

AP Biology Summer Assignment 2025

Mr. Troy K. Weaver

Welcome to Advanced Placement (AP) Biology! This course is the equivalent of an introductory college biology course and will be treated that way. The class is designed for students with a strong interest in science and high standards will be maintained. Content will be covered in more depth and greater expectations will be placed on the interpretation and analysis of information than in previous biology courses. In addition, statistical analysis of data and modeling of concepts will be expected. A significant amount of work is required in this course and a serious commitment is needed to be successful. In addition to learning biologically related concepts and ideas, emphasis on scientific thinking and analytical thinking will be stressed.

I see it as my responsibility to ensure students who receive college credit for this course are prepared for their succeeding college biology courses. The College Board Objectives outline for AP Biology is broad and deep. We have the months of August-April to complete the curriculum. The AP Biology test will occur in May 2026; therefore, in order to cover the entire curriculum, we must dive into our learning during these summer months.

Assignment #1 – Letter of Introduction – 20 points

(DUE not later than 11:59PM Friday, August 1st)

You will be using professional means of communication throughout high school, college and once you enter the workforce. I am planning to use the internet, the Campbell & Reece Biology textbook you should have picked up during the last few days of final exams and Canvas next school year for this course, so I want you to get used to communicating with me with this first digital assignment...***which will be graded using a rubric and according to your well-written inclusion of each of the following:***

1. Begin with a [formal salutation](#).
2. Use clearly written, FULL SENTENCES. Do not abbreviate words like you are texting or instant messaging. Use **spell check**. This is a professional communication like you would have with a college professor, so let's practice for your rapidly nearing future!
3. **Address** it to me at: tkweaver@raleighcharterhs.org
4. Make the **subject** line: **AP BIO: Introduction to (your first AND last names)** ...do not include the parentheses.
5. Write a formal introduction of yourself as though I've never met you, even though I may have had you this past school year. Although I am bulleting the information that I'd like you to include in your email, please write your correspondence in narrative format and break your responses into paragraphs for every THREE bulleted topics/questions below:

- Begin by introducing yourself with your full name (& *nickname that you go by if you have one*) and tell me what grade you will be in. In addition, tell me a little about your family (*Mom, Dad, Guardian, Siblings, Pets, whether you were born here in the Triangle and how long you've lived in the area.*)
- What are some of your hobbies, interests, special talents?
- What are your extracurricular plans (at RCHS and within the community) this year? (sports, clubs, service, etc.)
- Why are you taking AP Biology and what do you hope to accomplish/gain?
- What are you most looking forward to and/or most anxious about in taking AP Biology for this academic year
- Please tell me about your previous study of biology AND chemistry...who was/were your teacher(s) and what was your final grade in each course
- How would your friends describe you?
- What is something interesting, different, or maybe even "weird" about you (hey, you can tell me anything ☺)?
- Do you have any special medical or health conditions that I should know about?
- Discuss your goals for this **2025-2026** school year (academic, social, etc.). Really think about this!
- Tell me about your college and future professional interests/plans (colleges that you hope to apply to; potential major areas of study; career goals)
- Anything else I should know about you that I didn't ask?

Thanks!! This helps me get to know you before the school year begins and will aid me in being a better teacher for you this year. ***I really look forward to working with you and getting to know you during the course of this academic year!!!***

6. End your letter with a formal closing and your signature (Your first AND last name in a scripted font...Brush Script, Edwardian, etc)
NOTE: You will need to develop a signature for yourself that you save and can add to the various documents you will complete for me that require a signature

Please email your letter to me at any time this summer, but not later than 11:59 PM on Friday, August 1st.

Assignment #2 – Campbell & Reece Guided Reading – 60 points
(DUE by 4:00 PM on Wednesday, August 13th)

NOTE: You will receive an introduction/overview to my learning management system (LMS) on the first day of face-to-face class and will have time to upload then OR by the 4PM deadline

Our textbook for this course is Campbell & Reece's *Biology* (8th Ed.), a text that is used in freshman Biology courses at Triangle-area colleges/universities. It is important for you to gain the experiences and skills necessary to read, analyze, and interpret a college-level text as I will require you to read our text and answer questions prior to our discussion of a topic. For this summer assignment, I am asking you to gain a solid knowledge of two-thirds of "Ecology," which will be one of the areas of focus for our study of Unit 2 of my course design. **Sign the RCHS Honor Pledge at the end of your document.**

You should read Chapters 52-54 and answer the questions for each of these chapter links. The included links are PDF files that you can simply type into. When providing your response for me, you should do so by using any *contrasting color, italicized font* you wish when typing your answers.

❖ **Chapter 52: An Introduction to Ecology and the Biosphere**

Link to questions: <https://biologyjunction.com/images/misc/chapter%2052%20population%20ecology.pdf>

❖ **Chapter 53: Population Ecology**

Link to questions: <https://biologyjunction.com/images/misc/Chapter%2053%20community%20ecology.pdf>

❖ **Chapter 54: Community Ecology**

Link to questions: <https://biologyjunction.com/images/misc/chapter%2054%20ecosystems.pdf>

NOTE: If you know how to do so, it would be preferable for you to consolidate all of your work into ONE (1) PDF file containing all 3 chapters.

At the end of your document (or each one if you are unable to consolidate) please copy/paste and provide your signature for the RCHS Honor Pledge:

RCHS Honor Pledge: *On my honor, I have neither given nor received any unauthorized assistance on this assignments*

Student Signature (Type your first and last name in a cursive font):

Assignment #3 – Reading and Analysis of a Scientific Article – 40 points
(DUE by 4:00 PM on Wednesday, August 13th, the first day of face-to-face classes)

Article: Honeybees respond to multimodal stimuli following the principle of inverse effectiveness

<https://journals.biologists.com/jeb/article/225/10/jeb243832/275501/Honey-bees-respond-to-multimodal-stimuli-following>

Read the questions below and then the article. Answer the questions to the best of your ability. Concentrate on quality over quantity of writing. Spend no more than 2 hours on this assignment of reading and answering. I want to see that you were thoughtful and careful, but don't go over two hours. Try to balance the reading, thinking, and writing time to be relatively equal. Read 40 min, think 40 min, write 40 min. Please write the time it took you to complete this assignment in the upper right corner of your word document below your Name, Course-Class Period, and Assignment Title. Again, it will be about showing a clear analysis/understanding, and NOT about the volume of writing. Act INDEPENDENTLY. DO NOT ASK PEERS OR PAST STUDENTS FOR HELP. Trust yourself and your analysis as your skills in this area will be the focus of this course.

Please put your Full Name in the upper right corner of your paper, as well as a second line with the Course/Teacher Name, and a third line with the Assignment Title (NOT article title).

Copy/paste the questions below into a separate document and then answer EACH question in complete sentences and in an *italicized, contrasting color font*. **Sign the RCHS Honor Pledge at the end of your document.**

1. Nearly all scientific articles are divided into major components that are typically written in all caps (*capital letters*). **Identify** the major sections of this assigned journal article and **briefly define/explain** the type of information that is contained in each section.
2. During this course you will be asked to produce source citations in MLA (Modern Language Association) format. Writers who properly use MLA build their credibility by demonstrating accountability to their source material, thereby avoiding accusations of plagiarism. I recommend using a website maintained by Purdue University called "Purdue OWL" (Online Writing Lab):

A) **Visit** their website:

https://owl.purdue.edu/owl/research_and_citation/mla_style/mla_formatting_and_style_guide/mla_general_format.html

B) **Copy and paste** the URL/web address for the article listed above into the OWL "Search by URL" text box that you will see that looks like this:

Click the “Cite” button and follow all steps until you obtain an MLA source citation for this article. Once you do, **copy and paste** it as your answer to this Q2 (Question #2).

3. According to your full citation, **give the date of publication** for this article.
4. **Identify** which of the 3 authors of this study is a researcher in the Department of Neuroscience at the University of Arizona and, if you wanted to follow up on this study, **give** this individual’s email address.
5. The article presents you with the concept of multimodal stimuli. **Explain** your understanding of what is meant by this term, **give** the scientific/binomial name for honey bees, and **tell** why they were a good test subject for this research experiment.
6. **Identify** and **define** five (5) words used in this research article that were new to you.
7. **Discuss** what is shown in Figure 1A of this article and **explain** how it was used in this study.
8. **Compare** and **contrast** the data depicted in Fig. 2A and Fig. 2B.
9. **Discuss** your understanding of the results of this research study.
10. **Differentiate** the ‘cocktail party problem’ and ‘flower party effect’ concepts mentioned in the article’s discussion section and **explain** the conclusion drawn by the authors for this study.

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Student Signature (Type your first and last name in a cursive font):