The quizzes are timed and have a number of questions, so it is possible that you will not be able to finish all the questions.

14) FINAL EXAM
A cumulative final exam will be held on Thursday, December 17 at 8:00 a.m. on ELC. You will have 3 hours to complete the final exam.

15) GRADING
10 points: attendance and active participation in discussion sections
10 points: InQuizitive modules
7 points: online video quizzes
9 points: book quizzes
9 points: homework assignments

33 points: in-class quizzes
22 points: cumulative final exam

I assign final grades using the following guidelines: 'A:' achievement that is outstanding and well above the level necessary to meet course requirements; 'B:' achievement that is above the level necessary to meet course requirements; 'C:' achievement that meets the basic course requirements; 'D:' achievement that is worthy of credit even though it does not fully meet the basic course requirements; 'F:' achievement that fails to satisfy the basic course requirements. I utilize the plus/minus grading system.

16) MAKEUP AND ABSENCE POLICY

No makeups for any assignment/quiz will be given under any circumstances. If you are absent for any in-class quiz, you will receive a zero on that assignment, whether your absence is excused or not. However, given the pandemic, I will drop from your final grade all in-class quizzes missed due to COVID-19 during any 2 week period during the semester, with a confirming note from the University Health Center or a physician.

17) ACADEMIC HONESTY

All academic work must meet the standards contained in "A Culture of Honesty." Students are responsible for informing themselves about those standards before performing any academic work. **You should not record or share, in any way, any questions or answers on any quizzes or any assignments. All work is to be done alone without any assistance from any other sources.**

18) ZOOM COURTESIES

Try to get to class on time and do not leave before the class ends. It would be enormously helpful to have your video cameras on during class so I can see your face. Please be certain you are muted during class.

19) DISCLAIMER

The syllabus is a general plan for the course; deviations announced to the class by the instructors may be necessary.