

BIO201 – Molecular and Cellular Biology Laboratory Syllabus Fall 2022

Biology 201 Laboratory Overview:

The content you will learn this semester in the course and lab follows the central dogma of biology. You will begin the semester learning techniques used to isolate and analyze DNA, followed by techniques used to analyze proteins, and lastly techniques used to analyze components in a cellular context.



Molecular and cellular scientists employ the scientific method in a laboratory setting. Thus, this semester you will do the same by learning and performing "hands-on" experiments and also, just as importantly, scientific data analysis, interpretation, and writing in the laboratory.

In-person attendance will be expected for lab lectures and weekly labs.

Lab Lecture and Instructor Contact Information:

<u>Section</u>	<u>Day</u>	<u>Time</u>	<u>Location</u>	<u>Instructors/Contact Info</u>
001	M	08:00 - 08:50	2300 NHS	Heather Haemig, Nobel Hall 4531, Ext 6333 hhaemig@gustavus.edu
002	M	9:00 - 09:50	3300 NHS	
003	M	11:30-12:20	2300 NHS	

Lab Sections and Instructor Contact Information:

<u>Section</u>	<u>Day</u>	<u>Time</u>	<u>Location</u>	<u>Instructors/Contact Info</u>
004	M	12:30PM - 03:20PM	3343 NHS	Jim Parejko, Nobel Hall 3322, Ext 6305 jparejko@gustavus.edu
010	M	04:30PM - 07:20PM	3343 NHS	Jim Parejko, Nobel Hall 3322, Ext 6305 jparejko@gustavus.edu
005	T	01:30PM - 04:20PM	3343 NHS	Jim Parejko, Nobel Hall 3322, Ext 6305 jparejko@gustavus.edu
007	W	01:30PM - 04:20PM	3343 NHS	Katie Leehy, Nobel Hall 3143, Ext 7043 kaleehy@gustavus.edu
008	R	 10:30AM - 01:20PM	3343 NHS	Zsuzsanna Sasvari, Nobel Hall ____, Ext ____ sasvariz@gustavus.edu
009	R	 02:30PM - 05:20PM	3343 NHS	Zsuzsanna Sasvari, Nobel Hall ____, Ext ____ sasvariz@gustavus.edu

Office hours for these instructors can be found on the Laboratory Moodle page:

Heather Haemig: for general lab questions/concepts; general writing questions

Jim Parejko, Katie Leehy, Zsuzsanna Sasvari: for questions specific to your lab section (i.e. analysis of data collected in lab, writing style etc), you are advised to meet with your laboratory instructor.


Required Materials:

- The World of the Cell (10th Edition) by Hardin and Lodolce
- Cell and Molecular Biology Lab Manual 2022, Dept. of Biology, Gustavus Adolphus College
- Goggles and closed toe shoes must be worn during weeks in which we are working with reagents and glassware (Weeks of 9/12, 10/3, 10/17, 11/7, 11/14 - 12/5)
- a writing utensil
- an electronic device for data analyses
- a calculator
- please have a mask(s) for use in case circumstances change during the semester. Note that you are welcome to wear them at any time.

Optional Resource:

Writing Papers in the Biological Sciences (6th Edition) by Victoria E. McMillan

Expectations:

- Email is an official means for communication at Gustavus Adolphus College. We expect that you will check your Gustavus email once a day. You will often receive an email from Dr. Haemig on Friday afternoons with information about the upcoming week of laboratory. You are responsible for reading this email before your lab lecture/lab session.
- The laboratory Moodle site is the main communications platform for this class, and should be accessed several times a week, if not daily.
- You are expected to use your Gustavus email and Moodle for all class-related communications.
- Please allow for 24hrs (or longer over the weekend or during breaks) for a response to an email.
-  Submit all reports and assignments using Moodle. Please do not directly email or share a completed assignment or report with the instructor or teaching assistants. Unless directed to by your instructor, direct email or sharing of completed work is not permitted.
- Lab quizzes and lab assessments will occur in-person on paper during your assigned lab lecture time on Mondays (The exception will be Friday November 18th when we will have a lab assessment that day to avoid back to back exams in lab and lecture). Note the dates of these in your planner/calendar so you do not miss class.

Laboratory Grading:

The laboratory is an integral part of this course, and you will perform many techniques that are responsible for our current understanding of heredity and cell structure-function, developing observational, quantitative/numeracy and scientific writing skills. You must regularly attend the section for which you are registered.

Your lab scores are part of the Bio 201 course grade. As a Bio 201 instructional team, we have decided that students must earn at least 60% of the points attributed to lecture and at least 60% of the points attributed to laboratory in addition to a 60%-point total overall to earn a D or higher; Material from both lecture and laboratory are integral components of your core foundation in biology. The understanding of this material will contribute to your success in subsequent coursework.

In the lab, you will perform techniques that are responsible for our current understanding of heredity and cell structure-function, developing observational, quantitative/numeracy and scientific writing skills. You will always attend in person during your assigned laboratory section. Most labs will be performed in teams of three (in some cases we will need groups of 2); all team members are expected to participate and contribute fully in each lab as well as communicate with and assist one another. However, note that all submitted work is an individual product.

Course Points:

<u>Category</u>	<u>Details</u>	<u>Total points</u>
Lecture	See lecture syllabus	185
Lab Quizzes	6 @ 5pts each (lowest score is dropped)	25
Lab Assignments	4 @ 10pts each	40
Lab Writing	Lab Report 1=10pts; Reports 2& 3 = 25pts	60
Lab Assessments	3@10pts each	30
	Total Points	340

Laboratory Sessions:

During laboratory sessions each week, you will solidify and extend your understanding of your pre-lab reading and BIO201 content in hands-on experiments and data analyses. Lab lecture sessions on Mondays are intended to help prepare you for laboratory sessions, but a brief review of your lab reading, lab lecture notes, and lab protocols may be necessary before coming to the lab, especially if you have a lab session later in the week. You are encouraged to ask questions of instructors and TAs during your lab session to ensure your safety, to properly perform experiments and use equipment, and to facilitate your learning. It is better to ask than to ruin an experiment/equipment or be injured. We care about you and your learning, so please ask!

Attendance Policy:

- For comprehension of the material, it is in your best interest to regularly engage with laboratory material and with your instructor/classmates. Students are expected to attend all lab lectures and all laboratory sessions during your assigned section. Proactive communication about your attendance each week will be beneficial for both you and the instructor.
- If you must miss a lab lecture or laboratory session, you are expected to coordinate the make-up lab by contacting your instructor *and* the instructor of a lab section that you can attend that week. You should notify your regular instructor of your absence in advance and should ask permission of the lab instructor of the section you wish to attend a minimum of 24 hours in advance. Note that you may have to make up a lab earlier in the week if you have a planned absence (a Thursday student might opt to attend a Tuesday afternoon lab).
- Due to the coordination and sequence of the laboratory activities and assignments, students need to complete all of the laboratory activities in order to receive credit for the report and/or assignments for that lab. For example, if three weeks of lab work are tied to a report and a student misses 1 of the three weeks, they may have 1/3rd of the earned points deducted from the score (earned 24/25 on the report but will only have 16/25 recorded in the grade book).
- We encourage you to keep track of the due dates and to be proactive in your communication with instructors as much as possible. All laboratory work will be completed and turned in electronically via Moodle by the assigned due date/time with the exception of lab assessments and quizzes, which are in-person at your assigned lab lecture time on the days listed in the lab syllabus. All lab reports and assignments will be submitted to Moodle at the beginning of your assigned lab period; even when you have made up the lab with a different section.
- Excused absences for lab quizzes and lab assessments require notification by email to Dr. Haemig 24 hours in advance including completion of the conflict form. Note that excused absences are not a given per college policies; approval must be obtained in advance.

Laboratory Quizzes:

Your preparation for laboratory activities is essential each week. You are expected to read the lab manual pages before attending your scheduled lab lecture on Mondays. We acknowledge that this will take time

on your part, and thus you can earn points from lab quizzes for doing this lab preparatory work. During the semester, you will take 6 lab quizzes that will occur in-person at the start of your lab lecture time.

Questions will assess if you have read through the chapter of your lab manual pertaining to that week of lab. Questions may also cover previous weeks of lab or common laboratory calculations that you have been taught in previous sessions. You may need to bring a calculator to your lab lecture session for lab quizzes (You will receive an email about that on the Friday before). These quizzes must be taken in-person during the first 15 minutes of your lab lecture session on Mondays. If you arrive late to the classroom, you can use only the remaining time that the rest of the class has to complete the quiz and will not receive additional time. Each quiz is worth 5 points. If you have taken all 6 lab quizzes, the lowest lab quiz will be dropped for a total of 25 possible points. If you inadvertently miss a quiz, that zero can count as your lowest score that is dropped. Notes will not be used for quizzes and these quizzes will be taken individually. See the "Late Work Policies" section regarding policies for the ability to make up lab quizzes if you miss your lecture time on Mondays.

Laboratory Assignments:

You will complete four laboratory assignments during the term that focus on data analysis and understanding of the work completed during the week. Each assignment is worth 10 points and provides an additional way for you to demonstrate your learning (i.e., instead of having a lab report every week as in the past, lab assignments provide a different type of assignment that allows you to demonstrate your understanding). The goal is for you to complete these assignments during the lab period; however, each assignment is due via Moodle before the start of your following scheduled lab period (i.e., technically you have one week to complete each assignment). See the "Late Work Policies section" regarding policies for laboratory assignments.

Laboratory Report (Laboratory Writing):

Lab reports are completed three times during the semester and will be done individually. The first lab report will be worth 10 points and is intended to be a "warm-up" to work out major structural issues and kinks in your laboratory writing. Thus, your second and third lab reports will be worth more (25 points) to give you the opportunity to earn more points for demonstrating your ability to make these improvements and develop more mature scientific writing skills.

Instructions regarding each particular lab report will be provided with the writing prompt. The goal of these lab reports is to provide you with training and practice in writing materials and methods sections, preparing figures and tables, and conveying experimental results. As feedback from the first report will be utilized on the second report and so on, it is in your best interest to complete these activities in a timely manner. See the "Late Work Policies section" regarding policies for laboratory reports.

Lab Assessments:

Lab lecture times on Mondays will also provide additional information and practice to help in the understanding of the experiments that you are doing in the laboratory.. Because the laboratory content of BIO201 is a core element of the biology major and needed for many upper-level biology courses, it is important that you understand and synthesize the information from the lab. To ensure this learning, you will also take three lab assessments on paper during the lab lecture time over the course of the term.

For your success, we recommend that you frequently review your readings and notes from lab lectures and labs during the term, ask questions you have, and mark the dates of the lab assessments in your calendar to plan and prepare for them. You will receive some guidance on what topics to review for each assessment along with some practice questions that will be provided at least 1 week in advance. If you have questions, ask! Your instructors, teaching assistants (TAs), and biology tutors are happy to aid you in your learning.

Late Work Policies:Lab quizzes/Lab Assessments:

- Missed/incomplete lab quizzes or lab assessments (generally on Mondays) **with prior contact of and approval by** the lab coordinator Dr. Haemig that includes the completion and submission of the conflict form to Dr. Haemig 24 hours in advance (**excused per college policies**) will be able to be made up by 4 pm Wednesday (or later depending on the reason for the excused absence) of that same week with no penalty.
- Missed/Incomplete Lab Quizzes or Lab Assessments (generally on Mondays) **without prior contact of and approval by** the lab coordinator Dr. Haemig that includes the completion and submission of the conflict form to Dr. Haemig 24 hours in advance (**unexcused**) will result in a 50% penalty if it is completed by 4p Wednesday of that week. For example, if you miss the lab quiz without prior contact including the completion and submission of the conflict form 24 hours in advance, and then arrange with Dr. Haemig to take it on Tuesday and earn a score of 4/5, then you will earn a 2/5 for that lab quiz after the 50% penalty is applied.
- In the event that the lab quiz or lab assessment has not been completed following this 48-hour grace period and there has not been communication with Dr. Haemig, you will receive a zero for that lab quiz or lab assessment. Exceptions to this policy will be determined on a case-by-case basis in consultation with the entire Bio 201 instructional team.
- Excluding situations where an incomplete for Bio 201 has been approved, all work that is past due as of 12/15/2022 must be submitted or made up by 5:30pm in order to be graded by the instructor. This means the latest time that Lab Report 3 or the Lab assessment given on 12/12 can be turned in is 5:30pm on 12/15/2022.

Lab Assignments or Lab Reports

- Due dates or quiz/assessment dates with respect to any made-up lab periods (either for a report or assignment) will remain the original due date/time for your regular section. If there is a need for a later due date, it is **your responsibility** to negotiate that with your regular laboratory instructor in advance. See below.
- Missing/Incomplete Lab Assignments or Lab Reports **with prior contact of and approval by** your lab instructor 48 hours in advance (**excused per college policies**) will be granted a revised due date/time for your lab assignment or lab report. This revised due date/time shall not exceed one week unless there are extenuating circumstances. You must complete and submit your lab assignment or lab report by the revised date/time arranged with your lab instructor or you will receive a zero. Exceptions will be determined on a case-by-case basis in consultation with the entire Bio 201 instructional team.
- Missing/Incomplete Lab Assignments or Lab Reports **without prior contact of and approval by** your lab instructor 48 hours in advance (**unexcused**) will be accepted for a 50% penalty of the earned score if it is completed and submitted to Moodle within one week of the original due date. Lab assignments or lab reports completed/submitted to Moodle more than one week after the due date/time will receive a zero. For example, if you forget to contact and receive approval from your instructor 48 hours in advance and you submit the lab assignment or lab report to Moodle six days later, you will earn 50% of the score for that assignment (e.g., if you got 26/30 on the lab report, you would earn 13/30 after the 50% penalty is applied); however, if you turn it in after 7 days, you would earn a zero. Note that late lab assignments and lab reports will be graded in a likely longer time frame that will be determined by your individual instructor.
- Excluding situations where an incomplete for Bio 201 has been approved, all work that is past due as of 12/15/2022 must be submitted by 5:30pm in order to be graded by the instructor. This

means the latest time that Lab Report 3 or the Lab assessment given on 12/12 can be turned in is 5:30pm on 12/15/2022.

Incomplete Policy:

A grade of incomplete may be awarded at the discretion of the instructor (in consultation with the Bio 201 Instructional team), if requested by the student, under the following conditions: 1) the last day to withdraw has passed, 2) and unforeseen circumstances beyond the student's control (usually restricted to illness or family emergency) preclude completion of the remaining work for the course by the semester deadline. Note that poor planning or having a lot of work to complete at the end of the term are not, in fairness to other students, considered circumstances beyond a student's control. Note: In cases where an incomplete is **not** awarded, no past-due work will be accepted after 5:30pm on December 15th, 2022 (Reading Day).

The grade "I" for a particular student, along with an expiration date, is reported at the end of the term to the Office of the Registrar on a special form, which is signed by both the instructor and the department chair. A temporary grade will also be submitted, in the computation of which the instructor has considered work not completed as a zero or an F. If before the end of the expiration date, the instructor reports a final grade to the Registrar, that grade will be recorded and the grade point average will be computed accordingly. When the expiration date has passed without a grade being reported, the temporary grade will replace the "I" and become a permanent part of the transcript record.

Gustavus Adolphus College Honor Code:

Gustavus Adolphus College is proud to operate under an honor system (https://gustavus.edu/general_catalog/current/acainfo). The faculty and students have jointly created an Honor Board to enforce the Honor Code and the Academic Honesty Policy. Each faculty member is responsible for stating course penalties for academic honesty violations, and for defining the level of authorized aid appropriate to the work in their courses. Each faculty member is also required to report violations of the Academic Honesty Policy to the Provost's Office. It is your responsibility, as a student, to ask questions if you are not sure about situations such as when to cite a source, how to cite a source, sharing data with lab-mates, and avoiding inadvertent cheating when working in groups or during online assessments. It is also your responsibility to learn about the policy and the consequences for violations so please ask questions!

The overarching principle of the Academic Honesty Policy is that students shall submit their own work, in fairness to others and to self. As a developing scholar, I want you to be able to take pride in your own academic work and to maintain your academic integrity. We will be providing an exercise on Moodle to help you recognize common misconceptions when it comes to plagiarism. Citations must accompany any use of another's words or ideas that are not common knowledge. Quoting or paraphrasing from electronic sources without proper citation is as serious a violation as copying from a book or other printed source. A student may not submit work that is substantially the same in two courses without first gaining permission of both instructors if the courses are taken concurrently, or permission of the current instructor if the work had been submitted in a previous semester. Ask me if you have questions about a particular assignment or kind of work. Please make sure you fully understand the rules related to online work, as it pertains to this course. Unauthorized aid during online exams and assignments is every bit as serious and inappropriate as it would be in an in-person course. In fact, in the online environment it is sometimes easier for faculty to detect violations.

The sanction in BIO 201 for a violation of the Honor Code involving plagiarism, copying another student's work, or other kinds of cheating will usually be a zero for that activity. For a more significant and/or repeated course event, the instructor or the Bio 201 instructional team reserves the right to assign you a grade of "F" for the course. In addition, for any Honor Code Violation, the instructor will notify the Provost's Office. A letter will be generated by the Provost's Office and sent to you. The letter will remain

on file. There will be no further consequence, beyond the course penalty and the letter, if you do not commit any further Honor Code violations. Repeat offenses could ultimately lead to dismissal from the College. You have the right to appeal any Honor Code violation through an Honor Board hearing process. In this course, we aim for you to learn how to cite sources properly, do your own work on all exams, and function as a scholar with integrity. Please feel welcome to ask questions about the important matter of Academic Honesty and let us know how we can best support your learning.

NOTE: All other course/college policies and important information can be found in the lecture syllabus for Bio 201. Please reach out to your instructors if you need assistance during the semester.