

Biology 110 - Evolution, Ecology & Biodiversity

Syllabus

Fall 2017, Knox College

Course Description:

Biology 110 provides an introduction to the study of biological diversity in an evolutionary and ecological context. This course will examine the characteristics and adaptations of prokaryotes, protists, fungi, plants, and animals, and how they have evolved. Related topics include population genetics, evolutionary processes and their results (including adaptation, speciation, and extinction), and ecological factors that influence the distribution and abundance of organisms, as well as the interactions among species in nature. Models of biodiversity and the factors that affect and threaten it will also be addressed.

Professors:

Stuart Allison

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Phone: x-7086

Office hours: MWF 2:30-4:00, T 1:00-4:00

or by appointment

Biology Lab Coordinator:

Nathan Kemp

Office: SMC B-103

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Phone: x-7896

Office hours:

or by appointment

Sunday Evening Tutoring Sessions:

With Erin Steinbach '17 – 7pm in A219

(NOTE: You are also encouraged to come to your professors with questions!)

Course Meeting Times and Places:

Lecture: SMC A110 MWF 9:20-10:30

Laboratory:

Section A - SMC B121 - Tues 9:20-12:10, Prof. Allison

Section B - SMC B121 - Tues 1:00-3:50, Prof. Keith

Section C - SMC B121 - Thurs 9:20-12:10, Prof. Keith

Section D - SMC B121 - Thurs 1:00-3:50, Prof. Keith

Required Textbook:

Urry, L.A., Cain, M.L., Wasserman, S.A., Minorsky, P.V., & Reece, J.B. 2016. *Campbell Biology, 11th Ed.* Benjamin Cummings (Pearson): Boston. ISBN 978-0134082318

Rose Keith

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E-mail: rakeith@knox.edu

Phone: x-7386

Office hours:

by appointment

Our lab TAs:

TBD

We highly recommend that you purchase the version of the textbook that includes an access code for MasteringBiology (and an e-text). MasteringBiology will be needed for this course and possibly for the other introductory biology courses as well. If you already have a copy of the 10th edition, you should purchase access to MasteringBiology separately, but make sure that it is the version that accompanies the *11th edition*, regardless of which edition you own.

Chapters from the text will be assigned for each lecture. In some cases, only a portion of the chapter noted in the lecture schedule will be assigned. **You will need to read the relevant chapter before answering the 'MasteringBiology' homework assignments, so do check what chapter(s) are covered for the assignment. You should also incorporate notes from the text as you summarize your notes from the most recent lecture (yes, you really should do this!).**

Moodle:

We will be using the online course management system 'Moodle'. It is used for a lot of courses at Knox, so many of you will be familiar with it. You should already be registered for the moodle course, but if you aren't, or if you are having trouble logging on, then contact the Help Desk (x7700).

Course Requirements:

1. Lectures: Past experience has shown that students who get the most out of this course and who perform best on exams are the same students who attend lectures regularly. Notes for missed lectures will be available from the lab coordinator for students with a legitimate (e.g. medical, sports) excuse. Laptops may be used for taking notes or viewing the course powerpoints during lecture. However be courteous about use of laptops. Don't surf the web – concentrate on material for this course. Please **do not use cell phones** during lectures. **Cell phones must be turned off as a courtesy to others.**

2. Homework assignments: Homework assignments are to be completed before most lectures and will be assigned and posted on Moodle (and usually on MasteringBiology as well). Usually these assignments will be online exercises using MasteringBiology, but may also include additional assignments given by the instructors. MasteringBiology exercises must be completed by 9 AM on the day of the relevant lecture. You will need to register for Course (Code: **MBAlliKeithBio110**). If you get at least 70% of the answers correct, OR spend at least 30 minutes working on the assignment, you will receive 100% of the available points.

3. Exams: Exams are closed book/closed notes and you must take the exam in room A110. Laptops must not be used (except as needed in the case of documented disabilities). **Cell phones must be turned off and put away – they cannot be on the tables during exams.** The exams will test your understanding of the material and your ability to apply your understanding in solving novel problems, as well as your grasp of the vocabulary of biology. The best way to prepare for exams is to keep up with your reading, summarize your class notes, do the [Mastering Biology](#) assignments, and to work with other students when studying and writing up labs when appropriate. There will be two mid-term exams and a final. The first two exams will cover roughly one third of the lecture material. The final exam will cover the final one third of the course and also some comprehensive material from the entire course. We will offer review sessions prior to the midterms and final. During the review sessions you may ask questions you have about the material covered in lecture, labs, and the readings. **A make-up exam will only be allowed if a documented medical excuse is provided or for participation in a scheduled varsity athletic event.**

4. Labs: It is not possible to make up for a missed lab. However, if, for example, you are an athlete or another college activity and you know you will miss a particular lab, you must talk to us in advance to arrange to attend another lab section that same week. **If you miss a lab without a documented medical excuse, you will be docked 10 points.** You will be involved in group research activities during your lab time. For most of these activities there will be a group assignment to be handed in. We will give you guidelines for completing these assignments during the labs. **Some lab exercises will involve working in groups and assignments will be worked on and submitted as a group. Sharing answers or copying from other lab groups is not permitted.** If you cannot meet with your lab group to work on the assignment for any reason, you will be responsible for completing the assignment **on your own** and your name should not appear on the work the group hands in. Some labs must be completed on your own and represent your own individual work, and we will tell you during lab if it is an individual or group assignment. If in doubt, ask us. Unless otherwise noted, your assignments will be due at the **beginning** of lab on the weeks indicated in the [lab schedule](#). **Penalty for late assignments is 10% of the available points per day late. An assignment handed in after lab on the due date will be considered a day late.**

Computer Use:

You will periodically receive e-mails from us with information about course or lab activity. We also recommend that you learn the e-mail addresses of at least some of the people in your lab. If you do not know how to use e-mail, a few minutes at the Computer Center (SMC E-010) or the help desk in Founder's Lab (in Seymour Union) will get you up to speed. You may also contact/phone us with any questions you might have.

Honor Code:

By joining the Knox College community, you have agreed to uphold its honor code. We feel strongly that maintaining the Honor Code is crucial to maintaining a learning community. Therefore we will fully prosecute any infractions of the code. The honor code can be found in the Knox College Student Handbook. Please read the honor code and be sure you understand it. If you have any questions about the honor code or how to properly acknowledge the words and ideas of others, please ask us and we will be happy to discuss it with you.

Your grade in this course will be determined by the following work:

Attendance/Participation 25 pts.
Homework 100 pts.

Lecture Exams:

First Exam 100 pts.
Second Exam 100 pts.
Third Exam 200 pts.

Laboratory Assignments:

Seven graded assignments 225 pts.
(Labs #4 & 6: 37.5 pts.; other labs: 30 pts.)

TOTAL **750 pts.**

BIOL 110 – TENTATIVE* LECTURE SCHEDULE

Date	Lect	Topic	Text Reading[^]	Lecturer
Mon. Sept. 11	1	Class Overview and Darwin	None	Allison and Keith
Wed. Sept. 13	2	Darwin's Theory & Evidence	Ch. 22	Keith
Fri. Sept. 15	3	How Heredity Happens	Ch. 12 (pp 234-236); Ch. 13 (skip Fig. 13.8); Ch. 14 (pp 269-83); Ch 15 (pp 294-97, 306-309)	Keith
Mon. Sept. 18	4	Evolutionary Mechanisms I	Ch. 23	Keith
Wed. Sept. 20	5	Evolutionary Mechanisms II	Ch. 23	Keith
Fri. Sept. 22	6	Selection, Variation and Macroevolution	Ch. 23 (pp 495-502), Ch. 24 (518-521)	Keith
Mon. Sept. 25	7	Macroevolution, Speciation	Ch. 25 (pp 535-547)	Keith
Wed. Sept. 27	8	Speciation	Ch. 24	Keith
Fri. Sept. 29	9	Prokaryotes	Ch. 27, pp 532-533	Keith
Mon. Oct. 2	-	EXAM #1		
Wed. Oct. 4	10	Origin of Eukaryotes, Protists	Ch. 28	Keith
Fri. Oct. 6	11	Protists, Fungi	Ch. 28, 31	Keith
Mon. Oct. 9	12	Plants	Ch. 29	Keith
Wed. Oct. 11	13	Plant Diversity	Ch. 30	Keith
Fri. Oct. 13	14	Intro to Animal Diversity	Ch. 32	Allison
Mon. Oct. 16	15	Invertebrate Diversity	Ch. 33	Allison
Wed. Oct. 18	-	Fall Institute – NO CLASS		
Fri. Oct. 20	16	Intro to Vertebrates	Ch. 34	Allison
Mon. Oct. 23	17	Vertebrate Diversity	Ch. 34	Allison
Wed. Oct 25	18	Introduction to Ecology	Ch. 52	Allison
Fri. Oct. 27	-	EXAM #2 (covers lectures 10-17)		
Mon. Oct. 30	19	Population Ecology - Life History & Demography	Ch. 53(pp 1188-93, 1198-1200)	Allison

Wed. Nov. 1	20	Population Ecology: Population Density & Growth	Ch. 53 (pp 1194-95, 1200-1209)	Allison
Fri. Nov. 3	21	Community Ecology I: Biodiversity	Ch. 54 (pp 1220-29)	Allison
Mon. Nov. 6	22	Community Ecology II: Competition & Predation	Ch. 54 (pp 1212-18)	Allison
Wed. Nov. 8	23	Community Ecology III: Mutualism & Commensalism & Disease	Ch. 54 (pp 1218-19; 1232-33)	Allison
Fri. Nov. 10	24	Ecosystem Ecology: Energy Flow, Water & Nitrogen Cycles	Ch. 55 (pp 1237-51)	Allison
Mon. Nov. 13	25	Restoration, Extinction & the Biodiversity Crisis	Ch. 55 (pp 1251-53) Ch. 56 (pp 1258- 1272)	Allison
	-	FINAL EXAM TBA		

* Check the Moodle course page for any updates in the schedule. Exam dates are fixed.

^ These are pages for the 10th edition of Campbell; pages for the 9th edition will be provided on the course Moodle page under each date.