

# Success in Biology 1102

## Tips for Achieving Success in Biology 1102 at Cornell.

**1. Become an Active Learner.** Psychologists tell us that both humans and experimental animals learn faster and retain information longer when they are actively engaged in the learning process compared to being passively exposed to sensory stimulation. For example, when a person passes through a maze of hallways and corridors and is asked to retrace the route, they are much less able to do so if they are moved passively through the maze than if they are allowed to actively explore the space on their own. You probably know this from your own personal experiences. If you are riding in the back seat of a car driving through a strange city, you will learn less about the route and landmarks than you would when you are in the driver's seat making observations and decisions about navigation. Take this simple fact and apply it to your approach to learning at every turn. Make learning an active process, not a passive one, and you will learn more, retain information longer, and have more fun.

In the lectures, **practice active note taking.** Note taking is one way of making learning active. Good note taking skills require that you formulate the concepts and ideas in your own words. Avoid simply passively copying what is written on a slide or spoken. Listen for the **key** points and make note of them, but in your own terms if possible. These will be presented on a slide early in the lecture. Use them to structure your notes for that lecture. Avoid simple copying. Copying slides takes too much time and does not enhance learning. These are available anyway on the course website. Also recall that note taking can only be a short-term memory device. True learning comes from going over your notes, filling in the details of concepts and ideas after the initial exposure.

**Attend lectures, sit forward.** Lectures are essential in this course, so make sure you never miss if at all possible. Lectures are your guide to the text and reading and your insight into the professor's attitude and style. Sit forward in the lecture hall and keep alert in your seat. Avoid areas of the lecture hall where students are sleeping or talking. If you do miss a lecture, make sure to listen to the recording on the course website, and take notes while doing so. Some students find that listening to a lecture a second time is a good way to review material, although it can be time consuming.

**Seek out and question faculty and staff.** Take the time to attend office hours, review sessions, or other opportunities whenever possible. Ask questions about material that leaves you confused or unsure. Above all, remember that there are NO Stupid Questions!

**Prepare.** Come to class prepared. First, look over the Lecture Outlines, available on the Lecture Course website and make note of the learning objectives for that day. It is not necessary to read the chapter before attending lecture, but skimming the chapter looking for the bold headings in the textbook that reflect the concepts mentioned in the Lecture Outline. Review the main concepts outlined at the end of the assigned chapters. Look at the figures carefully and read the legends. After lecture, read the assigned chapter carefully, paying special attention to the topics that have been emphasized in lecture. Try to answer the study questions in the lecture outlines.

**Mine the textbook for information.** Treat the textbook like an encyclopedia filled with information that can be useful to you, then mine it selectively using the index, the chapter summaries, the table of contents and the assigned pages. Do not think of the text as light reading or a short story. If you are unclear about a given topic, search for related topics, or coverage under different subject entries. Build your understanding out of the mined information you have collected.

**Conceptualize, don't memorize.** In this course you must focus on the concepts in Biology and biology as a process of discovering principles about the natural world, rather than simple lists of facts and details. There are far too many biological facts, with hundreds of thousands more being discovered daily. Memorization is comparatively easy for some students, but memorization is often for the short term. Conceptualization is more difficult, but will last much longer. Save memorization for your phone number and student ID, and use your brainpower for the hard work of understanding deeper concepts in biology. Of course, you will need to remember some of the basic facts to work with biology, but as you build a conceptual framework, the detailed facts will be better supported and they will be easier to remember.

**Formulate hypotheses, and then test them by (book) research.** A scientist proceeds by formulating a hypothesis about the natural world and then testing the hypothesis by performing experiments or additional observations. Use this approach when studying biology. Articulate your ideas on paper, or to others, and then verify that you have it just right by looking for information in the textbook, on the course website, or in other resources. When you come to the professor with a statement, “This is what I understand . . . do I have this right”, you are on the right track.

**With a compass and map, learn your route by leading, not following.** When you are a navigator and guide, you will learn better, faster and longer.

**2. Form a Study Group.** We strongly encourage the formation of small groups of students who regularly study together. Study groups provide students with an opportunity to check their thinking about concepts, to speak out, and to work through difficult intellectual terrain with others. Find a group of students with whom you can work well and set aside a regular time for review and discussion. Study group work is active learning, and it works well in other courses.

**3. Approach Web Quizzes like Homework.** Each week, starting on the second full week of classes there will be a web-based quiz covering the subject matter of the previous week’s lecture material. Web quizzes will be administered through a special page on the course website. Each quiz will consist of about 10 questions in multiple-choice format similar to those used in the exams. The questions are drawn randomly from a pool of about 30 for that week when you log in to the website. Thus, other students in the class may have a completely different set of 10 questions for their quiz in a given week. After you answer your 10 questions you can continue to log in to the website and get access to other questions (not for a grade) to check your understanding more completely. Taking quizzes is excellent preparation for the prelim exams, as the quiz and exam questions are all drawn from exams given in previous years in this course. Each quiz will cover the subject matter from lectures (usually two or three) listed on the quiz schedule. To receive credit for a web quiz, you must complete the quiz by the designated deadline, Sunday at midnight. After the deadline for completion, the quiz will remain accessible on the website for study purposes only. Only the first answer selected for each question will count towards the quiz grade, but after the first answer is selected, you may review all possible answers and comments if you desire – this may be an effective study technique for many students. Scores on each question will be reported to you when the question is completed. You may close an incomplete quiz and return to it anytime before the deadline.

Like homework assignments that are collected and graded, the primary intent of the quizzes is to encourage keeping pace with the assigned reading and study of lecture materials. It is also a means of self-evaluation for each topic. We encourage you to use good study habits to prepare for and complete each quiz on time. You may use the text as a reference while taking a quiz, but the questions will usually require synthesis of an entire chapter, not simply looking up a definition or fact. We encourage you to discuss questions and alternative answers with a study group or other students in this course, but you should be aware that students who simply receive answers from others without understanding the concept or the reasoning behind the question, will be unprepared for the course examinations. You won’t be able to discuss questions during the exams. Nevertheless, because the quizzes are “open book” with discussion encouraged, you should use them as an opportunity to master the material before logging in your answer. The most successful strategy would be to look at the quiz questions Monday evening after the quiz site is opened for the week. Perhaps print off the questions assigned to you and log off. Then you can think about the questions, do more focused reading, or discuss them with your study group. After you think that you have mastered the material (before Sunday at midnight) log back in to the quiz website and formally submit your answers.

The average of your lecture quiz scores will count for 15% of the final grade in the course. Thus, working on the questions over a period of days, rather than just sitting at the computer and answering as best you can, will be a way for you to maximize your score for this 15% of the grade. There is no reason to miss very many of these points.

**4. Get to know the Biology Center.** The Office of Undergraduate Biology in 216 Stimson Hall has information on other Biology courses, requirements for the major, faculty research interests, summer programs and undergraduate research fellowships, Careers, Study Abroad and Graduate Schools. Here are some excellent resource people who can help with a variety of questions and problems:

Position	Contact	Ned ID
Director of Undergraduate Biology	Jeff Doyle	<a href="mailto:jjd5@cornell.edu">jjd5@cornell.edu</a>
Associate Director (Curriculum)	Tom Owens	<a href="mailto:tgo2@cornell.edu">tgo2@cornell.edu</a>
Director of Advising Bonnie	Comella	<a href="mailto:bec3@cornell.edu">bec3@cornell.edu</a>
Associate Director of Advising	Wendy Aquadro	<a href="mailto:gsa8@cornell.edu">gsa8@cornell.edu</a>
Director of Undergraduate Research	Laurel Southard	<a href="mailto:les3@cornell.edu">les3@cornell.edu</a>
Administrative Assistant (Research)	Pam Davis	<a href="mailto:pd43@cornell.edu">pd43@cornell.edu</a>
Administrative Assistant	Amy Haner	<a href="mailto:anh7@cornell.edu">anh7@cornell.edu</a>
Administrative Assistant (Curriculum)	Linda Capogrossi	<a href="mailto:ldc3@cornell.edu">ldc3@cornell.edu</a>
Academic Advising Questions	Advising	<a href="mailto:bioadvising@cornell.edu">bioadvising@cornell.edu</a>

**5. Prepare for Exams and Learn from the Results.** Prepare for examinations by regularly reviewing your notes and by keeping up with reading, not by cramming one or two days before. When you finish with an examination reflect on what you have learned and where you have made mistakes. Then try to learn from the experience.

Our exams are constructed to test your mastery of biology: how well you know and understand the basic factual information that forms the core of biology, your understanding of the concepts that make up the big picture of biology, and your ability to use this information to think critically about relevant problems in biology. On any given exam, you can expect that the questions will fairly cover the breadth of the topics have been presented in lectures and in reading. To evaluate your knowledge in these areas, we will be using two types of multiple-choice questions.

**1-point questions.** These questions are intended to directly test your knowledge of the core facts and integrating concepts (the big picture) of biology. These are items that will be pretty clearly laid out for you in the lectures and in the textbook.

**2-point questions.** These are the thinking questions. We do not expect that you will immediately know the answers to these questions, but that you will be able to deduce the correct answer through critical thinking and the application of the core knowledge that you possess. Some questions may cover concepts that were never discussed in class or in the textbook, but would be based on basic principles or concepts that you would have learned in other courses.

On our multiple choice exams you are instructed to pick the **best possible answer** from among those available. You should be aware that most of the answers may be more or less right, and you will be asked to make subtle distinctions between answers that sound more or less correct. Thus, make sure that you read all of the alternatives before answering, and be careful that the answer you pick is the best possible one.

On all three exams, there will be approximately equal numbers of 1 and 2-point questions, with each exam consisting of about 40-50 questions. By awarding two points for the more difficult questions, we expect you to take more time on these questions and to be more careful in your choice of answers. Two point questions place the emphasis on your ability to think rather than to simply recall or recognize facts. We will do our best to make sure that the majority of the students can finish each exam in the allotted time.

You should be prepared for both the one and two point questions by taking the web quizzes and reviewing practice exams that we will post on the website. Many of the multiple choice questions that you will encounter on our exams and web quizzes may be very different from those you have encountered in the past. In many cases, you will not find the answer by searching through the list of facts stored away in the recesses of your brain. Rather, you will need to show your understanding of those facts by appropriate application of them to the problem at hand.

**Grading.** Although we strongly feel that your primary concern should be with your knowledge of biology, we understand that grades are important to students. For each exam, you will be given a numerical grade that represents your raw score number of points answered correctly. By dividing by the total number of points on the exam you can determine your own percentage score. Cornell guidelines suggest cutoffs of 90%, 80%, and 70% for A's, B's and C's, etc. but these are only guidelines. You will be informed of the grade distribution (mean and standard deviation) for each exam and you can estimate your standing relative to the guideline and to the rest of the class. In previous years, the median grade in this course has been a B-. We expect a similar performance this year. We will not curve the class letter grade downward if the mean is higher than a B-, but we reserve the right to curve the grades upward if we find that exam questions are too hard or if we do not adequately cover some material in lectures.

**Comments on the Exams.** Despite our best efforts to avoid ambiguous or misleading questions, or questions for which more than one answer might be considered to be correct, these things invariably end up being a problem with a few questions on each exam. Your input on the exam questions is critical to correcting this problem. After each exam, an oral discussion period is scheduled during which students can raise such issues or just ask for clarification about any exam question. Students who are unable to attend the oral session are invited to submit written comments via email to the course mailbox within 24 hours of the exam. The course staff will carefully evaluate all comments and, if appropriate, the exams will be re-graded taking into account alternative answers. This system has worked very well in the past and we encourage all students to participate in this process if you are able.

## 6. Get help when you need it.

Regularly scheduled office hours are as follows:

- **Dr. Robert Turgeon (Professor):** My office hours will be W 11:15 AM-12:15 PM and Friday 12:20-1:20 PM, 1122 Comstock Hall.
- **Dr. Mark Sarvary (Post-Doc Lecture Assistant):** W F, 1:00-2:00 PM, or by appointment (mas245@cornell.edu), 1136 Comstock Hall.
- **Introductory Biology 1101-1104 Course Office** (Louise Lattin) in 1140 Comstock Hall, Monday-Friday 8:00 AM-12:00 PM, 1:00-3:30 PM. E-mail: biology\_1101@cornell.edu.
- **Dr. Lindsay Goodloe (Senior Lecturer)** coordinates two different resources that are intended for students who desire additional help in BioG 1102. Dr. Goodloe runs the Biology Learning Skills course, BioG 1001-1002, which meets weekly on Tuesday at 4:20-5:35 PM (G1 Stimson), Wednesday at 7:30-8:45 PM (3330 Tatkon Center on North Campus), and Friday 1:25-2:40 PM (G1 Stimson). Students may register on-line for the "00" class or attend without registering at any time they would like help. Dr. Goodloe also supervises the Biology Learning Strategies Center (G24 Stimson). The center has student tutors who are available M-F 1:00-5:00 PM and SU-R 7:00-9:30

PM. Finally, Dr. Goodloe also holds office hours on M-W 1:00-4:00 PM and R 3:15-4:15 PM.

- **Dr. Scott Meissner** has been a participant of both lab and lecture courses for many years and has recently coordinated the lectures for BioG 1107-1108 (Summer Session). This semester he will be available for questions about biology lecture or lab in room 1122 Comstock Hall Mondays, 11:15 AM-1:30 PM. He may be contacted with questions at [stm4@cornell.edu](mailto:stm4@cornell.edu).
- **The Behrman Biology Center and Reserve Desk** (216 Stimson) is open M-F 8:00 AM-4:30 PM.
- Undergraduate-organized and staffed **M.A.R.K.S.** program offers tutoring in BioG 1102 and in chemistry. More information on this program will be given out in class.

*Robert Turgeon and the BioG 1102 Course Staff*

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