

# A.P. Biology Summer Packet

## Karch – ‘19/20

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### Assignment Sheet for Campbell Biology in Focus, 2<sup>nd</sup> Edition

*Study Guide Excerpts for Campbell Biology in Focus are posted on the class website.  
Student Workbook Activity Excerpts for Campbell Biology in Focus are posted on the class website.*

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#### HOW TO SUBMIT SUMMER WORK:

For each assignment:

- Complete the assignment in Google doc's and "share" with me
- **You MUST title each Google Document as: "AP Biology Summer Assignment # \_\_\_\_\_ for {your first and last name}"**

I will correct and grade each assignment, and give feedback. In this way, you will have a sense of how well you understand the foundation materials and what my expectations are for depth and detail of student responses. By the end of the summer, you will have a good idea of the difficulty level of the course.

Google documents has a chronological tracking feature that allows me to see when the edits are made. Post due date edits will not be accepted.

Summer assignments are meant to accomplish three things.

- 1) Slow the pace of the regular school year by covering 7 of our many chapters prior to the start of school.
- 2) Help build a foundation of background knowledge prior to the start of the course in September.
- 3) Offer students an opportunity to decide early on if the course is the right fit (or not) for them.

**It is expected that all students meet the due dates for each summer assignment. If you know in advance that you will be away from a computer with Internet access during a period of time that would cause you to miss a deadline, plan to complete and share the assignment ahead of time. Assignments that I do not receive by the due day will be corrected for the learning benefit but will get no credit (0 pts).**

**A word about academic honesty and homework assignments: It is my expectation that the answers you submit to all homework questions are your own thoughts and ideas and demonstrate YOUR understanding of concepts, not someone else's. Presenting someone else's thoughts, writing, or work as answers to assigned questions is unacceptable and constitutes a violation of Pingree School's academic honesty policy.**

## AP Biology: Summer Assignments by Chapter

- 1) **How much time should you budget for reading the textbook?**
  - a. budget 5 minutes per page (just for reading).
    - i. For example:
      1. Chapter 1 in our textbook is 16 pp. long. It should take just over an hour to read. That does not include additional time for note-taking or watching supplemental videos.
- 2) **How much time will you need to complete homework questions?**
  - a. Conservatively, budget about one hour to answer all the homework questions that go with any given chapter.
- 3) **SPREAD THE WORK OUT OVER SEVERAL DAYS!!!**
  - a. The pace of our course is (about) one chapter per week. That's two hours of AP Bio work every week. If you spread that out, it's 40 minutes of work nightly spread out over three nights. That's quite manageable... provided, you have the self-discipline to adhere to that nightly schedule.
- 4) **REMINDER: The times above are estimates only. Some students work faster/slower than others. However, the time estimates SHOULD be close to accurate.**
  - a. If it takes significantly longer to complete the work, that may be a warning sign that this course is going to eat up too much of your time as a Pingree student.

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### **Assignment 1— Read Chapter 1: Introduction: Evolution and the Foundations of Biology (16 pages)**

- Homework:
  - o Textbook:
    - Scientific Skills Exercise: Interpreting a Pair of Bar Graphs, p. 18 (Questions 1—7)
    - Level 3: Synthesis/Evaluation Questions 7, 9 & 10, p. 20
  - o Student Study Guide, pp. 4-5
    - Structure Your Knowledge Question 1a—e
    - M.C. Questions 1—7

- **Assignment #1 is Due: Friday, June 21<sup>st</sup>**

### **Assignment 2— Read Chapter 2: The Chemical Context of Life (19 pages)**

*It is assumed for all students in the course that this material is review of topics learned in prior science courses. The content of this chapter is extremely important for understanding concepts discussed throughout the rest of this course. Make sure you genuinely UNDERSTAND everything in this chapter!*

- Homework:
  - o Textbook:
    - Scientific Skills Exercise: Interpreting a Scatter Plot with a Regression Line, p. 40 (Questions 1—4)
    - Level 3: Synthesis/Evaluation Questions 11 p. 42
  - o Student Study Guide, pp. 9—17
    - Focus Questions 2.7, 2.12, 2.14
    - M.C. Questions 4, 7, 12, 14, 17—19, 23, 24, 26, 29, 32—37, 39, 40, 44

- **Assignment #2 is due Friday, June 28<sup>th</sup>**

### **Assignment 3— Read Chapter 3: Carbon and the Molecular Diversity of Life (27 pages)**

*It is assumed for all students in the course that this material is review of topics learned in prior science courses. NOTES: The illustrations in this chapter are extremely important.*

- Homework:
  - o Textbook:
    - Level 3: Synthesis/Evaluation Questions 12 & 14 p. 71
  - o Student Study Guide, pp. 19—28
    - Focus Questions 3.1, 3.8,
    - M.C. Questions 9, 10, 12, 13, 17, 20, 22, 26

- **Assignment #3 is due Friday, July 5<sup>th</sup>**

#### **Assignment 4— Read Chapter 4: A Tour of the Cell (26 pages)**

*It is assumed for all students in the course that this material will be approximately 3/4<sup>th</sup> review of topics learned in prior science courses and 1/4<sup>th</sup> new material that goes beyond the detail of prior material.*

- Homework:
  - o Textbook:
    - Scientific Skills Exercise: Using a Scale Bar to Calculate Volume and Surface Area of a Cell, p. 80 (Questions 1—4: #2 is an explanation, not a question to answer)
  - o Student Study Guide, pp. 37—38
    - M.C. Questions 5—8, 13, 18—22
  - o Chapter 4 Open Response Question

- **Assignment due Friday, July 12<sup>th</sup>**

#### **Assignment 5— Read Chapter 5: Membrane Transport and Cell Signaling (20 pages)**

*It is assumed for all students in the course that this material will be approximately 1/2 review of topics learned in prior science courses and 1/2 new material that goes beyond the detail of prior material.*

- Homework:
  - o Textbook:
    - Scientific Skills Exercise: Interpreting a Graph with Two Sets of Data, p. 109 (Questions 1—5)
    - Level 3: Synthesis/Evaluation Questions 7, 8, & 10 p. 121
  - o Student Study Guide, pp. 44—47
    - Structure Your Knowledge Question 4
    - M.C. Questions 4—8, 10, 16, 19, 24

- **Assignment due Friday, July 26<sup>th</sup>**

#### **Assignment 6— Read Chapter 6: An Introduction to Metabolism (17 pages)**

*It is assumed for all students in the course that this material will be approximately 3/4<sup>th</sup> review of topics learned in prior science courses and 1/4<sup>th</sup> new material that goes beyond the detail of prior material.*

- Homework:
  - o Textbook:
    - Scientific Skills Exercise: Making a Line Graph and Calculating Slope, p. 134 (Questions 1—5) ← create this graph by hand and either scan it and email it to me or photograph it clearly and email me the image. On the May exam, you will NOT be able to graph data w/ computer programs, so let's make sure you can make a graph the good old-fashioned way!
    - Level 3: Synthesis/Evaluation Questions 8 & 11
  - o Student Study Guide, pp. 53—54
    - M.C. Questions 1—5, 9, 10, 14—16, 18

- **Assignment due Friday, August 9<sup>th</sup>**

**Assignment 7— Read Chapter 7: Cellular Respiration and Fermentation (18 pages)**

*It is assumed for all students in the course that this material will be approximately 1/2 review of topics learned in prior science courses and 1/2 new material that goes beyond the detail of prior material.*

- Homework:

- o Textbook:
  - Make Connections Question for Figure 7.7, p. 146
  - Scientific Skills Exercise: Making a Bar Graph and Evaluating a Hypothesis, p. 155 (Questions 1—3) ← create this graph by hand and either scan it and email it to me or photograph it clearly and email me the image. On the May exam, you will NOT be able to graph data w/ computer programs, so let's make sure you can make a graph the good old-fashioned way!
- o Student Study Guide, pp. 56—62
  - Focus Question 7.3
  - M.C. Questions 6, 9—11, 13, 15, 18, 19, 22

- **Assignment #7 due Friday, August 23<sup>rd</sup>**

**\*\* For questions that ask you to generate a hypothesis, you are expected to create a deductive, cause and effect IF/THEN statement.**

**Example:**

**Good hypothesis: If temperature and metabolic rates are inversely correlated, then increasing the temperature of the water will cause the heart rate of fish to decrease.**

**Poor hypothesis: If the temperature of the water is increased, then the heart rate of fish will decrease.**

**\*\* For questions that ask you to design an experiment:**

- **Define your independent (experimental) variable and dependent (responding) variable.**
- **Describe the conditions of your experimental group and control group (and the substances/organisms of each group)**
- **Identify variables that you will keep constant between the two groups so as to isolate the effects of your independent variable.**
- **Describe the data you will collect and the method by which you will collect it.**
- **Explain how you will verify the results of your experiment.**