

## Biology 3600 A: Introduction to Evolutionary Biology Syllabus Fall 2015

Class time: TR, 9:35 – 10:55 AM  
Location: Instructional Center 209

### **Instructors and contact information:**

Dr. Mirjana M. Brockett (MMB), CE 323,  
[mirjana.brockett@biology.gatech.edu](mailto:mirjana.brockett@biology.gatech.edu), (404) 385-6885

Dr. Eric Gaucher (EG)  
Engineered Biosciences Building (EBB), 5013  
[eric.gaucher@biology.gatech.edu](mailto:eric.gaucher@biology.gatech.edu), 404-385-3265

**Office hours:** By appointment

Teaching Assistant:  
Kasahun Neselu  
[kneselu3@gatech.edu](mailto:kneselu3@gatech.edu)

## General Information

**Goals:** To gain a comprehensive knowledge of evolutionary biology. This includes focus on processes (e.g., natural selection, genetic drift) and resulting patterns (e.g., genome organization, phylogeny, and the fossil record). Emphasis will be placed on a conceptual understanding of the subject with examples taken from the recent primary literature. After this course students should have deeper understanding of evolutionary biology and its applications.

**Textbook required:** Evolution (Making Sense of Life), Carl Zimmer and Douglas Emlen, Second edition

**Optional resource:** Perkins study guide (to accompany the book)

**Honor Code:** Students are expected to abide by the Georgia Tech Academic Honor Code and Student Code of Conduct, available online at [www.honor.gatech.edu](http://www.honor.gatech.edu).

**Learning Accommodations:** If needed, we will make classroom accommodations for students with disabilities. These accommodations must be arranged in advance and in accordance with the <http://disabilityservices.gatech.edu/>

**Exams:** There will be four exams during the semester. Exams may consist of multiple choice, short answer, and/or essay questions. Questions will be taken from assigned readings and class lecture. You are responsible for material covered in assigned readings even if it is not presented in class; similarly you are responsible for material presented in class even if it is not in the textbook. There will be no make-up exams, unless the absence is excused by the Dean of Students. Exams will typically be worth 100 points.

**Group Presentations, homework and activities:**

In addition to exams, students will have active learning activities in and outside of the class. These would promote better connections between scientific literature and the evolutionary theory. The activities include written (problem sets, in class quizzes) and oral assignments (group presentations, class discussion). Problem sets and quizzes are worth 100 points. Our project in Evolution class will be a group work on interesting research paper related to the lectures during the semester. This project presentation will be graded by your peers as well as the instructor, and it is worth up to 100 points. We will have about 8 groups with ~5 students each and your presentation should take about 10 minutes, at the beginning of the class. More details about group presentations will follow in the first day of classes.

Presentation grading rubric will be posted on the T-square, under resources.

**Participation:** In-class activities and class participation are worth up to 100 points. Some of these will involve the use of clickers and/or Learning Catalytics.

**Total possible points in the class: 700.**

**Grading:** Grades will be assigned at the end of the semester as follows:

A = 90 to 100%; B = 80 – 89%; C = 70 – 79%; D = 60 – 69%; F = < 60%. The grading criteria may change. You may request that any question on any exam be re-graded, however, we reserve the right to re-grade the entire exam. Unfair questions will be identified based on the class results; if more than 85% of students incorrectly answer a question, the question may be dropped from the exam at our discretion. Historically, final grades have been adjusted 2-5 points.

**Attendance:** Performance in this class correlates strongly with attendance in lecture. Students who anticipate the necessity of being absent from class because of religious observance must provide written notice of the date(s) by the fourth class meeting. Some of the lecture materials will be made available on T-Square.

**Recitation:** During the semester, students will have an additional opportunity to master the key concepts in Evolutionary biology, by participating in additional learning activities during recitations. Recitation will be announced in the class and on the T-square.

**How do you get an A in Evolution?** Read all the materials, come to the lectures and recitations. Ask questions and discuss topics in class. Understand concepts and how they are applied rather than memorizing names or formulas. Take careful notes and review them regularly, perhaps in small study groups. This class will be different from

any other classes you have taken: you will not get good grades if you just memorize the material without understanding conceptual aspects of this field. Good Luck!

**Detailed Schedule:**

<b>Date</b>	<b>Topic and Reading</b>	<b>Instructor</b>	<b>Remarks</b>
August 18	Introduction: Syllabus, Text, Planning	MB/EG	
August 20	The Whale and the Virus (Ch.1)	MB	
August 25	From Natural Philosophy to Darwin (Ch.2)	MB	
August 27	Geology and Paleontology (Ch.3)	EG	
September 1	The tree of Life (Ch.4)	EG	
September 3	The Tree of Life, continued (Ch.4)	EG	
September 8	Heritable Variation Among Individuals (Ch.5)	MB	
September 10	<b>Midterm 1</b>	MB	
September 15	Genetic Drift and Selection/ Part I (Ch. 6)	MB	
September 17	Genetic Drift and Selection/ Part II (Ch. 6)	MB	
September 22	Quantitative Genetics (Ch. 7)	MB	
September 24	Natural Selection (Ch. 8)	MB	Presentation
September 29	The History of Our Genes/ part I (Ch. 9)	EG	
October 1	The History of Our Genes/ part II (Ch. 9)	EG	Presentation
October 6	<b>Midterm 2</b>	EG	
October 8	Evolution of Life History (Ch. 12)	MB	Presentation
October 13	<b>Fall Recess</b>		
October 15	Origin of Species (part I, Ch. 13)	EG	
October 20	Origin of Species (part II, Ch. 13)	EG	Presentation
October 22	From Genes to Traits (part I Ch. 10)	EG	
October 27	From Genes to Traits (part II Ch. 10)	EG	
October 29	Evolution of Sex (part I Ch. 11)	EG	Presentation
November 3	Sexual Selection (part II Ch. 11)	EG	
November 5	<b>Midterm 3</b>	EG	
November 10	Macroevolution (Ch. 14)	MB	Presentation
November 12	Coevolution (Ch. 15)	EG	
November 17	Evolution of Behavior (Ch. 16)	MB	Presentation
November 20	Human Evolution (part I Ch. 17)	MB	
November 24	Human Evolution (part II Ch. 17)	MB	Presentation
November 26	<b>Thanksgiving break</b>		
December 1	Evolutionary Medicine (Ch. 18)	MB	
December 3	<b>Last day of class and Final exam review</b>	MB/EG	
<b>December 10</b>	<b>Final Exam (Thu: 8:00am - 10:50am)</b>	MB	

***This syllabus is subject to change!***