

Biology 130: Biodiversity (Sections 1-9)
4 credits: 3 credits lecture, 1 credit lab
The University of Tennessee, Fall 2013

Lecture: Tuesday and Thursday, 9:40-10:55 am, Dougherty Engineering Bldg, Room 416

Lecture Instructor: Dr. Randy Small (rsmall@utk.edu)

Office Hours (431 Hesler):

Tuesday or Thursday 11 – 11:30 am (directly after class)

Monday 3-4 pm

Other meetings by appointment – e-mail is the best method of communication

Lab: Three hours per week in Neyland Biology Annex; 25% of your course grade
You must attend starting the week of August 26th (see your schedule for lab time)
You will receive a separate lab syllabus with instructor and lab information

Lab Coordinator: Dr. Randy Brewton, 128 Neyland Biology Annex, rbrewton@utk.edu
(You MUST talk to Dr. Brewton to drop, add, or switch sections of Bio 130!)

What you should learn in this course (and for a Biology degree)

By the end of the course, you should be able to explain how scientists define and study biodiversity, as well as how the **five big ideas (FBIs)** in biology relate to biodiversity:

- **Evolution:** Populations of organisms and their cellular components have changed over time through both selective and non-selective evolutionary processes.
- **Structure and Function:** All living systems (organisms, ecosystems, etc.) are made of structural components whose arrangement determines the function of the systems.
- **Information Flow and Storage:** Information (DNA, for example) and signals are used and exchanged within and among organisms to direct their functioning.
- **Transformations of Energy and Matter:** All living things acquire, use, and release and cycle matter and energy for cellular / organismal functioning.
- **Systems:** Living systems are interconnected, and they interact and influence each other on multiple levels.

You should also be proficient in the following **five scientific practices (FSPs)**:

- Formulate empirically-testable hypotheses; ask scientific / critical questions
- Synthesize information and identify patterns (from readings or data)
- Interpret visual representations (figures and diagrams)
- Evaluate data and come to a conclusion (with evidence) (formulate an argument)
- Communicate information in writing

Course Description: Intended for science majors. Unifying concepts and principles of biology, illustrated with diversity of life. Properties of life, molecular basis, origin of life, cells, genetics, introduction to kingdoms, origins of multicellularity, multicellular plants and animals, ideas about evolution, man's place in nature. Emphasis on common themes in living systems (e.g., metabolism, protein and nucleotide sequence similarities, morphology), phylogeny construction, fossils, and the major plant and animal groups. Writing and analysis of lab activities required.

Course Schedule:

Date	Day	Topic	Reading	
Aug 22	R	Introduction, syllabus & learning	Bioskills 14, 15, 16	
Aug 27	T	I. How do we do science? - nature of science, hypothesis testing, experimental design, data interpretation, phylogenetic trees and statistical analysis.	1.1 – 1.5	
Aug 29	R		Nature of Science paper	
Sept 3	T		Bioskills 3, 4, 5, 6, 7, 8	
Sept 5	R		28.1-28.2	
Sept 10	T	Exam 1 – 75 pts		
Sept 12	R	II. Ecological context of biodiversity - broad patterns of biodiversity through space & time - ecological patterns and processes in populations, communities, and ecosystems - conservation biology	52.1 – 52.4	
Sept 17	T		54.1 – 54.6	
Sept 19	R		55.1 – 55.4	
Sept 24	T		56.1 – 56.3	
Sept 26	R		57.1 – 57.4	
Oct 1	T			
Oct 3	R			
Oct 8	T	Exam 2 – 125 pts		
Oct 10	R	III. Evolutionary processes in biodiversity	13.1 – 13.2	
Oct 15	T		14.1 – 14.5	
Oct 17	R		25.1 – 25.5	
Oct 22	T	- origin and development of evolutionary theory	26.1 – 26.6	
Oct 24	R	- natural selection	27.1 – 27.4	
Oct 29	T	- genetics and evolutionary processes		
Oct 31	R	- speciation & phylogeny		
Nov 5	T	Exam 3 – 125 pts		
Nov 7	R			
Nov 12	T	IV. Organismal biology - diversification of life - origin of eukaryotes - patterns and processes in: prokaryotes, protists, fungi, plants & animals	2.3 – 2.4	
Nov 14	R		29.1 – 29.3	
Nov 19	T		30.1 – 30.3	
Nov 21	R		31.1 – 31.3	
Nov 26	T		32.1 – 32.3	
Nov 28	R		NO CLASS – THANKSGIVING BREAK	33.1 – 33.3
Dec 3	T			
Dec 10	T	FINAL EXAM – 175 pts – 8:00 – 10:00 AM		

****This schedule is tentative and subject to change!****

* Readings refers to Chapter Sections – for example: 1.1-1.5 means read Ch. 1, sections 1-5.

* Additional readings will be assigned and posted on Blackboard.

* The syllabus is subject to change at the discretion of the instructor.

* Aug. 30: Last day to drop without at W

* Nov. 12: Last day to drop with a WP/WF

* Dec 3: Last day for a University Withdrawal

Technology: While in class, put **ALL** electronic devices away (this includes phones, laptops, ipods, ipads, etc).
During exams any electronic device seen on your desk or within sight will result in a grade of zero.

Support for learning

Texts and Materials:

- REQUIRED Text: Freeman, et al. 2014. Biological Science (5th ed). Pearson Publishing. This book is available at the bookstore. You can also purchase it as an e-Book from Pearson Publishing directly (www.masteringbiology.com). The library also has a limited number of copies on reserve.
- REQUIRED Mastering Biology software: free with purchase of a new textbook at bookstore; you can also purchase the software directly from Pearson as either Mastering with or without the e-Book. The MasteringBiology Course ID is **MBSMALL31737**
- REQUIRED - TurningPoint response “clicker” (“ResponseCard” - Instructions for registration and use are found on the lecture Blackboard site). *At the UT Bookstore*
- REQUIRED - Lab Manual for Biology 130 2013-2014. **Only at the UT Bookstore**
- REQUIRED – Carbonless copy notebook for lab. *At the UT Bookstore*

Blackboard course website: <http://online.utk.edu/> (Click “Login to Online@UT” to get to Blackboard). You will have two Blackboard sites for the course, one for your lab section and one for lecture. The lecture site will be used regularly for communication and posting lecture syllabus, extra readings, assignments, course grades, etc.

Communications:

- You need to regularly check your utk e-mail account for weekly announcements related to this course. If you are not receiving those e-mails, there is something wrong with your account!
- I am happy to answer your e-mail questions, but allow up to 24 hours for a response. Also, once I leave the office I may not check my e-mail until the following workday, or the first day back after a weekend.

Study Rooms:

417 Hesler is a quiet study room for majors in Biology. It can also be reserved for group study.
There is also a student study room in Neyland Biology Annex, room 103.

Assessment of learning:

Learning assessment is important for two reasons. First, you have to receive a grade for the class and the grade you earn will be determined by how well you perform on assessments. Second (*and more importantly*), assessment helps you integrate knowledge. Studies have shown that the more often students are assessed and the more different ways they are assessed, the more likely they are to understand the material. Assessments will be done using a variety of methods including exams, in-class quizzes (using clickers), in-class group assignments, and online homework (using Mastering Biology).

Exams / Quiz / Assignment Policies:

- NO make-up clicker quizzes or in-class assignments will be given; there will be “extra” points built into the course to allow for missing classes, forgetting your clicker, etc.
- NO make-up exams will be given without a documented valid excuse (e.g., family emergency, medical emergency, etc).
- All work should be done independently (unless group work is permitted, and then you may **ONLY** work within your group on the assignment); plagiarism software will be used to check written assignments for copying from classmates or other sources. **Plagiarism will result in stiff penalties – please see section below.**

Course Grades:		Grade Scale	
Exam 1 :	75 points	A	93-100%
Exam 2:	125 points	A-	90-92%
Exam 3:	125 points	B+	87-89%
Exam 4:	175 points	B	83-86%
HW, quizzes:	250 points	B-	80-82%
Lab:	<u>250 points</u>	C+	77-79%
Total	1000 points	C	73-76%
		C-	70-72%
		D+	67-69%
		D	63-66%
		D-	60-62%
		F	less than 60%

Academic integrity:

Academic dishonesty of any sort will not be tolerated. Plagiarism includes the copying of phrases, portions of sentences or the main ideas from ANYONE (including a classmate) on ANY work submitted for a grade (exams, assignments, quizzes, etc). Academic dishonesty also includes assisting other students on quizzes or exams. Anyone caught using multiple clickers will have ALL of their clicker points deleted for the semester – using a clicker for someone else is **CHEATING**.

You are expected to abide by The University of Tennessee honor statement in Biology 130 and in all of your university activities as pledged in the honor code:

“An essential feature of the University of Tennessee, Knoxville, is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the University, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity.”

(2012-2013 Undergraduate Catalog)

Depending on the offense, penalties for academic dishonesty range from a minimum of a zero for the assignment, to an F for the course, to the filing of formal academic dishonesty charges seeking dismissal from The University of Tennessee. These choices are at the discretion of the instructor, and can occur in either the lecture or the lab portion of the class.

You should be familiar with the requisites of academic honesty and what constitutes academic dishonesty as outlined in the UT Undergraduate Catalog (<http://catalog.utk.edu/>).

Other course information

Tennessee Education Lottery Scholarship Recipients: All courses for which you are enrolled count toward your attempted hour total. You must receive approval from the Office of Financial Aid & Scholarships when withdrawing from UT or changing your enrollment status from full-time to part time in order to maintain good standing for the TELS program. Approvals are only issued for extraordinary circumstances, such as the death of an immediate family member, documented serious illness, or military mobilization. See Financial Aid website at: <http://web.utk.edu/~finaid>

Disability Services: If you need course adaptations or accommodations because of a documented disability, please contact me privately to discuss your needs. If you have questions or concerns about disabilities or emergency information to share, please contact Disability Services: 2227 Dunford Hall; 974-6807; Email: ods@utk.edu; Website: <http://ods.utk.edu/>.

Counseling Center: <http://counselingcenter.utk.edu/>

900 Volunteer Boulevard

865 974-2196, Email: counselingcenter@utk.edu

Academic Assistance:

Tutoring: The Division of Biology does not offer tutoring services. Contact the Student Success Center and the Academic Support Unit of The Office of Minority Student Affairs for information about tutoring opportunities.

- **Student Success Center:** The comprehensive source for information, services, and resources to assist your success at UT: <http://studentsuccess.tennessee.edu/studentsuccesscenter/>
 - 1817 Melrose Avenue, and 812 Volunteer Boulevard, 865 974-6641, Email: studentsuccess@utk.edu
- **Academic Support Unit of The Office of Minority Student Affairs** offers some tutoring services available to all students, but openings are limited and are filled quickly. The office offers other types of academic assistance and support as well: <http://omsa.utk.edu/services/>
 - 1800 Melrose Avenue, 865 974-6861, Email: omsa@utk.edu

Technical Assistance:

Blackboard, clickers, or general information technology assistance:

- <http://remedy.utk.edu/contact/>
- Help Desk: 865 974 9900 (M – F, 8:00 – 5:00)
- OIT Computer Support Service Center and Walk-In Help Desk: Commons South, 2nd floor Hodges Library
- Turning Technologies (clickers): 866 746 3015