Biology 150: Organismal & Ecological Biology (Sections 10-19), 3 credits
The University of Tennessee, Fall 2016

Meetings: Tuesday and Thursday, 12:40 – 1:30 pm, Alumni Memorial Building, Room 32

Instructor: Dr. Randy Small (rsmall@utk.edu)
Office Hours (431 Hesler):
Tuesday or Thursday 1:30 – 2:00 pm (directly after class)
Wednesday 3-4 pm
Other meetings by appointment – e-mail is the best method of communication

BioLit: 50 minutes per week in Neyland Biology Annex room 120; 25% of your course grade.
BioLit start the first week of class (see your schedule for your discussion time).
You will receive a separate BioLit syllabus.

BioLit Instructors: Tyson Paulson, Sections 10-12, Mon @ 11:15, 12:20, 1:25
Nicole Hergott, Sections 13-15, Mon @ 2:30, 3:35, 4:40
Chad Stachowiak, Sections 16-19, Tues @ 8:10, 9:40, 11:10

What you should learn in this course

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 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 demonstrate the following **five scientific practices (FSPs)**:

- Link lecture topics and synthesize information, particularly in reference to the FBIs
- Develop hypotheses and predictions (ask scientific questions) based on models or data
- Interpret scientific representations, such as graphs, phylogenies, or molecular structures, or data, and come to a conclusion (with evidence)
- Summarize information from scientific articles or other sources
- Predict the consequences of changes to systems or pathways

How to succeed in this course:

Do the assigned reading ahead of time (*before class*). Do the assigned Mastering Biology homework (*before class*). These processes will help you learn the basic concepts of the course prior to coming to class. During class we will work through examples, apply what you have learned to new situations, and practice using the concepts. The real learning in the course is about understanding and applying the basic concepts and linking them together into a holistic understanding of the material. *Exams will be more conceptual than factual.*

Course Schedule:

Date	Day	Topic	Reading
Aug 18	R	**Introduction, syllabus & learning**	
Aug 23	T	**I. Nature of science, units of biodiversity, genetics**	1.1 - 1.6
Aug 25	R	- hypothesis testing, experimental design, data interpretation	Bioskills: 2, 3, 17, 18
Aug 30	T		13.1 - 13.4
Sept 1	R	**NO CLASS - ADMINISTRATIVE CLOSING**	14.1 - 14.5
Sept 6	T	- genes, individuals, populations & species	
Sept 8	R	- origin and development of genetics	
Sept 13	T		
Sept 15	R	**Exam 1 - 100 points**	
Sept 20	T	**II. Evolutionary processes generate biodiversity**	22.1 - 22.5
Sept 22	R	- origin and development of evolutionary theory	23.1 - 23.6
Sept 27	T	- natural selection & other evolutionary processes	24.1 - 24.4
Sept 29	R	- speciation and phylogeny	25.1 - 25.4
Oct 4	T		
Oct 6	R	**NO CLASS - FALL BREAK**	
Oct 11	T		
Oct 13	R	**Exam 2 - 100 points**	
Oct 18	T	**III. Ecological context of biodiversity**	49.1 - 49.3
Oct 20	R	- patterns of biodiversity through space & time	51.1 - 51.6
Oct 25	T	- ecological patterns and processes	52.1 - 52.4
Oct 27	R	- populations, communities and ecosystems	53.1 - 53.3
Nov 1	T	- loss of biodiversity and conservation biology	
Nov 3	R		
Nov 8	T	**Exam 3 - 100 points**	
Nov 10	R	**IV. Biology of organisms**	26.1 - 26.3
Nov 15	T	- diversification of life	27.1 - 27.3
Nov 17	R	- prokaryote diversity	28.1 - 28.3
Nov 22	T	- origin and diversity of eukaryotic groups	29.1 - 29.3
Nov 24	R	**NO CLASS – THANKSGIVING BREAK**	30.1 - 30.3
Nov 29	T		
Dec 1	R		
Dec 7	W	**FINAL EXAM, 150 points, 10:15 am - 12:15 pm**	

*** 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.**

Support for learning

Texts and Materials:

- Text: Freeman, et al. 2016. *Biological Science* (6th ed). Pearson Publishing. This book is available at the bookstore in looseleaf form ONLY, bundled with the masteringbiology software, as a CUSTOM THIRD edition (has a sunflower on it, but so does the SECOND edition, so beware!).
    - You can also purchase the text as an electronic Text (eText) PLUS mastering biology software from Pearson Publishing directly (www.masteringbiology.com).
    - The library also has some textbook copies on reserve.
- Mastering Biology software: free with purchase of a new textbook at bookstore; you can also purchase the software directly from masteringbiology.com, but you need to purchase it WITH the eText. To access: select Freeman 6th edition, and: **Zip code: 37996-1610; Course ID: MBSMALL34261**

Blackboard course website: https://bblearn.utk.edu/ You will have two Blackboard sites for the course, one for your BioLit 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.
- 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. **PUT "BIO 150" IN THE SUBJECT LINE!!! **
- Please check the syllabus FIRST before you send me an e-mail to ask a question.

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 individual assignments, in-class group assignments, and online homework (using Mastering Biology).

Exams / Quiz / Assignment Policies:

- NO make-ups for in-class assignments. Be in class and participate!
- All work should be done independently (unless group work is explicitly 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.**
- **During exams any electronic device seen on your desk or within sight will result in a grade of zero**.

Course Grades:		**Grade Scale**	
Exam 1 :	100 points	A	93-100%
Exam 2:	100 points	A-	90-92%
Exam 3:	100 points	B+	87-89%
Exam 4:	150 points	B	83-86%
MastBio	150 points	B-	80-82%
In-class	150 points	C+	77-79%
Discussion:	250 points	C	73-76%
Total	1000 points	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.

You are expected to abide by The University of Tennessee honor statement in Biology 150 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."***

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 discussion 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

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, 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