Study Tips for Biology Classes

Study strategies that work well in one class, may not work well in another. A successful study strategy varies from class to class and from person to person. The following are study strategies that are geared toward students in biology classes. You probably won’t have time to try all of these strategies, but pick a few that you think may help and try those. The key is to find as many different ways to work with the information that you are given.

Before Class

- It's very important that you read the text before class; but HOW you read the book makes all the difference.
  - If you don’t have time to read the whole chapter, at least look at the pictures (and read the captions). Biology is a visual subject and many of the concepts are best explained as picture.
  - Don’t try to memorize the whole chapter. Many instructors will not use ALL the information in the text, and will add information that is not in the text. The instructor will let you know which parts of the chapter are most relevant.
- Make a list of all the words in the chapter that you don’t understand. It is very likely that these are terms that the teacher will explain in class. If you already have these words written down – you will have a head start on note taking in class. Also, you are more likely to understand the lecture if you have an idea about what terms will be important (even if you don’t know what they mean)
- If a picture is used multiple times in the same chapter – it’s probably important. You may want to photocopy the picture and bring it with you to class. Or, maybe find a similar picture online and print it out. Labeling a picture may be easier than trying to draw it in your notes. However, this strategy may not be appropriate – it depends on the class and the instructor.
- If the instructor has online notes, review sheets, or other information, read them prior to class. Also, make sure to bring them with you to class.

During Class

- Come prepared! Bring your book as well as any note sets / review sheets that the instructor provides. You can often save yourself time if you take notes in the book or on the note sets rather than in class. One of the most common difficulties in science classes is that it’s difficult to keep up with the speed of lectures. If you have the pictures from the book (or photocopies) you will be able to take notes much quicker.
  - If you do take notes in your book or somewhere else – make sure to include that in your notes. Write something like “see fig 3.5” in your notes so that you know when to look at the pictures in the book.
Don’t try to write down everything the instructor says. This is one of the more
difficult aspects of being a student – knowing what’s important in a lecture. It takes
practice. Some hints for taking notes

- If the instructor writes it on the board – put it in your notes
- If the instructor says “this is important” or something similar – put it in your notes
- If the instructor refers to something in the book – write down the page or figure
number so you can go back to it later
- Develop a system for taking note. There are official methods for taking notes –
or you can develop your own. If there are a set of words that are used a lot in
class – make up a symbol for them that you will remember. (You may want to
make a list of these symbols in case you forget).
  - You can try working on your note-taking system by watching a TV show or
movie and taking notes.
- If you miss something during lecture
  - Ask the instructor to repeat the information
  - Leave a space and move on – come back and fill in what you missed later
  - Don’t miss the next point because you were asking your neighbor about the
last point.

If something is unclear in class – ASK!

- Most instructors won’t mind you asking for clarification in class. It’s often
embarrassing to be the one asking the questions – but you’re fellow students will
be glad you did. (They probably have the same question, and were just to shy to
ask).
- Asking questions does not make you seem like a dumb student – it makes you
seem like an interested student.

If you have the time, you may want to record the lectures. This way, if you miss
something, you can always go back to it. You can also listen to the whole lecture
again. Some students listen to these while driving – this can make a commute more
efficient. Or, you can listen to them as you clean the house, or go jogging. The key
to this strategy is repetition – it may not stick the first time, but it will stick eventually.

In a Lab Class

- Read the lab for that day and make sure you fully understand what you are doing in
class. In most lab classes, you will be expected to be self-sufficient in completing
the assignments, so you do need to understand what is expected of you that day.
As an added bonus, if you are organized and have a plan – you may even finish
early. On the other hand, if you spend your lab time figuring out what you are
supposed to do, you may not finish the lab.
- Divide and conquer. You may not have time to do all parts of the experiment on your
own. Part of the skills that a laboratory class is meant to teach is how to work
together. However, make sure you understand all parts of the experiment, even if
you didn’t actually conduct it yourself. Please note, however, that this may not be
appropriate for all labs. Some things have to be experienced to be learned. Ask
your instructor before splitting up tasks.
After Class

❖ Rewrite your notes. This is time consuming but does 2 things. It gives you a chance to review what you covered in class and make sure you didn’t miss anything. It also gives you a well-organized set of notes to study for the test.
   ➢ This strategy works best if the notes are redone shortly after class (within 48 hours).

❖ Use the resources that are provided! If there is a study room or tutor – make use of them. There may be models, practice tests or computer resources that are available to you in that room.

❖ Find online resources that cover the same information. Try typing the topic and the word “tutorial” or “quiz” into a search engine. For topics that require you to identify things (cell types, bones, etc) – try an image search. This is particularly helpful for microscope images because you can see a variety of different views of the same item.

❖ If you have any questions, ask your instructor during office hours. Instructors NEVER mind that you are asking them questions (that are related to the class).

Studying for the test

❖ Write your own test. If you had 10 (or 20, or 50) questions that you could ask about this information – what would you ask? What topics are the most important? How would you ask questions about each of these topics? Knowing what will be on a test is a difficult skill – but, with practice, you may be able to figure it out.

❖ Find a study group. Talk through the subject matter and make sure everyone understands it, or quiz each other. This is a great resource to make sure that you aren’t misunderstanding the concepts.

Strategies for memory-based tests
The strategies below are particularly useful for classes or topics that have a lot of vocabulary or names.

❖ Flashcards, an old favorite. The key to flashcards is to write VERY LITTLE on the card. Some students even cut the cards in half so they don’t write too much on them.
   ➢ Some tips for how to make good flashcards:
     ▪ One side of the card should have 1 vocabulary word on it and the other side should have a definition or picture
     ▪ Alternatively, you could write 1 question on the front side, and the answer on the back.
   ➢ Some tips for using flashcards:
     ▪ Make sure to study the flashcards in both directions (looking at the word and saying the definition, and looking at the definition and saying the word).
• You may also want to practice looking at the definition and writing the word on a piece of paper. After all, you will be asked to WRITE the answer on a test not SAY the answer. (These are very different skills – being able to say a word does not mean you will be able to write it).
  ▪ Keep them with you. Study them as you wait in line or as the microwave is going. The key here is – a little studying more often is better than a lot of studying for a short time.
  ▪ Make piles with your flashcards. A pile for the information you know and a pile for the information you forgot. Then take the second pile and go through it again – and again, put the cards into 2 piles. This way you spend more time studying the cards that you are having a difficult time with.

  ❖ Make up stories about the information. For example "So Long To Pinky, Here Comes The Thumb" to help you remember the bones in the hand.
  ❖ Photocopy pictures from the book (and remove the labels). Make ~5 copies of each picture. Hang these pictures all over your house (your family will have to deal with it!) As you walk by each picture label 1 thing on the picture. Next time you walk by it label something else. Soon you will have labeled most of the items on the picture. When you have 1 or 2 left – if you know them, label them – if you don’t know them, study them.
  ❖ Get a coloring book. There are some very good coloring books on the market. They have coloring books for most of the topics you will study. These are a great resource, and a good way to learn certain material. Again, the key is a little at a time. Color one page over lunch, one as you are watching TV after dinner, etc.
    ➢ If you can’t afford a coloring book (they can be a bit pricey)
      ▪ Photocopy from the textbook or print pictures from the web – then color and label them. (Make a few copies of these pictures and remove the labels)
  ❖ Make sure to use the open lab time, if it’s provided. Pictures are nice, but they are not the same as the real thing. Study strategies as you are holding at the 3 dimensional models/specimens:
    ➢ Look at the list of terms and identify all of them on the object.
    ➢ Without looking at a list, point to and name all the parts of the object that you need to know. Then, check the list.
    ➢ Without looking at a list, point to and write down the name of all the parts of the object that you need to know. Then check the list. Remember, on the test you will have to write (and spell the word) not say it out loud.
    ➢ Have someone point to a part and you write it on a sheet of paper. This is the best way to study because this is how most lab practicals are set up. If you can’t find another student to quiz you ask the tutors or your instructor.
Study strategies for concept-based tests
These strategies work best for classes and topics that discuss processes.

- The following is a method to help you learn a difficult process (for example, if you have to learn all the steps of aerobic respiration). When you are comfortable with one of these steps, move on to the next level of difficulty.
  - Find a picture of the process and remove the labels. Write the vocabulary words that relate to the process on another sheet of paper (put the words in alphabetical order). Be able to put the right term in the right place on the picture.
  - Now try to label the picture without the terms in front of you.
  - Now look at the list of vocabulary words. Write a paragraph explaining the process.
  - Now take a blank sheet of paper and draw the picture from scratch, without any words in front of you. Label and color code the picture you have drawn.
  - Now take a blank sheet of paper and draw the process backwards. (Hey, why not!)
  - Explain it to your grandmother. If you can explain to someone that has not had the class – you know you understand it.
  - Ask yourself what if… What would happen if something went wrong with the first step of the process. What would happen if something went wrong with the second step of the process. Etc. Etc..

- Explain what you learned in class to your roommate or family member. Ask them if they understand what you have explained. Pretend you are the instructor – how would you present the information? (You may lose a few friends, but you will get a better grade – what are your priorities?) 😊. Einstein said: “You do not really understand something unless you can explain it to your grandmother”.

- Also try:
  - Explaining the process out-loud to yourself. Hearing it may help you remember.
  - Explain the process to a classmate and ask them for feedback.
  - Explain the process to your instructor. This way you can be sure that you didn’t miss anything.

There are many other good study strategies. Talk to your classmates or teacher if you want more ideas.