



Instructor: Dr. Stan Guffey sguffey@utk.edu Office: 245 Strong Hall
Office hours: Tuesdays 9:00-11:00, Wednesdays 3:00 – 4:00, or by appointment

Any student who may need an accommodation based on the impact of a disability should contact Dr. Guffey privately; and if you have not already done so, Disability Services, to discuss specific needs.

When and Where:

BIOLOGICAL CONCEPTS SKILLS: MON. & WED. 1:25 – 2:15, STRONG HALL 101
Scheduled Exams and Review: Fri. 1:25 – 2:15, STRONG HALL 101

BIOLOGICAL LITERACY SKILLS: STRONG HALL, ROOM#, Days and Times as indicated on your schedule

Course Description: Intended for science majors, an introduction to the major biological concepts emphasizing the organismal and ecological aspects of life. Organized along themes of evolution, structure and function, information flow, exchange and storage, pathways of energy and matter, and systems. 3 credits: 2 credits “lecture” (*Biological Concept Skills*), 1 credit “discussion” (*Biological Literacy Skills*). *Satisfies General Education Requirement: (NS)*

Value of the Course: In this course we will develop a story about organismal diversity: How it originates, what pressures cause it to change, how it is studied; and about interactions among organisms and their interactions with the abiotic environment. Your work will help you develop a reliable foundation for further study and research in the life sciences and form an integral part of your overall intellectual growth and personal and professional development.

Course Prerequisites: Biology 150 and 160, the introductory courses for life sciences and health sciences majors in the University of Tennessee, are designed to build upon your knowledge and understanding as described in the Tennessee High School Science Curriculum Standards for Biology I and Chemistry I. *You are expected to have attained the level of competence indicated in the performance indicators. If you lack such competency, remediation is your responsibility.* The relevant Biology I and Chemistry I standards prerequisite for Biology 150 are detailed in a document on the course Blackboard site. The complete list of curriculum standards is available at: <http://tn.gov/education/standards/science.shtml>

How to Be Successful in this Class: 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 will need to devote 6 to 9 hours each week to focused out-of-class reading, study, and work. You need to engage the assigned text and readings before coming to class.**

Students with Disabilities Policy:

The Office of Disability Services (ODS) is located in 100 Dunford Hall, and can be reached by phone at (865) 974-6087 or (865) 622-6566 via video phone. For an Intake Application, documentation guidelines and/or more information on the Office of Disability Services, visit <http://ods.utk.edu>. The Office of Disability Services serves students with documented disabilities by providing reasonable accommodations that ensure equal access to the university. To become registered with ODS, students are required to submit an Intake Application Form along with supporting documentation that meets ODS documentation guidelines.

Learning Objectives: By the end of the course, you should be able to:

Explain how scientists define and study Life, how it has evolved, been shaped by and shaped Earth's environments, and why it is currently declining on Earth.

Explain why science produces reliable explanatory knowledge of the natural world, while also being tentative and creative.

Think as a biologist: Explain and integrate the *five overarching biological concepts – the “Five Big Ideas” in Biology*:

- ◆ **Evolution:** The diversity of life, populations of organisms, and the cellular components of life have evolved 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. All organisms are made of similar subunits, which are shaped and arranged by evolution to have different functions
- ◆ **Information Flow and Storage:** Information (DNA, for example) and signals are used and exchanged within and among organisms to direct their functioning. DNA is the instruction code for all life; how it functions, mutates, and is exchanged within and among life forms is the basis of evolution
- ◆ **Transformations of Energy and Matter:** All living things require energy and rely on chemical transformations of matter for cellular / organismal functioning; some pathways are nearly universal, others vary by type of organism
- ◆ **Systems:** Living systems are interconnected in organized patterns; they interact with and influence each other and the abiotic environment on multiple levels, from cells within one organism to interactions between global communities

Develop the following **scientific practices**: Ability to:

- ◆ Link lecture topics and synthesize information, particularly in reference to the five overarching biological concepts
- ◆ Work with other members of the learning community to enhance your biological knowledge
- ◆ Ask scientific / critical questions, formulate empirically-testable hypotheses, and make predictions based on models or data
- ◆ Interpret scientific representations, such as graphs, phylogenies, or molecular structures, or data, and come to a conclusion (with evidence)
- ◆ Evaluate and summarize the claims and evidence presented in scientific publications and other sources
- ◆ Predict the consequences of changes to systems or pathways

Biological Concept Skills will focus on patterns and processes in ecological and evolutionary biology.

Biological Literacy Skills will integrate the course learning objectives through engagement with scientific literature.

Learning Environment: Each member of the University of Tennessee academic community is responsible for their own learning, and has the additional responsibility of aiding and facilitating the learning of other members of the academic community. We will work to organize the course concepts, resources, and activities in a manner to facilitate your learning, but it is up to you to synthesize the information and make it your own. Classes will be a mix of discussion, group and individual application assignments, and quizzes – with a minimum of formal lecturing. **You need to engage the assigned text and readings before coming to class.** In class you must be prepared to demonstrate and apply your learning – **think as a biologist**, and through discussions and work with your peers, mutually expand your understanding. After class you should review and reflect on the concepts discussed in class. Out of class your instructors are available to assist you immediately after class, during office hours, at scheduled review sessions, or by appointment.

Texts/Materials/Resources for the Course:

Textbook: Rye, C. et al. 2015. Biology. OpenStax, Rice University.

Chapters available on the course website. Also available online or for pdf download, or you can purchase a print copy (\$52.00) or iBook (\$6.95) at: <https://openstax.org/details/books/biology>

Course website: <http://online.utk.edu/> (Canvas). The course syllabus, session learning objectives and notes, pdf copies of the textbook, additional required and supplementary readings, assignments, and other information are on the course site.

Classroom response system: TurningPoint “clicker” (available from the UT bookstore)

Study Rooms: 222 Strong Hall is a study room for Biology majors. A Student Resource Center is located in 102 Strong Hall.

Course Requirements, Assessment and Evaluation:

Assessment is very important to the learning process. It lets you and your instructor know what you understand and what you do not. Assessments will be in the form of regular in-class quizzes, online quizzes, in-class and homework assignments, and exams.

Exams will consist of multiple-choice and short answer questions. Essay/short answer exams are available for those who prefer by letting me know in advance. Exams are an opportunity where your preparation meets our challenge.

Quizzes will be regularly in class.

Miscellaneous assignments will be taken up in class on the date due. Assignments will be evaluated on the basis of the clarity of the ideas, the depth of the treatment, accuracy, neatness, and relative to the work of other students. Written assignments that are of marginal legibility due to carelessness in handwriting will be graded as a zero.

Grading:

	<u>Component</u>	<u>Grade Contribution</u>
Concept Skills:	Four lecture exams:	40%
	Final exam	15%
	Quizzes and assignments:	<u>20%</u> 75%
Literacy Skills:		<u>25%</u>

Grading Scale

<u>Grade</u>	<u>%</u>	<u>Grading Guideline</u>
A	93 – 100	Superior performance. Exemplifies highest quality.
A-	90 – 92	Superior performance. High quality work.
B+	87 – 89	Superior performance. High quality work.
B	83 – 86	High quality performance in all or most aspects.
B-	80 – 82	High quality performance in some aspects, satisfactory in others.
C+	77 - 79	High quality performance in some aspects, satisfactory in others.
C	70 – 76	Satisfactory performance.
D+	66 – 69	Substandard performance throughout most of the course.
D	60 – 65	Substandard performance throughout most of the course.
F	<60	Minimal learning and exemplary substandard performance throughout the course.

Course Schedule

January 10	Introduction: Thinking as a Biologist Syllabus, Core Concepts, High School Curriculum Standards
January 12	NO CLASS MEETING
January 15	Martin Luther King Jr. Holiday and Day of Service
January 17	The Scientific Study of Life: Thinking as a Biologist Chapter 1: pp. 7 – 30 ¹
January 19	OPTIONAL (RECOMMENDED) : How to study biology: Using the Learning Objectives
January 22	Genes and Individuals: <i>Mostly review from High School</i> Chapter 10: pp. 269 – 272; Chapter 12: pp. 319 -325; Chapter 14: pp. 363 -368, pp. 373 – 375, 384; Chapter 15: pp. 389 – 392
January 24	Reproduction and Recombination: <i>Mostly review from High School</i> Chapter 10: pp. 269 – 277; Chapter 11: pp. 295 – 308
January 26	OPTIONAL: Conversation and review
January 29	Biological Evolution Chapter 18: pp. 467 – 476; Supplemental material ²
January 31	Populations Chapter 45: pp. 1317 - 1334
February 2	FIRST EXAM – January 10 – January 31
February 5	Genes and Populations Chapter 19: pp. 491 – 501; Supplemental material
February 7	Genes and Populations Chapter 19: pp. 491 – 501; Supplemental material
February 9	OPTIONAL: Conversation and review
February 12	Natural Selection & Adaptation Chapter 19: pp 501 – 506; Supplemental material
February 14	Resources, Niche, Coevolution, Communities Chapter 44: pp. 1283 - 1287; Chapter 45: pp. 1338 – 1347
February 16	SECOND EXAM – January 10 – February 14
February 19	Resources, Niche, Coevolution, Communities
February 21	Speciation Chapter 18: pp. 476 – 486; Supplemental material
February 23	NO CLASS MEETING
February 26	Phylogeny Chapter 20: pp. 511 – 523; Supplemental material
February 28	Phylogeny Supplemental material
March. 2	OPTIONAL: Conversation and review
March 5	Prokaryotes: The Unseen Majority Chapter 4: pp. 106 – 109; Chapter 8: pp. 219 – 223; Chapter 10: pp. 287 – 288; Chapter 20: pp. 523 – 525; Chapter 22: pp. 563 – 592 (<i>SKIM</i> pp. 572 – 576)
March 7	Evolution of Eukaryotes Chapter 4: pp. 109 – 117; Chapter 20: pp. 525 - 530 Chapter 23: pp 599 – 608, pp. 623 – 627, <i>SKIM</i> pp. 609 – 622
March 9	THIRD EXAM – January 10 – March 5
March 12 - 16	SPRING BREAK!
March 19	Evolution and Diversity of Plants Chapter 25: pp. 663 – 685; Supplemental material
March 21	Evolution and Diversity of Plants Chapter 26: pp. 691 – 714; Chapter 32: pp. 897 - 918
March 23	NO CLASS MEETING
March 26	Evolution and Diversity of Fungi Chapter 24: pp: 631 – 657 (<i>SKIM</i> pp. 638 – 646)
March 28	Evolution and Diversity of Animals Chapter 27: pp. 719 – 737; Chapter 28: pp. 743 – 755; Chapter 33: pp. 929 – 934; Chapter 43: pp. 1247 - 1250; Supplemental material
March 30	NO CLASS MEETING
April 2	Evolution and Diversity of Animals

	Chapter 28: pp.755 - 781
April 4	Evolution and Diversity of Animals Chapter 28: pp 781 – 784; Chapter 29: pp. 791 – 819
April 6	FOURTH EXAM – January 19 – April 2
April 9	Human Evolution Chapter 29: pp. 819 – 826; Chapter 45: pp. 1334 – 1338; Supplemental material
April 11	Biogeography and Biomes Chapter 44: pp. 1288 – 1307; Supplemental material
April 13	NO CLASS MEETING
April 16	Ecosystem Processes and the Biosphere Chapter 46: pp. 1367 – 1391; Supplemental material
April 18	Human Success, Biodiversity Decline Chapter 44: pp. 1307 – 1312; Chapter 45; pp. 1334 – 1338; Chapter 46: pp. 1383 – 1389; Chapter 47: pp. 1397 – 1407, 1410 - 1417; Supplemental material
April 20	NO CLASS MEETING
April 23	Conservation of Biological Diversity Chapter 47: pp. 1407 – 1410, 1418 - 1422; Supplemental material
April 25	Conservation of Biological Diversity Supplemental material
April 27	OPTIONAL: Conversation and review
May 4 12:30 – 2:30	FINAL EXAM – January 10 – April 25

¹ Page numbers refer to the page number identified on the page, not the pdf page sequence number

² Supplementary material posted on Canvas

Course Policies:

Respect and regard for the learning rights of all members of the class is essential. Behavior or actions that may interfere with the learning rights of others include arriving late, leaving early, off-topic conversations, texting and other electronic device use, and any other actions that disturb the focus and concentration of other members of the class. You are expected to arrive for class on time. If personal contingencies necessitate arriving late or leaving before the end of class, do so in a manner that minimizes interference with other members of the class.

I will be available during indicated office hours. You do not need to make an appointment to visit during those times. However, an email a day or two in advance explaining your concerns or needs will be helpful. All email communications should have Biology 150 in the subject line.

Laptops and smart devices may be used in class, but it is expected that you will be using them for class purposes. Electronic devices are not permitted during exams; use or presence will result in a zero.

All submitted work must have your name on it!

If you must miss an exam notify me in advance if at all possible. Make-up exams will be at 7:00AM the Monday following the scheduled exam in Strong Hall 245; notify me if you will be taking the make-up exam. There will be no make-up for the final exam until late May.

Quizzes, and other class participation activities and in-class assignments cannot be made up, nor are there any excused absences. However, recognizing that things do happen and it may be necessary to miss class, *there will be in excess of 200 “points” worth of opportunity to earn the Quizzes and Assignments component of your grade.* Please contact your instructors if you have a circumstance that will affect your attendance. Assignments turned in after the due date will lose 25% of the points per 24 hours after the deadline.

All work should be done independently (unless permitted, as specified, by the instructors).

There is no “extra credit”.

University Policies:

By registering at the university, the student neither loses the rights nor escapes the duties of a citizen. **Enjoying greater opportunities than the average citizen, the university student has greater responsibilities. Each student's personal life should be conducted in a context of mutual regard for the rights and privileges of others.** It is further expected that students will demonstrate respect for the law and for the necessity of orderly conduct in the affairs of the community.

Students are responsible for being fully acquainted and for complying with the University catalog, handbook, and other rules and policies relating to students. Failure or refusal to comply with the rules and policies established by the University may subject a student to disciplinary action up to and including permanent dismissal from the University.

PRINCIPLES OF CIVILITY AND COMMUNITY

The principles encourage all members of the campus community to foster a learning environment where the differences of our diverse culture are valued, respected and celebrated.

Civility is an act of showing regard and respect for others including: politeness, consideration, tact, good manners, graciousness, cordiality, affability, amiability and courteousness. Ultimately, civility is treating others as we would like to be treated. Our community consists of students, faculty, staff, alumni, parents of UTK students and campus visitors. Community members affect each other's well-being and have a shared interest in creating and sustaining an environment where all community members and their points of view are valued and respected.

By affirming the value of each member of the university community, the campus asks that all its members adhere by the following principles:

- **INCLUSIVITY** - We are welcoming to all and hostile to none. We foster an open community in which educational goals may be pursued.
- **DIVERSITY** - We respect the diverse backgrounds of all members of our community and welcome the opportunity for interpersonal and group interactions.
- **DIALOGUE** - We value and encourage, and facilitate free exchange of diverse ideas and points-of-view along with free speech and expression. However, we discourage uncivil speech or expression that infringes upon the ability of others to express themselves.
- **COLLEGIALITY** - We value an environment that facilitates collegial relationships, encourages mutual understanding among diverse individuals, and leads to addressing issues and differences in an atmosphere of mutual respect and civility.
- **RESPECT** - We believe that a person's views, ideas, and behavior best reflect the goals of the academic community when the dignity of each individual is respected and when members of the community are considerate of the feelings, circumstances, and individuality of others.
- **KNOWLEDGE** - We encourage development of a civil community that values critical inquiry, debate, discovery, and innovation to better the world through teaching, research and service.
- **INTEGRITY** - We value academic honesty and integrity by all members of the academic community.
- **LEARNING** - We believe that learning is an interpersonal growth experience that fosters appreciation for diversity.
- **AWARENESS** - We believe it is important to recognize how others view and relate to the community and recognize that we are part of a larger community.
- **RESPONSIVENESS** - We encourage all community members to speak out against incidents involving bigotry and other types of incivility so the university can fulfill its responsibility of responding in a fair, timely and consistent fashion.

ACADEMIC INTEGRITY IS THE CORE VALUE OF LEARNING COMMUNITIES

University of Tennessee Standard of Conduct #1: "Cheating, plagiarism, or any other act of academic dishonesty, including, but not limited to, an act in violation of the Honor Statement." You are expected to abide by The University of Tennessee honor statement in Biology 150 and in all of your university activities:

"An essential feature of The University of Tennessee 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."

Penalties for academic dishonesty assessed by the instructor may range from the grade of zero for the assignment, to an F for the course. All infractions will be reported to the Office of Student Conduct and Community Standards, the Dean of the College of Arts and Sciences, and the Dean of the College in which the student is enrolled. The Office of Student Conduct and Community Standards may charge a student with violating Standard of Conduct #1 regardless of the response of the instructor to the alleged academic dishonesty. You should read and be familiar with the requisites of academic honesty and what constitutes academic dishonesty as outlined in the 2017-2018 Undergraduate Catalog and Hilltopics.

University Deadlines and Dates for Fall Semester 2017:

Last day to register, add, or drop without a "W" ¹	January 16
Last Day to Adjust Hours for Financial Aid Awarding	January 23
Drop with a "W" ¹	April 3
Withdraw from all classes ²	April 27

¹ Students are allowed four drops during their academic career (until a bachelor's degree is earned). The W grade is not computed in the grade point average. Courses may be dropped on the web (<https://myutk.utk.edu/>).

² If you need to drop all of your courses for the term (e.g. due to unexpected illness, accident, etc.), you may do so by applying for a total withdrawal from the university for the term. The application for total withdrawal is available at: <http://registrar.tennessee.edu/forms/index.shtml>. If you apply for a total withdrawal, you must also apply for readmission through the Office of Undergraduate Admissions, 320 Student Services Building, (865) 974-2184.

Assistance, Support, and Resources:

Hilltopics (Student Handbook): <http://dos.utk.edu/hilltopics/>

Undergraduate Catalog: <http://catalog.utk.edu/>

Academic Assistance:

Student Success Center: The comprehensive source for information, services, and resources to assist your success at UT: <http://studentsuccess.utk.edu/>

Greve Hall, Room 324 (821 Volunteer Boulevard)

865 974-6641

Email: studentsuccess@utk.edu

Academic Support Unit of The Office of Multicultural Student Life offers some tutoring services, but openings are limited and are fill quickly. The office also offers other types academic assistance and support: <http://multicultural.utk.edu/>

1800 Melrose Avenue

865 974-6861

Email: multicultural@utk.edu

Technical Assistance:

Canvas, 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 the Walk-In Help Desk, Library Commons

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

Student Health Center, 2nd floor of the Student Health Building (1800 Volunteer Blvd)

865 974-2196

Email: counselingcenter@utk.edu

Other Resources

One Stop: Hodges Library (Volunteer Blvd. entrance <http://onestop.utk.edu>)

Academic Planning: <http://advising.utk.edu/>

Library: <http://www.lib.utk.edu>

Center for Career Development: 201 Student Union Phase 1 <http://career.utk.edu>

THE INSTRUCTOR RESERVES THE RIGHT TO REVISE, ALTER AND/OR AMEND THIS SYLLABUS, AS NECESSARY. STUDENTS WILL BE NOTIFIED IN CLASS, ON CANVAS AND/OR BY EMAIL OF ANY SUCH NECESSARY REVISIONS, ALTERATIONS AND/OR AMENDMENTS