BIOLOGY 102-01 Syllabus
Spring 2023
Instructor: Jessica McCoy, Ph.D.
RITA 101
MWF 10-10:50

Jessica McCoy
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65 Coming St., Room 102
In-person and virtual office hours are available for you. Please email to set up.

COURSE DESCRIPTION
This is a non-science majors’ course, which will provide a background for understanding and evaluating contemporary topics in biology and societal/environmental issues. The course emphasizes physiology and anatomy of organisms, ecological and evolutionary concepts, biodiversity, and conservation biology. An understanding of methods, history, and the dynamic nature of science will also be emphasized.

Prerequisite: BIOL 101
Co-requisite: You MUST enroll in the lab section (BIOL 102L) in addition to this lecture.

Text Book: Biology: Concepts and Applications by C. Starr et al. 10th ed. (earlier editions ok)

We will NOT use MindTap for this course.

Link to 9th edition

GRADING
(90%) Weekly Quizzes: 14 total
(10%) Presentation: 1 presentation per student

Please see the schedule for quiz dates and details regarding presentation.
No quiz scores will be dropped. Missed quizzes will result in a zero for that quiz.

What will quizzes look like?
They will have ~15 MC questions and 1-2 Short Answer Questions.
They will be completed online using the lockdown browser function. No outside resources are allowed. Students must sign out to receive credit for their quiz.
How does my lab grade affect my lecture grade?

It does not. The class and the lab are graded separately. The lab is worth 1.0 credit and the lecture is worth 3.0 credits.

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<thead>
<tr>
<th>GRADE SCALE:</th>
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<tbody>
<tr>
<td>93 and above: A</td>
<td>80-83.9: B -</td>
<td>67-69.9: D</td>
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<tr>
<td>90-91.9: A -</td>
<td>77-79.9: C</td>
<td>64-66.9: D</td>
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<tr>
<td>87-89.9: B*</td>
<td>74-76.9: C</td>
<td>60-63.9: D -</td>
<td></td>
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<tr>
<td>84-86.9: B</td>
<td>70-73.9: C -</td>
<td>below 60: F</td>
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ATTENDANCE

Regular attendance is positively correlated with success in any course. Class attendance and participation is, therefore, strongly encouraged. A missed exam will result in a “zero”. Unless you reach out to the instructor prior to your absence with a documented excuse, you will NOT be able to make up for missed exams.

ACADEMIC INTEGRITY/CHEATING POLICY

Students are expected to be familiar with and comply with the College of Charleston’s official honor code: [https://policy.cofc.edu/documents/12.4.1.pdf](https://policy.cofc.edu/documents/12.4.1.pdf).

I have a zero-tolerance policy for cheating, and all violations will result in substantial penalties. If you have any doubts or about what constitutes academic misconduct, please contact me. Consultation of outside sources during online exams constitutes cheating.

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each instance is examined to determine the degree of deception involved.

Incidents where the professor believes the student’s actions are clearly related more to ignorance, miscommunication, or uncertainty, can be addressed by consultation with the student. We will craft a written resolution designed to help prevent the student from repeating the error in the future. The resolution, submitted by form and signed by both the professor and the student, is forwarded to the Dean of Students and remains on file. Cases of suspected academic dishonesty will be reported directly to the Dean of Students. A student found responsible for academic dishonesty will receive a XF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student’s transcript for two years after which the student may petition for the X to be expunged. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board. It is important for students to remember that unauthorized
collaboration—working together without permission—is a form of cheating. Unless a professor specifies that students can work together on an assignment and/or test, no collaboration is permitted. Other forms of cheating include possessing or using an unauthorized study aid (such as a PDA), copying from another’s exam, fabricating data, and giving unauthorized assistance. Remember, research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the professor.

OAKS (3.10, for all instructional modalities)
OAKS, including Gradebook, will be used for this course throughout the semester to provide the syllabus and class materials and grades for each assignment, which will be regularly posted.

Inclement Weather, Pandemic or Substantial Interruption of Instruction (3.8)
If in-person classes are suspended, faculty will announce to their students a detailed plan for a change in modality to ensure the continuity of learning. All students must have access to a computer equipped with a web camera, microphone, and Internet access. Resources are available to provide students with these essential tools.

LEARNING GOALS & OBJECTIVES
This general education science course provides a background for understanding and evaluating contemporary topics in biology and societal/environmental issues. Students develop a general understanding of core concepts and develop the critical competencies that form the bases for the practice of science and use of scientific knowledge.

This 2-semester course sequence in general biology addresses fundamental principles in biology which broadly include:

Evolution: The diversity of life evolved over time by processes of mutation, selection, and genetic change. The theory of evolution by natural selection allows scientists to understand patterns, processes, and relationships that characterize the diversity of life.

Structure and Function: Basic units of structure define the function of all living things. Structural complexity, together with the information it provides, is built upon combinations of subunits that drive increasingly diverse and dynamic physiological responses in living organisms. Fundamental structural units and molecular and cellular processes are conserved through evolution and yield the extraordinary diversity of biological systems seen today.
Information flow, exchange and storage: The growth and behavior of organisms are activated through the expression of genetic information at different levels of biological organization and depend on specific interactions and information transfer.

Pathways and transformation of energy and matter: Biological systems grow and change by processes based upon chemical transformation pathways and are governed by the laws of thermodynamic and will be explored to understand how living systems operate, how they maintain orderly structure and function, and how physical and chemical processes underlie processes at the cellular level (i.e. metabolic pathways, membrane dynamics), organismal level (i.e. homeostasis) and ecosystem level (i.e. nutrient cycling).

Biological systems: Living systems are interconnected and interacting and biological phenomena are the result of emergent properties at all levels of organization, from molecules to ecosystems to social systems. The course will explore the dynamic interactions of components at one level of biological organization to the functional properties that emerge at higher organizational levels.

Core Competencies

Nature of Scientific Knowledge

- Understand the intellectual standards used by scientists to establish the validity of knowledge, evidence, and decisions about hypothesis & theory acceptance? These standards include: 1) science relies on external and naturalistic observations, and not internal convictions. 2) scientific knowledge is based on the outcome of the testing of hypotheses and theories that are under constant scrutiny and subject to revision based on new observations 3) the validity of scientifically generated knowledge is established by the community of scientists through peer review and open publication of work.

- Understand that new ideas in science are limited by the context in which they are conceived; are often rejected by the scientific establishment; sometimes spring from unexpected findings; and usually grow slowly, through contributions from many investigators.

- Understand that science operates in the real world as defined by the laws of chemistry and physics.

- Understand the differences between and relations among a scientific theory, hypothesis, fact, law, & opinion.

- Understand the differences between science and technology but also their interrelations.
- Understand the dynamic (tentative) nature of science.

- Understand the methods scientists use to understand the natural world (observing; questioning; formulating testable deductive hypotheses; controlled experimentation when possible; observing a wide range of natural occurrences and discerning (inducing) patterns.)

- Apply physical/natural principles to analyze and solve problems.

Developing a Scientific Attitude

- Develop habits of mind that foster interdisciplinary and integrative thinking (within biology; between biology and other sciences; between science and other disciplines)

- Develop an appreciation for the scientific attitude - a basic curiosity about nature and how it works.

- Developing scientific analysis and communication skills

- Develop quantitative reasoning skills (quantitatively expressing the results of scientific investigations, or patterns in nature and using knowledge of biological concepts to explain quantitatively-expressed data or patterns).

- Understand the probabilistic nature of science and the use/application of inferential statistics to test hypotheses.

- Develop scientific information literacy (library, internet, databases etc...); finding and evaluating the validity of science-related information.

- Communicate scientific knowledge, arguments, ideas in a variety of different contexts (scientific, social, cultural) and utilizing a variety of different media (scientific articles, policy statements, editorials, oral presentations etc...).

- Develop cooperative problem-solving skills (working effectively in teams), but also habits of mind and skills that foster autonomous learning.

- Develop an appreciation for the impact of science on society.

- Develop an appreciation of humans as a part of the biosphere and the impact of biological science on contemporary societal/environmental concerns.
Knowledge of the history of the biological sciences and the influences of politics, culture, religion, race, and gender on the scientific endeavor.

**Signature assignments for measuring learning outcomes**

Learning Outcome #1: Students apply physical/natural principles to analyze and solve problems. This learning outcome is assessed using the poster (or scientific article) generated in Biology 102 lab as part of the multi-week student-directed independent research project. In this project students use ecological data they collect (or which has been collected in actual research investigations) to test an ecological hypothesis of their choosing. This multi-week project begins with students becoming experts in various areas of ecological sampling. Students, working in small research teams, decide on a question they would like to explore. Teams then develop a research proposal to test their hypothesis. Students collect (or use already collected data), summarize and analyze the data, and draw conclusions.

Learning Outcome #2 - Students demonstrate an understanding of the impact that science has on society. BIOL 102 lab students produce a written document (examples - policy statement, article, stake-holder professional letter or poster) which requires them to research and apply biological knowledge or evidence to defend or critique a proposed solution to a biology related societal issue. Although the choice of the specific issue or proposed solution is course-section specific, some examples of potential issues include exploring environmental/health impacts of genetically modified organisms the epidemic of diabetes in the United States solutions for mitigating global climate change

Center for Student Learning: I encourage you to utilize the Center for Student Learning’s (CSL) academic support services for assistance in study strategies, speaking & writing skills, and course content. They offer tutoring, Supplemental Instruction, study skills appointments, and workshops. Students of all abilities have become more successful using these programs throughout their academic career and the services are available to you at no additional cost. For more information regarding these services please visit the CSL website at https://csl.cofc.edu or call (843)953-5635.

**SPECIAL REQUESTS**

If there is a student in this class who has a documented disability and has been approved to receive accommodations through SNAP Services, please feel free to come and discuss this with me during my office hours.

Any student eligible for and needing academic adjustments or accommodations because of a disability is requested to speak with the professor in a timely manner so that your needs can be addressed. The College will make reasonable accommodations for persons with documented disabilities. Students should apply for services at the Center for Disability Services located on the first floor of the Lightsey Center, Suite 104. Students approved for accommodations should notify their professors as quickly as
possible. This College abides by section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act that stipulates no student shall be denied access to an education “solely by reason of a handicap.” Disabilities covered by law include, but are not limited to, learning disabilities and hearing, sight or mobility impairments. If you have a documented disability that may have some impact on your work in this class and for which you may require accommodations, please see an administrator at the Center of Disability Services, (843) 953-1431 or me so that such accommodation may be arranged.

CONFIDENTIALITY OF STUDENT RECORDS
The Family Educational Rights and Privacy Act of 1974 (FERPA) is a federal law designed to provide students with greater access to and control over information contained in their educational records, while at the same time prohibiting, in most circumstances, the release of any information contained in those educational records without express written consent of the student. This law guarantees privacy of student records, open access by students to their records, restricted release of information to specified authorities or others only with written consent, and procedures allowing students to challenge the contents of their records. The law also requires that an inventory of records be maintained denoting the location, content, and any official review of students' records and identifying the staff member in charge of records and/or reviews. Notice of this law must be provided annually to all students. Forms necessary for obtaining access to student records are provided by the Office of the Registrar. THIS IS WHY I CANNOT INFORM YOU FOR A REQUEST FOR YOUR GRADES ETC. BY E-MAIL OR THE TELEPHONE AT THE END OF THE SEMESTER. THE ONLY LEGAL OPTION IS PERSON – PERSON COMMUNICATIONS I.E SEEING EACH OTHER IN PERSON.