GREETINGS 101 STUDENTS! PLEASE USE SHEDLOCKBIOL@GMAIL.COM TO CONTACT THE INSTRUCTOR BY EMAIL

BIOL 101-02 CRN-20071 CONCEPTS AND APPLICATIONS IN BIOLOGY I LECTURE (3.0 Credits)

ONLINE ASYNCHRONOUS ACTIVE LEARNING VIA OAKS + STARR CENGAGE MINDTAP
SYNCHRONOUS SCHEDULED WEEKLY MEETINGS VIA ZOOM

Instructor: Dr. Andy Shedlock, Biology Department
Scheduled Class Time: MWF 10:00-10:50AM
WEDNESDAY 10:00-10:50AM: REQUIRED Synchronized Online Weekly Quiz via OAKS-MINDTAP
MONDAY 10:00-10:50AM: OPTIONAL Open Format Review Q&A Discussion via ZOOM
OFFICE HOURS: FRIDAY 10:00-11:00AM
DEDICATED BIOL 101-02 EMAIL = SHEDLOCKBIOL@GMAIL.COM
(PLEASE DO NOT USE shedlockam@cofc.edu OR IT WILL NOT WORK RELIABLY)

Response Times: Emails typically within 48 hours; grading typically within 72 hours

REQUIRED TEXTBOOK: Starr, Evers and Starr, 10th Edition + CENGAGE user account access

**Biology: Concepts and Applications with CENGAGE | MINDTAP Learning Tools**

The following website walks you through the MindTap registration process in detail: https://startstrong.cengage.com/mindtap-brightsae-ia-no/
OAKS-MINDTAP QUIZZES on WEDNESDAYS: All course material and associated online activities, including taking weekly time-synchronized quizzes on WEDNESDAYS, are managed on OAKS and linked to the interactive learning tools bundled with the Starr/Evers/Starr 10th Edition Biology textbook listed above. We will use CENGAGE-MINDTAP interactive learning tools that are fully integrated with the digital textbook and embedded in OAKS. Please make sure you have online access to the full textbook content via CENGAGE-MINDTAP when you purchase the required 10th Edition of the textbook. A hard copy of the textbook will not allow you to function in the class unless you also have individual user account access to the weekly MINDTAP interactive learning activities that will be posted on OAKS.

ZOOM Q&A on MONDAYS: Synchronized class meetings take place on MONDAYS and use the ZOOM online video conference platform. All zoom meetings will be hosted by the instructor and links to join all scheduled zoom meetings will be accessible through the OAKS homepage Content menu and Course Schedule tab. Do not use your own external version of Zoom to join the scheduled class meetings or it is likely to not work properly.

Individual Responsibility for Internet Connectivity: As a student enrolled in an online remotely instructed CoC course, it is your responsibility to make sure you can function remotely with your computer reliably on OAKS/MINDTAP and Zoom. Check the reliability of your connectivity in advance. Before you need to participate in synchronized activities such as taking quizzes and exams. If you are having technical problems functioning with your internet connectivity and online computer accounts do not hesitate to contact the CoC Office of Information Technology (https://help.cofc.edu/ | (843) 953-3375) for technical support.

Check OAKS Daily for Updated Course Info and Announcements. You will see announcements on the BIOL 101-02 homepage about upcoming scheduled assignments and exams via CENGAGE-MINDTAP as well as tips for studying the material effectively and navigating the content modules listed in the Table of Contents.

READ THE SYLLABUS (Repeat as Necessary). The syllabus on OAKS is the centerpiece of all course information and you need to read it and re-read it throughout the semester to anticipate accurately how to participate effectively. Please check the syllabus carefully to answer FAQs and for updates throughout the semester.

Netiquette and Professional Code of Online Conduct. “Netiquette” (network x etiquette) is a term that refers to professional online conduct. Because online communication often requires technical troubleshooting in remote situations and sometimes lacks nonverbal cues present in face-to-face interactions, misunderstandings and conflict can easily arise. Thus, please abide by the following netiquette rules when communicating with your course instructor and fellow classmates and colleagues:

• Be patient, tolerant, inclusive, and forgiving. Anyone can make a mistake. We’re all learning together and facing many challenges that deserve a respectful and positive attitude of supportive engagement.
• Keep the dialog respectful, collegial and professional. We each have different backgrounds, experiences, philosophies, and opinions and that diversity is a great asset for higher education!! We do not have to agree to learn from one another or engage in mutually respectful and rewarding discussion.
• Be mindful of and strive to avoid “flames”. These are outbursts of extreme emotion or opinion.
• Be visually respectful with digital camera and imaging. We may be sharing images either live or posted online that should be respectful and appropriate for professional engagement.
• Beware of excessive capitalization. Using all capital letters excessively is the equivalent of yelling.
• Think and double check before you hit the enter/reply button. Once posted, you can't take it back!

Honor Code. Please read the CoC Honor Code (see Appendix I below) and take it seriously. The College uses the Honor Code to enforce respectful honest responsible student behavior according to established institutional policies, so do not make the mistake of ignoring it at your own risk.

COVID-19 and Personal Health. Because of the COVID-19 pandemic, you will need to manage your individual health according to the many campus community health policies and student support resources being communicated to you by the CoC Admin and posted on CoC websites. If you need help, you are not alone, so please do not hesitate to reach out to these campus support professionals who are on standby 24/7 to give you the support you need to stay safe, healthy, and productive during this
challenging time for everyone at the College. A full menu of updated policies and student support resources related to the COVID-19 pandemic can be found on the Back on the Bricks website https://cofc.edu/back-on-the-bricks/index.php. The CofC Counseling Center (https://counseling.cofc.edu/) also provides a variety of confidential health and wellness support services to make sure you can get the support you need when you need it.

Digital Attendance: NO PARTICIPATION = NO POINTS. Because this is large online class with remote instruction, online participation is the same thing as digital “attendance”. Participation is thus required in order for you to earn points for synchronized class activities such as exams and quizzes and group discussion. Please note that your remote participation is recorded in fine quantitative detail automatically by the OAKS and Zoom platforms. You should always remember that if you are logged into OAKS or Zoom, everything you do on your phone or computer is recorded by the College of Charleston.

HOW TO DO WELL IN THIS CLASS. Our syllabus is designed to reinforce the primary learning objectives through both asynchronous (self-paced) and synchronous (scheduled) active, conscientious engagement with the weekly course material posted on OAKS via CENGAGE-MINDTAP. You should expect to spend at least several hours per week engaging independently and interactively with the course material. Our weekly text-based quizzes via MINDTAP and interactive discussions via Zoom will help you stay on schedule and keep a balanced sustainable pace of focused active asynchronous learning week by week through the entire semester. Midterm Exams, the Study Quiz and the Final Exam all reinforce your weekly CENGAGE learning activities posted on OAKS such that if you are keeping on schedule and staying actively engaged, your participation will be productive and will continually reinforce and strengthen your active learning skills. Therefore, if you stay engaged with the weekly material conscientiously, it is highly likely you will come to understand it thoroughly and will be empowered to think critically and synthetically in a scientifically literate manner so that you can earn a good final grade in the class.

SCHEDULE FOR TWELVE WEEKLY ACTIVE LEARNING UNITS COVERED IN THIS COURSE

PART 1 WEEKS 1-8

WEEK 1 ORIENTATION AND THE SYLLABUS
FIRST CLASS MEETING WED JAN 11 10-10:50AM VIA ZOOM (join via course schedule in OAKS)
Review of syllabus content, OAKS-CENGAGE-MINDTAP and course learning priorities
WEEK 2 Chapter 01: The Science of Biology
MLK HOLIDAY - NO QUIZ; MON JAN 16 ZOOM Q&A CHANGED TO WED JAN 18 10AM
WEEK 3 Chapter 02: Life’s Chemical Basis
QUIZ 1 ONLY WED JAN 25 10-11AM MINDTAP
WEEK 4 Chapter 03: Molecules of Life
QUIZ WED FEB 1 10-11AM MINDTAP
WEEK 5 Chapter 16: Evidence of Evolution
QUIZ WED FEB 8 10-11AM MINDTAP
WEEK 6 Chapter 17: Processes of Evolution
QUIZ WED FEB 15 10-11AM MINDTAP
WEEK 7 Chapter 18: Life’s Origin and Early Evolution
QUIZ WED FEB 22 10-11AM MINDTAP

WEEK 8 EXAM 1 WED MAR 1 10:00-11:00AM MINDTAP
Covers Chapters 1-3; 16-18

WEEK 9 SPRING BREAK

PART 2 WEEKS 10-15

WEEK 10 Chapter 08: DNA Structure and Function
QUIZ WED MARCH 15 10-11AM MINDTAP
WEEK 11 Chapter 09: From DNA to Protein
QUIZ WED MARCH 22 10-11AM MINDTAP
WEEK 12 Chapter 10: Control of Gene Expression
QUIZ WED MARCH 29 10-11AM MINDTAP
WEEK 13 Chapter 04: Cell Structure
QUIZ WED APRIL 5 10-11AM MINDTAP
WEEK 14 Chapter 06: Where It Starts: Photosynthesis
QUIZ WED APRIL 12 10-11AM MINDTAP
WEEK 15 Chapter 05: Ground Rules of Metabolism
QUIZ WED APRIL 19 10-11AM MINDTAP

WEEK 16 EXAM 2 WED APR 26 10:00-11:00AM MINDTAP
Covers Chapters 8-10; 4-6

REVIEW AND STUDY QUIZ FRI APR 28 10:00-11:00AM MINDTAP
(WORTH 72 EXTRA POINTS - prepares in a timely manner for the final exam and allows students to
recover points from missed weekly quizzes). Reviews same material covered by Quizzes 1-12

FINAL EXAM MON MAY 1 10:30AM-12:30PM MINDTAP
Two-part format; Parts 1 and 2 cover the same material covered by Exams 1 and 2, respectively

Weekly Quizzes & Q&A Zoom Discussions. Each Wednesday according to the above weekly course
schedule there will be a 15-question 15-point QUIZ taken synchronously on OAKS via CENGAGE-
MINDTAP starting at 10AM. Quizzes cover the lecture materials posted online on OAKS for the 12
weekly textbook chapters listed above. Quiz answers can be reviewed by interactive class-wide group
discussion via Zoom during the optional Monday synchronized online Q&A forums. In this manner the
course proceeds through a consistent cyclic weekly “rhythm” that allows for both asynchronous self-
paced independent study and synchronized in-class group engagements, including weekly quiz
assessment and interactive student-driven discussions.

Quiz Specs

• All questions are digital online MINDTAP format worth 1 point for each correct answer.
• All quizzes are posted on OAKS via MINDTAP as one-hour time-restricted quiz documents.
• A Study Quiz including 5 questions per chapter x 12 chapters is worth 60 EXTRA CREDIT points.
• THERE ARE NO MAKE-UP QUIZZES, however, the 60-extra-point comprehensive Study Quiz at the
end of the semester allows students to recover lost points from missing weekly quizzes.

Exam Specs

• EXAMS 1 and 2 will be taken on OAKS-MINDTAP synchronously during Wed class time 10-11AM.
• Each exam will be 50 questions. Exam 1 covers Part 1 Weeks 2-7; Exam 2 covers Part 2 Weeks 10-15.
• The FINAL EXAM will be a comprehensive two-hour exam taken in two parts via OAKS-MINDTAP.
• Part 1 (50 questions) will cover the same material as Exam 1, which is Weeks 1-5.
• Part 2 (50 questions) will cover the same material as Exam 2, which is Weeks 10-15.

Point Totals

• 12 WEEKLY QUIZZES @ 15 points each = 180 POINTS TOTAL
• 2 MIDTERM EXAMS @ 100 points each = 200 POINTS TOTAL
• 1 COMPREHENSIVE FINAL EXAM with Part 1 (100 Points) + Part 2 (100 Points) = 200 POINTS TOTAL
GRAND TOTAL OF 580 POINTS = 100% OF COURSE GRADE

• 1 COMPREHENSIVE STUDY QUIZ = 60 POINTS OF EXTRA CREDIT

KEEP A SPREADSHEET OF YOUR WEEKLY GRADE POINT TOTALS. Because you will receive the
answers and scores to all graded quizzes and exams you should keep a spreadsheet of your weekly
point totals throughout the entire semester. You will have all the information you need to calculate your
Raw Percentage of points [(current weekly balance of points scored / current weekly point total) x
100] at any point during the semester. For this reason you do not need to ask the instructor to calculate
your raw grade percentage before the end of the semester since you will have all the information needed
to do this on your own at any point during the semester. Keep in mind that at the end of the semester you
can add up to 60 extra credit points from the Study Quiz to your grand total of points earned. The letter grade scale for raw percentage ranges is listed below.

**Earned Letter Grade Scale for the Course**
- 90-100% Guarantees A- or higher
- 80-89% Guarantees B- or higher
- 70-79% Guarantees C- or higher
- 60-69% Guarantees D- or higher
- <60% = F

**IF YOU NEED HELP:**

DO NOT HESITATE to reach out confidentially by email at SHEDLOCKBIOL@GMAIL.COM if you are having problems participating successfully in our class for any reason. There are also many excellent student support services at CoC with professional staff on standby to provide guidance and help make sure you can be successful. Two extremely helpful websites to keep in mind if you want to reach out for a full menu of student academic support options (including peer tutoring services) are:
1) THE CENTER FOR STUDENT LEARNING (https://csl.cofc.edu)
2) THE CENTER FOR ACADEMIC PERFORMANCE AND PERSISTANCE (https://capp.cofc.edu/)

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**APPENDIX I: Mandatory Syllabus Content**

**Honor Code and Academic Integrity**
http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved. Students may have the opportunity to meet with the Dean of Students and may be brought before the Honor Board. Depending on the severity, incidents may lead to a written intervention, a XF in the course indicating failure of the course due to academic dishonesty, disciplinary probation, suspension (temporary removal) or expulsion (permanent removal) from the College by the Honor Board.

Students should be aware that unauthorized collaboration—working together without permission— is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others' exams, fabricating data, and giving unauthorized assistance. 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 instructor.

**BIOL 101/L–102/L COFC Gen-Ed Course Learning Goals and Outcomes**

**Course Learning Goals**
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.

**Core Concepts**
This 2-semester course sequence in general biology addresses fundamental principles in biology which broadly may 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.

These ideas are explored from the perspective of the following topics in each course:
BIOL 101 & 101L
- Chemical and Physical Properties of Life
- Evolution as a unifying principle in biology
- Cell Form & Function
- Energetics and Metabolism
- The Cell Cycle
  - Meiosis and Sexual Reproduction
  - Mitosis and Cell Reproduction
- Mendelian Genetics
- Patterns of Inherited Traits
- Human Inheritance
- The Molecular Basis of Inheritance
- DNA and protein production
- Regulation of gene expression
- Biotechnology

BIOL 102 & 102 L
- Evolutionary Processes
- Origins of Life
- Biodiversity
  - Viruses, Bacteria and Archaens
  - "Protist" Lineages
  - Plants
  - Fungi
  - Animals
- Plant Form & Function
- Animal Form & Function
- Principles of Ecology

Course Learning Outcomes and Core Competencies

- Nature of Scientific Knowledge
  - Students will 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.
  - Students will 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.
  - Students will 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.
  - Students will understand the differences between science and technology but also their interrelations.
  - Students will understand the dynamic (tentative) nature of science.

- Scientific Methods of Discovery
  - Students will 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.)
  - Students will apply physical/natural principles to analyze and solve problems.

- Developing a Scientific Attitude
  - Students will develop habits of mind that foster interdisciplinary and integrative thinking (within biology; between biology and other sciences; between science and other
accommodations at the Services/SNAP office at 843.953.1431 or at snap@cofc.edu. You can find additional information and request academic accommodations at the Center for Disability Services/SNAP website.
OAKS (3.10, for all instructional modalities)
OAKS 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
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.