

Advice for Biology Students:

The First Two Years

Welcome to Colorado Mesa University's Biology program! Biology is a wild and diverse field of study that encompasses all that is the study of life on Earth or anywhere else in the universe. Our program is carefully designed to train students in the foundations of cellular, molecular, and organismal biology. Each of these scales of study we consider to be essential for a meaningful understanding of life's processes and patterns. This advice document has been prepared by Dr. Walla to help students navigate their first two years in the biology program.

First, let me say this: **We are glad you are here! We want you to succeed!**

We want you to work really hard and spend tons of time and energy learning about biology. Your educational experience may not be an easy one. Likely, it will be peppered with challenging moments and long nights reading about science. Hopefully you will come to enjoy digging deeper and deeper into the puzzles of life. You will become the kind of person who doesn't accept headline dogma as an answer for how things really work. If it looks too easy for you, you are missing out on something. If it is a struggle, you are probably learning something. Welcome to a life of learning.

Top Questions for the Biology Major:

- 1) **Have you checked your official progress in DEGREE WORKS? It is in your Mavzone and allows you to see what the university has on record for you. You can also do a "what-if?" analysis for classes you may want to take. Take charge of your life! Do this yourself and see how you are doing.**
- 2) *******Biology is now offering two new concentrations.** A concentration is like a "track" where you focus your coursework to prepare for a career in a particular field of biology. The new concentrations are
 - a. Cellular, Molecular, and Developmental Biology Concentration (CMDB)
 - b. Ecology, Evolution, and Organismal Biology Concentration (EEOB)

which have been added to the standard concentrations, which are

- c. Biology Concentration (traditionally the only option in the biology degree program)
- d. Secondary Teaching Licensure

CMDB: The major change at the lower level here is the addition of a new course Biology 108, which will replace 106 and 107 for CMDB students.

EEOB: Physics 112 is not required. There is no major biology change at the lower level for this concentration. Students will take 106 and 107.

The major changes here at the upper level are that the CMDB concentration requires more chemistry and CMDB-related courses while the EEOB concentration requires Advanced Ecological Methods and Evolution.

3) **Are you prepared for university study?**

As a freshman, take the Math Accuplacer and the Chemistry Placement Exam. These are critical for your course planning. They will tell you (honestly) where your skills are in math and chemistry. The chemistry exam is not optional. Don't kid yourself. If you dodged math in high school, this is the time to get back in there and at least learn college algebra.

Face the facts here. If you haven't taken "college prep" courses before your freshman year, so you haven't had College Algebra 113 and you haven't taken Chemistry 121, you are going to have to spend your first semester taking these courses to get ready to enter the biology and chemistry sequences. Reality here means you didn't do it in high school, and now you have to do it in college. This is a nice opportunity to take some essential learning courses as well, like English 111.

4) **Are you signed up for the right classes your freshman year?**

The **chemistry sequence** required for biology is CHEM 131 and 132. These are often offered in both semesters. If you didn't have chemistry in high school or haven't placed out of College Algebra 113, you should start with CHEM 121. This is a starter chemistry class that essentially covers the first half of CHEM 131 over the course of the entire semester. It will give you the start you need to do well in CHEM 131 and 132. And, an added bonus! CHEM 121 counts for an Essential Learning course in natural sciences with lab! Chemistry is a long series of algebra problems . . . so you should take or test out of College Algebra 113 before you start CHEM 131. If you haven't, take CHEM 121.

More chemistry may be recommended for students interested in graduate school, medical school, or other professional careers. Get it while it's hot! Most biology programs require two full years of chemistry for a reason . . . most of modern biology (at least 90%) is biochemistry-related. If you chose CMDB as a concentration, more chemistry is required.

Biology 105 is the first biology course for majors. To be adequately prepared, you should be enrolled in Chemistry 121 and hopefully be enrolled in MATH 113 concurrently. If you are still in MATH 090 and you haven't started CHEM 121, you are unlikely to be ready to succeed in Biology 105. You just won't know what the professor is talking about, and everyone else will. If this is the case, you should spend some time getting the prep courses and some essential learning courses completed.

As a note here: Biology 101 is not a class that comes "before" 105, it is simply a course for non-majors, designed as part of the essential learning core. If it is your first year of school, you may count Biology 101 as an essential learning course (natural science with lab), but those courses are not designed as precursors to the biology program. However, you may find them interesting for essential learning.

Biology 105 is the first dose of reality for many students. You will need to study for 7 hours a week outside of class. You will need to take good notes. You will need to make this class a priority if you want to learn what will be offered there.

5) **Have you set your priorities for success?**

Prioritization is key for success at the college level. If you place getting good grades ahead of all else in school, then if one thing is for sure, you will get good grades. If grades are fourth or fifth on

your list, you can be pretty sure your grades will suffer and you may not succeed whenever anything else demands some of your time. Working through school is great . . . up to a maximum of 20 hours a week. Beyond that it is going to severely curtail your studies. Ask yourself if you really want to pay for all those classes if you aren't going to try to get everything you can from them.

Other considerations:

- 1) **Essential Learning Requirements:** These are listed in the catalog. These courses are designed to give students exposure to a diversity of disciplines so that you can better choose a major and gain an understanding of the world through diverse perspectives. Make sure you check that your planned essential learning classes are on the Essential Learning list in the catalog. Otherwise, they don't count as essential learning. If you plan to transfer to another university, make sure they are classified as GT Pathways Essential Learning classes so they are sure to transfer easily.
- 2) **Download a program sheet** from this site or get one in the biology office. Start filling it out as you progress through your program so you don't miss anything big on the way to graduation! You may use any program sheet from the time you started forward. Often the most recent years have fewer requirements.
- 3) **The four-year graduation plan: Truth of the matter?** The State of Colorado has limited all degree programs to 120 credits so you can make it in four years with 15 credits a semester. The reality is that if you need to take courses labeled 060 or 090, those courses don't count toward graduation. Though you may need them to prepare yourself for college, you should consider that, while taking them, you aren't really starting on your four years yet. So, if you didn't take college prep courses in high school, you will likely need more than four years to graduate—hopefully only an extra semester or so.
- 4) **The major hurdle for graduation for most students is the 40 upper division credits rule. You must have 40 credits of 300 and 400 level courses to graduate.** This is usually far more important than the three areas requirement on the program sheet. It turns out that 200-level courses don't have a place in the required courses. If you want maximum efficiency, that is, you want to graduate taking the fewest credits possible, minimize the number of 200-level courses. Make your 20 credits from three areas be a subset of your 40 upper-division courses. Some of you have a little more flexibility in your time schedule than others so you can enjoy diversifying your education with 200-level classes. Please note that A&P is a 200-level course. For those of you considering medical school or other professional schools, you will most likely end up taking some 200-level courses (such as A&P). There are other considerations for professional schools and graduate school that you should be aware of. Talk to your advisor to learn about some of the specifics.
- 5) **Physics 112** is rarely offered in the fall. So, take Physics 111 in the fall and plan to take 112 in the spring. Many students do this during their sophomore year. **Don't** wait until your senior year!
- 6) **Plan to take a statistics course like STAT 200.** Nearly all fields of science use basic statistics to test patterns. Of course you need to take a MATH 113 or higher for Essential Learning, but your other math course should probably be STAT 200. For students with graduate school and medical school goals, plan to take calculus as well. See your advisor if you have questions.

OK, that about rounds out the big ideas of the first two years. Go ahead and try to meet your advisor in person. Seek help when you can. Make study friends. Make use of the support the university has to offer. It helps.