

Course Syllabus

Course Title and Credits	Biol 115 - Survey of Biology Laboratory, 1 semester credit
Catalogue Course Description	<p>Includes laboratory exercises from different areas of biology.</p> <p>This lab is open only to students who are currently enrolled in Biol 101 Online, or who have completed the Online Biology course. Elementary Education majors should check with their advisor: this class may not be appropriate for their degree requirements.</p>
Course Objectives	<p>This online biology laboratory offers simulations of biology laboratory experiments that one might perform in an actual lab. The labs are designed to follow and support topics that we cover during the 'lecture/discussion' part of our online course. More important, the labs are designed in part to help you understand the 'process of science' (i.e. how science proceeds in the lab). Although nothing takes the place of actually performing an experiment in a real lab, the online virtual experiments are more sophisticated than we could do in a typical introductory biology course.</p> <p>You cannot learn to cook by reading a cookbook. You must get in the kitchen and get your hands dirty. But I still have cookbooks with ingredients and recipes that I love to read about-even if I can't do them at home. And I learn a great deal about HOW cooking is done even though I may not get to use imported truffles and foie gras.</p>
Prerequisites	This course is not open for general enrollment. Enrollment requires past or present enrollment in the online section of Biol 101-Survey of Biology, course.
Format	<p>This course is designed specifically for online delivery. It follows the content items in the online section of Biol 101-Survey of Biology course. Completion of this course implies that you have completed a General Education biology laboratory. However, because this is a virtual laboratory experience, this course may not transfer to other institutions or satisfy laboratory requirements for specific programs. Please consult the registrar or your advisor to confirm appropriateness or transferability.</p> <p>This course is divided into 6 laboratory exercises. The labs vary in length and complexity. Each lab is broken down into 5 components. I - The Introduction contains a brief overview of the lab, experimental objectives and preliminary reading assignments. II - The Assignments include the guidelines for conducting the lab. Please note that you will conduct the labs individually. III - The Threaded Discussion is a place where you can go to discuss the conduct of the lab, and problems you may have encountered, with other students. IV - The Lab Report includes the items you will be graded on. V - The Interpretation is my interpretation of the data. This is open for your review only after the report deadline (i.e. you cannot view my interpretation until after you submit your report). Basically, after you review the introductory materials, I will guide you through the experiments, much as if you were sitting in my actual lab. You will complete the lab by answering questions and supplying data in the Lab Report portion of the lab. You will submit all lab reports in the Dropbox for the lab.</p> <p>The lab manual and the online materials are very detailed and complex. Do not let the excessive details in the manual intimidate you. But you can certainly refer to these as necessary if my guidelines are confusing or incomplete or if you wish to conduct extra experiments. Basically, I have selected portions of the extensive lab projects available to us in the online materials. The online resources were designed by the authors to service students ranging from advanced high school students to biology majors in college. We are right in the middle and the resource is entirely appropriate for our purposes. I have chosen those experiments that I believe are most useful for our purposes.</p>
Required Lab Text	You must purchase a lab manual which includes access to the online laboratory. Contact the MSUB Bookstore and purchase <i>BiologyLabs Online</i> . (The author is Michael Palladino, and it is published by Benjamin Cummings.) Make sure the manual is new, sealed and unused because it comes with a password that allows you access to the virtual labs. There are 12 individual labs in the lab manual. We will do portions of about nine of the labs. You will purchase access to the entire sequence of labs because it costs less than purchasing access to individual labs.
Assessment	<p>Grading: There are no formal exams in this laboratory course. You will be graded on the quality and completeness of the laboratory exercises you perform. You are expected to do these labs completely on your own and without assistance. I will grade each exercise on a point basis, but not all labs will be necessarily the same value.</p> <p>Standards: My interpretation of the university standards for a grades in a lab are as follows: A=Excellent. Demonstration of insightful knowledge of the experimental protocol and significance of the results. Lab completed skillfully, complete acquisition and presentation of data, and with complete answers to questions. The lab report will be easy to read and understand and the discussion will be a thorough treatment of the data. B=Good. Demonstration of thorough knowledge of the experiment. Lab conducted skillfully and completely, but lacking some data or in depth of understanding. The lab report will be easy to read and understand and the discussion will at least attempt to explain the data. C=Average. Demonstration of general understanding of the lab. Lab conducted minimally, but lacking data, presentation of data or incomplete answers to questions. The lab report may be difficult to read and understand and the discussion is little more than a reiteration of the data. D=Minimally Passing. Lack of demonstration of understanding of the lab. Portions of lab data are missing and answers to questions are erroneous. F=Failure. Conduct and understanding of lab are grossly in error.</p> <p>Use of + or - grades is at my discretion.</p> <p>Assessment: Basically, the lab reports that you submit are the only items used to judge your progress in the lab. I will read your reports in detail, but I will not edit and correct your individual lab reports. Instead I will provide an Interpretation of the data that you collect. My Interpretation will be available a few days after the deadline for your lab report. My Interpretations are not excessively detailed. They are not meant to be exhaustive, or exactly what you should have written in your report. Rather, they are a direct, 'minimalist' Interpretation of the data.</p> <p>Extra Credit: No extra credit is available in lab at this time.</p> <p>Final Grades: Final grades will be determined by adding up the points you earn cumulatively on the individual labs, and then determining the percent of points that you earned. Final grades will be curved at my discretion, but to no higher than: A=>90%, B=80-89%, C=70-79%, D=60-69%, F=<60%.</p>
Recommendations	My recommendations are to become an active but patient participant in the lab. Labs (real or virtual) are problematic. Things never work perfectly. You need to be patient and work through the lab, understanding that there will be some frustrations as you get use to the virtual lab format. You need to find the time to conduct the lab, and get it done in one sitting. Because you are collecting and analyzing data it may be difficult to work on the lab in pieces. The labs are generally open for only a 2 week period which is intended to correlate with the topics in the online lecture course. Try to use your lab work to improve your

understanding of lecture material.

Above all, do not wait until the last minute to do the labs. If you problems I may not be able to help you at the last minute, and then you will be penalized for late submissions of lab reports. My advice is to start the labs (at least practice with the experiments) about 3-5 days before the labs are due.

Schedule of Events Use the calendar to schedule your lab times. Labs will generally be open for only a 2 week period before they are due. Don't wait until the last minute to do the labs. If you wait, and then encounter lab problems, you may not be able to finish. I may accept labs that are submitted late, but the highest grade attainable (after my interpretation is available for your review) will be a 'C'. Labs are due as follows:

<u>Lab #</u>	<u>Due Date</u>	<u>Lab Topic</u>
Lab 1	Friday, 16 Feb	Enzyme Activity
Lab 2	Friday, 2 Mar	Mitochondrial Activity
Lab 3	Friday, 16 Mar	Mendelian Genetics, Statistics and Pedigrees
Lab 4	Friday, 30 Mar	Molecular Genetics, Protein Structure and Hereditary Diseases
Lab 5	Friday, 13 Apr	Evolution and Population Genetics
Lab 6	Friday, 27 Apr	Ecology, Human Ecology and Demographics