

Biology 102 Section 03

M – F 8:30 – 9:20

Room 217 HWWE

Fall 2017

Instructor: William Roumillat

Textbook: _Biology, Concepts and Applications. Starr et al. 2011, 9th ed.

Instructor:

William (Bill) Roumillat

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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. Taught Biol 112 in spring 2014 and fall 2015. Have also guest-lectured in CofC Histology course each spring since 2002, and recently taught the Histology course for the College.

Office Hours: Monday 10:30 – 12:30 and by appointment. Your best bet to contact me is through email. I check my email frequently and I will reply, but please anticipate a 24hour response time.

Course Description and Objectives: A foundation course for non-science majors providing an introduction to evolution, organismal structure and function and concepts of biodiversity of life on earth. 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. Lecture notes (.pdf) *will be posted on Oaks*. These will be somewhat incomplete, so you are responsible for your own note-taking.

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 strategies, and course content. They offer tutoring, Supplemental Instruction, study strategy 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 <http://csl.cofc.edu> or call (843)953-5635.

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 and a cumulative final exam scheduled to occur on the last day of class, which will also include material since the last test. Exams will be short answer, multiple choice, true-false, fill-in-the-blanks, and matching style. 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 in the syllabus. Quizzes will either be take home or OAKS based. *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, the highest 3 of 4 quiz grades will count.

Written assignments: a graded review of a TED Talk will encourage you to read and understand primary literature, explore database searching and learn how to format scientific citations. Other homework assignments will be encouraged and suggested but not collected or graded.

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 are expected to log onto Oaks regularly.
- You are expected to check your email account frequently.

- Assignments/quizzes are due at the *beginning* of the class period
- Late assignments are marked down one half letter grade (5%) if turned in late on the same day or one full letter grade (10%) for each day delayed.
- Students will be expected to retain a printed (not just electronic) copy of each written assignment until the graded work is returned to you by the instructor.
- Students are expected to retain all graded assignments and exams returned to you until the final grade has been determined.

Grading:

| Component | % of final grade |
|--------------------------------------|-------------------------|
| Exams (3) | 45 |
| Cumulative Final (some new material) | 25 |
| Written worksheet* | 10 |
| Quizzes (best 3 of 4) | 15 |
| Class participation | 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 |

Class Rules:

- Please be prompt.
- Cell phones off/silent and out of sight
- No messaging/surfing
- Do not leave class expecting to return. Stay. Or leave. Do not come and go.
- No laptops/tablets without special permission based on need
- Please stay awake, participate and be attentive
- Please don't chat with classmates during lecture
- You may raise your hand to interrupt any time to ask a question

Helpful Advice:

1. **Attend class!**
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 or group and TALKING through the information. If you can explain concepts to another person, you will be on the way to having them mastered.

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 is paying for you to take this course – please attempt to make the most of the experience.

TENTATIVE SCHEDULE

| Date | Lecture Material | Readings |
|-------------------|---|-----------------------------|
| Aug 23 | Introduction | |
| Aug 25 | I. Principles of Evolution | Ch. 16 |
| Aug 28** – Sep 1 | A. Evidence of Evolution B. Processes of Evolution **Aug 28 Last day of drop-add | Ch. 16 Ch. 17 |
| Sep 4 – Sep 8 | C. Life's Origin and Early Evolution II. Biodiversity A. Viruses and Bacteria B. Protists | Ch. 18 Ch. 19 Ch. 20 |
| Sep 11 – Sep 15 | C. Fungi | Ch. 22 |
| Sep 18 | Test 1 | |
| Sep 20 – Sep 22 | D. Plant Evolution E. Plant Tissues | Ch. 21 Ch. 25 |
| Sep 25 – Sep 29 | E. Plant Tissues <i>Cont.</i> F. Plant Reproduction | Ch. 25 Ch. 26 |
| Oct 2 – Oct 6 | G. Animal Diversity – Invertebrates | Ch. 23 |
| Oct 9 – Oct 13 | H. Animal Diversity – Chordates | Ch. 24 |
| Oct 16 | Fall Break | |
| Oct 18 | Test 2 | |
| Oct 20 | III. How Animals Work A. Animal Tissues and Organ Systems | Ch. 28 |
| Oct 23 – Oct 27** | B. Circulation **Oct 26 Last day to withdraw with a grade of "W" | Ch. 33 |
| Oct 30 – Nov 1 | C. Immunity D. Digestion and Human Nutrition | Ch. 34 Ch. 36 |
| Nov 3 | E. Reproduction and Development Ted Talk review due | Ch. 38 |
| Nov 6 | Test 3 | |
| Nov 8 – Nov 10 | IV. Principles of Ecology | Ch. 39 |

| | | |
|------------------|--|---------------|
| | A. Animal Behavior | |
| Nov 13 – Nov 17 | B. Population Ecology C. Community Ecology | Ch. 40 Ch. 41 |
| Nov 20 | C. Community Ecology (Cont.) | Ch. 41 |
| Nov 22– Nov 24 | Thanksgiving Break | |
| Nov 27 – Dec 1 | D. Ecosystems E. The Biosphere | Ch. 42 Ch. 43 |
| Monday, Dec 4 | F. Human Effects on the Biosphere LAST FULL DAY OF CLASS | Ch. 44 |
| Wednesday, Dec 6 | Final Exam 12:00 – 3:00 pm | |

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

- 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