

# GENERAL COLLEGE BIOLOGY 1/111/601

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## Fall 2018 Syllabus

### CONTACT INFORMATION

**Instructor:** Tom Zapico

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### REQUIRED TEXTBOOK/COURSE MATERIALS

**Text:** Required for this course:

- 1) Biology, Campbell *Red Rocks Edition*
- 2) General College Biology 1 Laboratory Manual (Custom Edition for RRCC)

**Supplies:** Writing materials, calculator, stapler, flash drive, and recording device

### COURSE DESCRIPTION:

**Examines the fundamental molecular, cellular and genetic principles characterizing plants and animals. Includes cell structure and function, and the metabolic processes of respiration, and photosynthesis, as well as cell reproduction and basic concepts of heredity. The course includes laboratory experience. This course is one of the Statewide Guaranteed Transfer courses. GT-SC1**

Credit hours: 5

### COURSE PREREQUISITE/CO-REQUISITES

Grade of C or better required on all prerequisite courses. Registration for all GT Pathway courses require successful completion of ENG 090 or CCR 092 or CCR 094 (Grade C or higher) or equivalent placement scores (ACCUPLACER 95 or ACT 18). MAT 050 or 090 (or equivalent test scores) with a C or higher is required on most BIO courses.

GT PATHWAYS STATEMENT, CONTENT CRITERIA, COMPETENCIES, AND STUDENT  
LEARNING OUTCOMES

**Common Course Numbering  
System**

Your current Institution is  
CCCS

**Course:** BIO 111

**Title:** Gen College Biology I/Lab: SC1

**Long Title:** General College Biology I with Lab: GT-SC1

**Course Description:** Examines the fundamental molecular, cellular and genetic principles characterizing photosynthesis, as well as cell reproduction and basic concepts of heredity. The course SC1

**Min Credit:** 5

**Max Credit:**

**Status Notes:** Course also offered at Aims and CMC.

**Course Notes:** Note: Competencies and Outline entered from Core Transfer Documents on 8.30.01.

**Origin Notes:** ACC

COURSE LEARNING OUTCOMES

**Student Learning Outcomes:**

1. Recognize terminology, specific facts, experimental methodologies, and general concepts related to basic chemistry, cell structure and function, cell reproduction, bioenergetics, and genetics.

2. Read, analyze and apply the concepts learned to interpret new situations.
3. Distinguish between the principles and purposes of procedures and techniques introduced in the laboratory.
4. Describe the role of research in the biological sciences and its impact on society.
5. Employ the scientific method to the extent of formulating a hypothesis, designing a set of experiments with controls, analyzing results, and deriving conclusions.
6. Interpret and manipulate data in a variety of formats, such as graphs, tables, and charts.
7. Select and apply contemporary technologies to solve problems or compile information.
8. Write and speak clearly and logically in presentations and essays.

#### TOPICAL OUTLINE:

- I. Introduction
  - A. Nature of the Scientific Enterprise
  - B. Science and Society
  - C. Unifying Concepts
- II. Fundamentals of Chemistry
  - A. Atoms, Molecules, Bonding
  - B. Biologically Important Molecules
  - C. Water and pH
- III. Cell Structure and Function
  - A. Procaryotic and Eucaryotic
  - B. Techniques of Study
  - C. Organelles
  - D. Membrane
  - E. Transport Mechanisms

- IV.        **Cell Reproduction**
  - A.        **Mitosis**
  - B.        **Meiosis**
- V.        **Bioenergetics**
  - A.        **Laws of Thermodynamics**
  - B.        **Anaerobic, Aerobic Respiration**
  - C.        **Photosynthesis**
- VI.       **Genetics**
  - A.        **Classical**
  - B.        **Chemistry of Heredity**
  - C.        **Development**

## COURSE COMPETENCIES

**GT Pathway information:** The Colorado Commission on Higher Education has approved BIO 111 for inclusion in the Guaranteed Transfer (GT) Pathways program in the [GT-SC1] category. For transferring students, successful completion with a minimum C- grade guarantees transfer and application of credit in this GT Pathways category. For more information on the GT Pathways program, go to <http://highered.colorado.gov/academics/transfers/gtpathways/curriculum.html>

### GT competencies and content

1. The lecture content of a GT Pathways science course (GT-SC1 or GT-SC2):
  - Students should be able to:
  - Develop foundational knowledge in specific field(s) of science.
  - Develop an understanding of the nature and process of science.
  - Demonstrate the ability to use scientific methodologies.
  - Examine quantitative approaches to study natural phenomena.
2. The laboratory (either a combined lecture and laboratory, or a separate laboratory tied to a science lecture course) content of a GT Pathways science course (GT-SC1):
  - Students should be able to:
  - Perform hands-on activities with demonstration and simulation components playing a secondary role.
  - Engage in inquiry-based activities.
  - Demonstrate the ability to use the scientific method.
  - Obtain and interpret data, and communicate the results of inquiry.
  - Demonstrate proper technique and safe practices.
3. INQUIRY & ANALYSIS
  - a. Select or develop elements of the methodology or theoretical framework to solve problems in a given discipline.

- a. Examine evidence to identify patterns, differences, similarities, limitations, and/or implications related to the focus.
  - b. Utilize multiple representations to interpret the data.
  - a. State a conclusion based on findings.
4. QUANTITATIVE LITERACY
- a. Explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words).
  - a. Convert information into and between various mathematical forms (e.g., equations, graphs, diagrams, tables, words).

## TOPICAL OUTLINE

**[Objectives:** This course introduces the general principles relative to living things. The approach emphasizes biochemistry, but also includes molecular, cellular and genetic processes.

Specifically, through lectures/demonstrations, lab work and assigned reading students are expected to demonstrate on exams their understanding of the units listed below.

Topic 1: Scientific Method, Introducing Energy and Information (Chapters 1, 8 & 54)

Topic 2: Basic Chemistry (Chapters 2 & 3)

Topic 3: Organic Molecules (Chapters 4, 5 & 8)

Topic 4: The Cell, part I (Chapter 6)

Topic 5: The Cell, part II (Chapters 7 & 12)

Topic 6: Introducing Biological Energetics (Chapters 8, 9&10) \*

Topic 7: Introducing DNA (Chapters 5, 16 & 17)

Topic 8: Introducing Genetics (Chapters 13-15)

Topic 9: Introducing Genetic Control/Biotechnology (Chapters 17&18)

## COURSE REQUIREMENTS / EXPECTATIONS

### Evaluation:

**Lecture Exams:** Exams will be made up of objective questions. There will be four exams during the semester. The last exam is worth 105 points but is **not comprehensive**. The other exams are worth 100 points each. If you miss any of the first three scheduled exams, you must take a make-up version of the exam (prior to the scheduled date of the next exam and when I am scheduled to be on campus) or a grade of zero (for that exam) will be recorded. A make-up exam will cover the same material but will consist primarily of essays, written definitions and

descriptions, and diagrams. Consequently, a make-up exam is more detailed and time-consuming than a scheduled exam owing to the fact that the student will have had more time to prepare than anyone else in the class. It is up to the student to contact me to make arrangements to take the make-up exam. Only one make-up exam will be allowed per student-per semester. The fourth exam cannot be taken after the last scheduled class session unless campus is closed for that session. Also note that you may not re-take or drop any exams, regardless of your score. You are responsible for any and all lecture material, handouts, and assignments that you miss the days you are absent. First, you must obtain notes (or recordings) from a fellow student. *Then* feel free to ask me *specific* questions regarding the material.

**Laboratory work:** Biology is the study of life and living is an activity! We learn best when doing. Therefore, laboratory work is critical to our understanding of biology. Lab homework (hardcopies only) will be due one week following our completion of that lab **at the beginning of lecture**. In the event of campus closure or class cancelation on a day an assignment is due, labs will be turned in the next time the class meets. Late labs will not be accepted. Answers must be written in space provided in the lab manual (unless otherwise noted) and all labs must be stapled (no dog-ears, paper clips and such) before they are turned in. Also, I need to be able to read what you write. If your work is too sloppy for me to read, I won't try to read it. Hence, no credit will be given. Most labs require a pre-lab assignment (to be completed before the lab to avoid a 3-point fine). There will be two lab exams (practicals) in which you will demonstrate your abilities and understanding of lab concepts. These may include use of the microscope, chemical testing, cell identification, etc. **No make-up lab exams.** In addition to weekly assignments we will have one **formal** lab write-up. Lab work will comprise about 30% of your grade.

**Problems:** It may be the case that some individuals will experience personal setbacks during the semester. Please email me (using your D2L account) as soon as possible to let me know so we can work something out. Email is how I communicate with students to keep them apprised as to special assignments and instructions along with notifications regarding any changes in scheduling and so on. Once I send a notification via email to the class, the students become responsible for any special instructions or schedule changes in the message. Email should be used by students to me to communicate special circumstances regarding personal matters that interfere with the course as scheduled as well as any inquiries regarding grades. I cannot answer questions about biology (the subject matter) via email. I will be happy to answer any and all *specific* questions regarding the course material during lab.

If an assignment is due on a day that you cannot make it to campus for whatever reason, such as illness or inclement weather, attach the assignment to an email (sometimes [tom.zapico@rrcc.edu](mailto:tom.zapico@rrcc.edu) works better than D2L with larger documents) as it will be due

nonetheless. The assignment should reach my email before the beginning of lecture. In case of class cancellation or campus closure, the assignment will be due at the next class meeting.

Some assignments need to be typed to be accepted and graded. Pay attention as to which ones require typing so as not to be tagged with a late fee or a zero. Most assignments need to be stapled (anything with multiple pages). This is the student's responsibility (not the instructor's). Such assignments that are dog-eared, paper-clipped (and the like), or simply not stapled will not be graded and will be scored as a zero.

## GRADING POLICY

### For Evaluation See Above

Grading Scale:

90-100%=A

80-89% =B

70-79% =C

60-69% =D

Below 60% =F

AW Administrative Withdrawal. **Instructors:** Please complete the information listed below. This form will be submitted to [EnrollmentServices@rrcc.edu](mailto:EnrollmentServices@rrcc.edu) for processing.

**Enrollment Services:** Please contact the student and request additional documentation as necessary. Instructors may be contacted if needed.

Once information is verified, Enrollment Services will inform the student and instructor that an AW will be recorded for the course. In the event circumstances are not verified or an AW is not approved, Enrollment Services will communicate this information to the student and the instructor at which point the instructor should issue the grade the student earned at the end of the semester.

## Incomplete Grade Contract

If a student is not able to complete the learning objectives before the end of a course because of verifiable extenuating circumstances, the instructor may assign a grade of incomplete at his or her discretion. Before a student is eligible to receive an "I", they must have completed a minimum of 75% of the coursework with a grade of C or higher. Before the end of the course, the student is responsible for making arrangements with the instructor to develop the Incomplete Grade Contract, below.

***Note: According to CCCS Board Policy 4-20, "only registered students paying the required tuition will be permitted to attend classes for which they are registered." A student who has an "I" grade cannot attend a course in which they are not registered to complete required assignments. Other arrangements for assignment completion will need to be made.***

Red Rocks Community College allows an "I" to be made up during the semester following the assignment of the "I" grade, except that an "I" assigned in the spring term may be made up during the following fall term. If the coursework is NOT completed by the deadline, the "I" will be changed to the grade indicated at the bottom of this form.

**Process:** This form is to be completed by the instructor and sent to the appropriate Dean. If the instructor submitting the form is a part-time employee, the Dean will contact the appropriate department chair. Once approved, the Dean will forward the contract to [Student.Records@rrcc.edu](mailto:Student.Records@rrcc.edu). A Student Records staff member will forward the approved contract to the student issued email address for confirmation. If the student agrees to the contract, the student can reply from their student issued email address indicating they agree to the terms. Student Records will then update the student's grade to "I". If the student does not agree or respond, Student Records will communicate this information to the instructor and the instructor should issue the grade the student earned at the end of the semester.



## COURSE POLICIES

Feel free to record all lectures. Feel free to take notes on a laptop. Feel free to ask questions that pertain to the material being taught at that time. Any other biology questions should be asked during lab time.

Talking during lecture is discouraged. If I can hear you, so can other students. Please be considerate of your fellow students. Their right to attend class undisturbed supersedes the “rights” of talkers to disrupt class.

Profanity will not be tolerated as its use will result in dismissal of the student.

## IMPORTANT DATES

[REQUIRED – required wording as follows:]

**STUDENTS: PLEASE VERIFY THE SPECIFIC DROP AND WITHDRAW DATES FOR THIS COURSE IN YOUR “[Detailed Student Schedule \(with Drop-Withdrawal Dates\)](https://erpdnssb.cccs.edu/PRODRRCC/wt_student_sched.P_DisplayStudentSched)” LINK IN THE ROCK, UNDER THE STUDENT TAB ([https://erpdnssb.cccs.edu/PRODRRCC/wt\\_student\\_sched.P\\_DisplayStudentSched](https://erpdnssb.cccs.edu/PRODRRCC/wt_student_sched.P_DisplayStudentSched))**

Last day to drop **15-week classes** and initiate a tuition refund

September 5, 2018

This is the last day you can remove yourself from this class without having to pay for the class and without the class showing on your permanent student record. If you are on financial aid, you should consult a financial aid advisor before dropping a class. All students are encouraged to see an academic advisor about how dropping may affect their goals.

Last day to **withdraw** from 15-week classes

November 13, 2018

This is the last day you can remove yourself from this class and receive a “W” for the class instead of a grade. You are responsible for payment. If you are on financial aid, you should consult a financial aid advisor before withdrawing from a class. All students are encouraged to see an academic advisor about how withdrawing may affect their goals.

## ATTENDANCE POLICY

I do not take attendance. If you miss class you are responsible for all course material delivered on that day. You need to obtain notes from a classmate, go over the notes and if you have any specific questions ask me during lab.

## MAKE-UP / LATE WORK POLICIES / EXTRA CREDIT

See “Expectation” section.

There will be several opportunities for extra credit throughout the semester.

## ACADEMIC INTEGRITY STATEMENT / ACADEMIC DISHONESTY

Academic Misconduct: Plagiarizing, cheating, or committing any other form of academic misconduct including, but not limited to, unauthorized collaboration, falsification of information, and/or helping someone else violate reasonable standards for academic behavior. Students who engage in any type of academic dishonesty are subject to both academic consequences as determined by the instructor and to disciplinary action as outlined in the RRCC disciplinary procedures.

## CLASSROOM CONDUCT

Refer to “Course Policies” section.

## CLASS CANCELLATION POLICY

Refer to “Course Requirements/Expectations” section

## RRCC SYLLABUS INSERT – REQUIRED AND ADDITIONAL INFORMATION

[REQUIRED – required wording as follows:]

All students are required to be familiar with the information contained in the RRCC Syllabus Insert document. In addition to your instructor reviewing the required content in class, the RRCC SYLLABUS INSERT can be found as an announcement on all D2L landing pages (where you have access to all of your courses) and in the “Student Resources” pull-down menu.