

**Biology 101 Section 02**

**M – W 2:00 – 3:15**

**Fall 2020**

**Instructor: William Roumillat**

**Textbook:** Biology: Concepts and Applications by C. Starr et al. 10th ed.

**Instructor:**

William (Bill) Roumillat

Office: 65 Coming Street, Room 101

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**Personal Background:** BS from the College of Charleston (Marine Biol), MS from Old Dominion University (Fish Biol). Recently retired from SC Department of Natural Resources in position of Fisheries Biologist researching life-history dynamics of estuarine fin-fishes (37years). Involved with undergraduate/graduate CofC students since 1985. Served on thesis committees of multiple graduate students. Regularly guest lecture in both undergraduate and graduate fish biology classes at the CofC. Also at the CofC, have taught Fish Biology, Human Histology, Biology 101, 102, 112 and Anatomy-Physiology Labs.

**Office Hours:** **Monday and Wednesday 9:00 – 1:00** and by appointment. Your best bet to contact me is through email. I check my email frequently and I will always reply, but please anticipate a 24hour response time.

**Course Description and Objectives:** A foundation course for non-science majors providing an introduction to chemical and biological dynamics of life on earth. Foundations of primary energy production, cell structure, metabolism, genetics and advances in biotechnology will be presented. You will be exposed to lectures, readings, discussions, and written assignments to ensure a thorough and lasting comprehension of the material.

**Class Attendance:** Class attendance is very highly recommended. Students are responsible for all content for each class that is missed. Exams will be based predominantly on lectures/class discussions. Assigned text readings are absolutely necessary for thorough understanding of material. Lectures *will be posted on Oaks as a VoiceThread recording* immediately before the time of each lecture, whether during online phase of material presentation or in face-to-face classroom settings.

**Parity Statement:** SNAP students, Athletes, International or ESL students are encouraged to discuss any concerns with the Instructor in a timely manner.

**Honor Code and Academic Integrity:**

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code, that when identified, will be investigated. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information stored on or texted to a cell phone/device), 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. For complete details regarding our updated honor code please see the following link:

<http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php>

**Exams:** There are 3 exams scheduled during the semester, **all of which will be given online (Oaks)!** A semi-cumulative final exam **will also be online (Oaks) and will also include material since test 3.**

Exams will be short answer, multiple choice, true-false and fill-in-the-blanks. If you have any legitimate conflicts with the scheduled exams, please see me well ahead of time, before the exam date. Students must provide a valid and documented excuse (through the Dean of Students at 67 George Street) for missing a scheduled exam. Acceptable excuses include severe illness requiring immediate medical attention, personal tragedy

or circumstances beyond the student's control. For details on absence memo procedures see <http://studentaffairs.cofc.edu/services/absence.php> . Anyone who misses an exam without an acceptable excuse will receive a grade of zero for that exam. Makeup exams must be arranged promptly.

**Quizzes:** Four announced quizzes will be given during the semester. *Probable* dates are given below. **Quizzes will be given online.** *There will be no make-up quizzes.* If you miss a quiz without a validated excused absence you will receive a zero. Excused absences will drop that quiz from average. **Otherwise, your lowest quiz grade will be dropped.**

**Written assignment:** a graded review of a TED Talk will encourage you to read and understand scientific literature, explore database searching and learn how to format scientific citations.

**Re-grade policy:** Requests for re-grading must be made in writing within one week of work being returned. Students must include the original, graded document along with a detailed, printed justification. Late submissions will not be accepted. Discussion of re-grading requests can only be made once written requests have been submitted.

**Other Important Course Policies:**

- **You must to log onto Oaks regularly.**

**Zoom interactions are to be treated just as importantly as an in-class lecture**

- You are expected to check your email account frequently.
- Assignments/quizzes are due before the beginning of the class period
- Students are expected to retain the graded assignment, quizzes and exams until the final grade has been determined.

**Grading:**

<b>Component</b>	<b>% of final grade</b>
Tests (3; 15 pts. each)	45
Cumulative Final Exam (some new material)	25
Written assignment*	10
Quizzes (best 3 of 4; 5 pts. each)	15
Class participation/interest	5
Total:	100

\* Used to assess Gen Ed requirements

Letter grades will be strictly determined by the following breakdown:

Numerical Grade	Letter Grade
93-100	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
67-69	D+
63-66	D
60-62	D-

<60	F
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**Class Rules:**

- Please be prompt.
- Cell phones off/silent and out of sight
- No messaging/surfing
- Please stay awake, participate and be attentive

**Helpful Advice:**

1. **Attend lectures (in the classroom or online)**
2. Get involved. Ask questions (of both the instructor and your peers).
3. Don't just take notes, LISTEN and LEARN during class time (active learning).
4. Read through your notes regularly and try the online media that are associated with the text.
5. Keep up. To pass, you should expect to spend a bare minimum of **2 hours** a week on biology. **To excel, 4 hours.**
6. Make studying fun and social by getting together regularly with a partner (social distancing!) or online group and TALKING through the information. If you can explain concepts to another person, you will be on the way to having them mastered. **Teaching another person is the best way to learn the material!**
7. Study to understand, not to remember. Remember to think logically about biological concepts; you will frequently be able to reason out an answer instead of just memorizing it.

**You or someone you love (loves you) is paying for you to take this course  
– please attempt to make the most of the experience.**

**TENTATIVE SCHEDULE**

<u>DATE</u>	<u>TOPIC</u>	<u>CHAPTER</u>
26 Aug	Introduction/ Scientific method	1
31 Aug	Life's Chemical Basis/ Atoms and beyond	2
2 Sept	Molecules of life	3
7 Sept	Molecules/ Cell Structure	3,4
9 Sept	<b>(Quiz 1 due)</b> Cell structure/ Begin metabolism	4,5
14 Sept	More metabolism	5
<b>16 Sept</b>	<b><u>EXAM 1 (on Oaks)</u></b>	
21 Sept	Photosynthesis	6
23 Sept	Photosynthesis/energy release	6,7
28 Sept	Energy release	7
30 Sept	<b>(Quiz 2 due)</b> Begin genetics	8
5 Oct	DNA to protein	9
<b>7 Oct</b>	<b><u>EXAM 2 (on Oaks)</u></b>	
12 Oct	Gene expression	10
14 Oct	Gene expression	10

19 Oct	Cell reproduction (Mitosis)	11
21 Oct	Cell reproduction/ Begin meiosis	11,12
26 Oct	<b>(Quiz 3 due)</b> Meiosis and sexual reproduction	12
28 Oct	Meiosis/ Patterns in inherited traits	12,13
2 Nov	Trait patterns	13
4 Nov	<b>(Written assignment due)</b> Review of genetics topics covered	8 – 13
<b>9 Nov</b>	<b><u>EXAM 3 (on Oaks)</u></b>	
11 Nov	Human inheritance	14
16 Nov	Human inheritance	14
18 Nov	<b>(Quiz 4 due)</b> Biotechnology	15
23 Nov	Biotechnology (cont.)	15
25 Nov	<b>Thanksgiving Break</b>	
30 Nov	<b>Online only - Review of course material</b>	
2 Dec	<b>Online only - Continued review - Last day of class</b>	
7 Dec	Reading Day	
<b>11 Dec</b>	<b><u>Final Exam 3:30 – 5:30</u></b>	

CONCEPTS AND APPLICATIONS IN BIOLOGY I & II BIOL 101 & 101L/BIOL 102 & 102L  
Department: Biology

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.

Core Concepts

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.

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
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- 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