

Biology 102- Introduction to Biology II: Biodiversity & Ecology
(Sections 001-009)
4 Credit Hours: 3 Credits lecture (plus 1 credit lab section)
The University of Tennessee, Spring 2018

Lecture: TR, 9:40AM-10:55AM, Strong 101

Lecture Instructor: Jeremy Chandler Ph.D. (jwchand@utk.edu)
Office phone: 865-974-8761
Office Hours- by appointment (**Office: Strong 205**)
Other meetings by appointment

Discussion / Lab: 2 hours per week in Strong Hall 201, 211, 212; (25% of your course grade!) **Labs start week of 1/16/2018**

Discussion / Lab Instructor(s): Miranda Chen, Maggie Mamantov, Bridget O'Banion, Anne Riley, Kaitlyn Stiles, Ellen Taylor, Andrew Wagner

Office hours: By appointment
Office phone: 865-974-8761
E-mail: jwchand@utk.edu
Lecture: TR, 9:40AM-10:55AM Strong 101
Clicker Channel: 26

Course Description: For non-biology majors, introduction to the principles of biology as they relate to biodiversity and ecological processes. Topics include a survey of evolutionary theory, an analysis of major representative organisms in the Tree of Life, and ecosystem dynamics including human impact on the environment.

Communications: You need to regularly check your UTK e-mail account for announcements related to this course. Email is a good way to communicate with me, but I will not respond to emails that do not require a response. For example, make-up COL policies, dates, and times are all indicated within this syllabus. All emails must have "**BIO102A**" in the subject line; those without this indication may be deleted or unopened. You should also include your section number or lab instructor's name in the email if you have a question regarding lab. I am happy to answer your e-mail inquiries and welcome them, but please allow up to 24 hours for a response. Also, once I leave the office I may be unable check my e-mail until the following workday, or the first day back after a weekend. **Please email me directly rather and DO NOT USE the email tool within canvas.**

Laboratory: meets according to individual schedule – refer to timetable (25% of your course grade). Labs start the week of **January 16th**

Course website: Canvas (utk.instructure.com)

Required materials: Textbook: Biology for a Changing World with Physiology, 2nd edition, 2014, Shuster/Vigna/Tontono/Sinha, with access to Sapling Learning.

Lab manual: Biology 102 Laboratory Manual, 5th edition, 2015, Brewton

Sapling Access: If you purchase a new or electronic version of the textbook it will be packaged with a Sapling Access Kit (the kit contains a code that will allow you access to the website). If your book is used, borrowed or otherwise, you may purchase access to the online sapling site by going to the sapling website. Homework assigned through Sapling will be worth 100 points. **See Sapling announcements and class information for registration and updates.**

TurningPoint® Response card (“Clicker”): Instructions for registering and using your “clicker” are found in the Course Syllabus area of the lecture Canvas site. Turning Point has now switched to turning point cloud and requires a license to pair with your clicker. **YOU ARE RESPONSIBLE FOR ENSURING REGISTRATION AND LINKING TO CLASS HAS BEEN DONE CORRECTLY**

Biology Learning Objectives

You should be able to explain the **five big ideas (FBIs)** in biology as they relate to topics you have learned throughout your degree program

1. **Evolution:** Populations of organisms and their cellular components have changed over time through both selective and non-selective evolutionary processes.
2. **Structure and Function:** All living systems (organisms, ecosystems, etc.) are made of structural components whose arrangement determines the function of the systems.
3. **Information Flow and Storage:** Information (DNA, for example) and signals are used and exchanged within and among organisms to direct their functioning.
4. **Transformations of Energy and Matter:** All living things acquire, use, and release and cycle matter and energy for cellular / organismal functioning.
5. **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**:

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

How you may learn the material

Learning is an active, demanding process: **Learning is hard work!** Outcomes – intellectual growth and grades – depend on how much you put into the process and how effectively you apply yourself. **In order to *learn* and to earn the grade you want, you typically will need to devote 1-2 hours each week per classroom hour to focused out-of-class reading, study, and work. You need to *engage yourself* in the assigned text and readings before coming to class.** Please reference the “Pyramid of success” document posted to Canvas for crowd sourced past student tips for methods they employed to be successful. If you find a new technique that works for you please share. As new ideas or methods come up I will update the document and let class know of any additions.

Assessment of your learning:

Point totals:

| | |
|------------------------------|----------------|
| Celebrations of learning (4) | 450 pts |
| Clicker points | 50 pts |
| Sapling online homework | 100 pts |
| <u>Laboratory</u> | <u>200 pts</u> |
| Total: | 800 pts |

Exams (celebrations of learning-COLs): There will be three closed-book lecture COLs worth 100 points each that will cover lecture topics and any assigned readings posted on Canvas. The **final COL** will be worth 150 points (Typically ~100 points on old material (60-70%); ~50 points for questions covering new material since COL 3). The use of review sheets and electronic devices (cell phones, PDA’s, etc.) are strictly prohibited during COLs and must be stowed out of sight during the entire COL period. **During COLs and quizzes, any electronic device seen on your desk or within sight will result in a grade of zero.**

Clickers: Randomly dispersed throughout the semester in class. Correct answers in general will be worth 1 point each, with a **maximum of 50 points** that can be earned. **More questions will be asked over the course of the semester than will be necessary to obtain the full 50 points for clickers, so occasional forgetfulness, illness, or tardiness will not seriously affect your clicker grade if you participate in class.**

Missing a COL or in class points:

- No make-up COLs will be given. If an individual COL is missed for an approved reason, your final COL will be scaled to compensate for the missed COL. For example, if you miss a COL, your final COL will be worth 250 points. **Note, you must contact the instructor prior to the start of the missed COL to have your final COL adjusted to 250 points.**
- Illness or Emergency: If you have an emergency or illness on the COL day, you should notify the Dr. Chandler by phone or email no later than the day of the COL. Failure to contact the instructor within 24 hours of the missed regularly

scheduled COL will result in an assigned grade of zero for this COL (unless there are extreme extenuating circumstances, such as hospitalization or death in your immediate family).

- It is your responsibility to make every effort to take each COL at its regularly scheduled time. Only students with valid, **documented** excuses will be allowed to be excused from an COL.
- **It is the student’s responsibility to notify the instructor that they have missed a COL.**
- If you anticipate missing a COL date due to a UT sanctioned event or scheduled interviews with professional schools, you need to notify the instructor **at least one week prior to the COL.**
- Excused absences from a COL include: severe personal illness, a death in the immediate family, jury duty, car accident or personal injury, military service or a UT sanctioned event for which UT personnel have requested in writing that the student be absent from the classroom on the scheduled COL day. **Verifiable documentation (i.e. note from a physician, etc.) will be required.**

Participation: Clicker questions will be asked randomly during class to gauge student understanding of the material and to prime in class discussions. Typically, you may miss about 5 or so lectures and still receive full credit for clickers given the abundance of points available. Group work in class will randomly be audited for class credit and will be added to the “Sapling online homework” component of your grade.

Assignments: There will be a total of 100 points from out-of-class assignments that will be announced in lecture and posted to Canvas and or Sapling. The nature of these assignments will be discussed in detail as we get to them. **If you miss class be sure to check posted lecture content for any missed announcements.**

Course Grade

Your course grade, or score, will be calculated by adding your total lecture points to your total lab points. The standard grading scale for this course is as follows:

| Final class average based on 800 points divided by 8.0 | Grade assigned and turned in to Registrar will be: |
|--|--|
| Greater than or equal to 92 | A |
| 89-91 | A- |
| 86-88 | B+ |
| 82-85 | B |
| 79-81 | B- |
| 76-78 | C+ |
| 71-75 | C |
| 68-70 | C- |
| 60-67 | D |
| Below 60 | F |

Classroom policies:

- 1) Be on time – If you are late, you may miss a quiz or clicker points (there are no make-up quizzes).
- 2) Silence all mobile electronic devices (cell phones/laptops). Laptops may be used in class, however please use appropriately for class. Inappropriate use may result in laptop seizure for the class or dismissal from class. Studies show higher retention with tangible interaction so we recommend you take notes with a writing implement when possible.
- 3) Questions are always welcomed and at times class discussions are encouraged; however, refrain from talking when the instructor or other students have the floor.

University deadlines/policies:

Last day to drop without a “W” **January 19th**

Last day to drop with a “W” **February 16th**

Last day to withdrawal from UT **April 27th**

Academic integrity:

You are expected to abide by the University of Tennessee Honor Statement throughout the lecture and lab portions of this course.

“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 personal commitment to honor and integrity.” (2014-2015 Undergraduate Catalog)

Academic dishonesty includes plagiarism, using multiple clickers, and assisting other students on COL, quizzes, and individual homework assignments. Depending on the offence, penalties range from a zero for the assignment to an F for the course. Official charges may also be filed which could result in dismissal from the University of Tennessee.

Final COL policy: “All final exams must be given during the final exam period at the scheduled time. Students are not required to take more than two written exams on any day. The instructor(s) of the last non-departmental exam(s) on that day must reschedule the student’s COL during the final period. **It is the obligation of students with such conflicts to make appropriate arrangements with the instructor at least two weeks prior to the end of classes.**”

(http://registrar.tennessee.edu/academic_calendar/finalexams.shtml)

LECTURE SCHEDULE*

| Date | Day | Chapter | Topic(s) | Material/Pages |
|---------------|----------|---------------|--|---------------------------------------|
| | | | Section 1- Process of Science, Evolution and Organization of Life | |
| 11-Jan | R | 1 | Course Introduction, Process & Validity of Sound Science | 1-19 |
| 16-Jan | T | 1,14 | Science as data, Basis of Selection & Adaptation | 303-319 |
| 18-Jan | R | M5,15 | Mechanisms of selection, Dogs!, Lamarck vs. Darwin | 320-329, supplemental |
| 23-Jan | T | M5,15 | Voyage of the Beagle, Nonadaptive evolution & Speciation | 320-329,330-351 |
| 25-Jan | R | 15,16 | Nonadaptive evolution & Speciation, What is a species?, | 330-351, 352-371 |
| 30-Jan | T | 16/17 | Mechanisms of speciation, Classification & Phylogeny | 352-389 |
| 1-Feb | R | 17 | Evidence for Evolution & History of the world Pt 1. | 372-389, Supplemental |
| 6-Feb | T | COL #1 | COL #1 | COL #1 |
| | | | Section 2- Biodiversity of the seen & unseen | |
| 8-Feb | R | 18 | Prokaryotic Diversity | 390-409 |
| 13-Feb | T | 19 | Prokaryotic Diversity, The Eukaryotic Explosion | 390-409, 410-429 |
| 15-Feb | R | 19 | Eukaryotic Diversity-The animals | 410-429,716-737 |
| 20-Feb | T | 19,31 | Eukaryotic Diversity- The plants | 410-429,716-737, Supplemental |
| 22-Feb | R | 23 | Microbiomes | 491, Supplemental |
| 27-Feb | T | COL #2 | COL #2 | COL #2 |
| | | | Section 3- Ecology and Human Evolution | |
| 1-Mar | R | n/a | "BLAST" into the past- What is human? | Supplemental/ online & class activity |
| 6-Mar | T | 20 | Human Evolution | 430-447 |
| 8-Mar | R | 20 | Human Evolution-2 | 430-447 |
| 13-Mar | T | SPRBK | SPRING BREAK- don't be a "Darwin award" | |
| 15-Mar | R | SPRBK | SPRING BREAK- don't be a "Darwin award" | |
| 20-Mar | T | 21 | Population Ecology | 448-465 |
| 22-Mar | R | 22 | Community Ecology | 466-485 |
| 27-Mar | T | 23 | Ecosystem Ecology | 466-509 |
| 29-Mar | R | 23 | Ecosystem Ecology 2 | 486-509, Supplemental |
| 3-Apr | T | COL #3 | COL #3 | COL #3 |
| | | | Section 4- Climate and Human Impacts | |
| 5-Apr | R | 23/supp | Biomes/Climate intro | 486-509, Supplemental |
| 10-Apr | T | 23/supp | What is climate? | 486-509, Supplemental |
| 12-Apr | R | M6/24 | Silent Spring/Silence of the bees/Sustainability | 510-519/520-545 |
| 17-Apr | T | 24 | Sustainability and our plastic planet | 520-545 |
| 19-Apr | R | supp | Conservation biology & practices | Supplemental |
| 24-Apr | T | supp | Bioengineering/ Invasive species | Supplemental |
| 26-Apr | R | supp | Review/ Catchup/Course round up | TBD |
| 3-May | T | n/a | FINAL COL 8:00AM-10:00AM (STRONG 101) | FINAL COL |

★Course Organization

★This is a provisional breakdown of information to be covered. Any changes will be announced in class and online through Canvas syllabus updates.

★Topics listed above are in general matched with the Chapters from the book, however there may also be supplemental readings. These materials will be announced in class and posted on Canvas/ class google drive space in advance of lectures in which we may discuss them.

Tennessee Education Lottery Scholarship recipients: Please refer to the TN onestop site for any questions you have.

(<https://onestop.utk.edu/scholarships/hope/>)

Campus resources:

Counseling Center: Provides personal counseling, psychotherapy, and psychological outreach and consultation. Website – <http://counselingcenter.utk.edu> Location – Student Health Building, 2nd floor, M-F 8 am – 5 pm (except W 9-5) Phone – 865-974-2196 E-mail – counselingcenter@utk.edu

Office of Disability Services: If you need course adaptations or accommodations because of a documented disability, please contact ODS.

Website – <http://ods.utk.edu> Location – Dunford Hall, Room 2227, Monday-Friday, 8 am – 5 pm Phone – 865-974-6087 E-mail – ods@utk.edu

Office of Information Technology: Offers assistance with CANVAS, clickers, e-mail, and other general IT problems.

Website – <https://oit.utk.edu/Pages/default.aspx> Location – Hodges Library, the Commons, M-R 9 am – 9 pm, Fri 9-5, Sun 4-9 Phone – 865-974-9900 E-mail – None, go to <http://remedy.utk.edu/contact/>

Office of Multicultural Student Life: The Academic Support Unit offers free walk-in tutoring for all UT students.

Website – <http://web.utk.edu/~omsa/index.php> Location – Black Cultural Center, MW 6-9 pm, TR 2-8 pm Phone – 865-974-6861 E-mail – asu@utk.edu

Student Success Center: Offers academic support for all UT students and offers free tutoring for all enrolled undergraduate UT students. Website – <http://studentsuccess.utk.edu/about/> Location – Greve Hall, Room 324, Monday-Friday, 8 am – 5 pm Phone – 865-974-6641 E-mail – studentsuccess@utk.edu