Biology 120, General Biology Laboratory (1 credit)
Course Syllabus: Spring, 2024

Asynchronous Online Prelab – Prerecorded lectures (Posted on Monday mornings)
In-person Lab Meets for 2 hours: Tues & Thurs, ISC 101 and ISC 103

INSTRUCTOR INFORMATION:

Robert Feissner: **Section 01 & 05:** Office: ISC 356**,** Ph: 245-5022**,**
e-mail: feissner@geneseo.edu Office hours: **TBA** and by appointment.

Hristina Nedelkovska**: Section 02 & 03:** Office: ISC 257, Ph: 245-6396,
e-mail: nedelkovska@geneseo.edu Office hours: **TBA** and by appointment.

Brian Hoven**: Section 04 & 06:** Office: ISC 353, Ph: 245-5378,
e-mail: bhoven@geneseo.edu Office hours: **TBA** and by appointment.

Suann Yang**: Section 07:** Office: ISC 256, Ph: 245-5311,
e-mail: yang@geneseo.edu Office hours: **TBA** and by appointment.

Betsy Hutchison**: Section 08:** Office: ISC 359, Ph: 245-5038,
e-mail: hutchison@geneseo.edu Office hours: **TBA** and by appointment.

Joshua Baecker**: Section 09:** Office: ISC 351, Ph: 245-6385
e-mail: baecker@geneseo.edu Office hours: **TBA** and by appointment.

Wendy Owens**: Section 10 & 12:** Office: ISC TBA, Ph: 245-xxxx,
e-mail: wowens@geneseo.edu Office hours: **TBA** and by appointment.

Required Materials

You will be REQUIRED to come to each laboratory meeting with:

- Lab notebook containing the laboratory printout (which you can obtain from Canvas), plain notebook paper, pencil and pen.

- Laptop computer. Each group (lab bench) must have at least one laptop to use during the lab per pair of students. Students in the lab are responsible for providing the laptops (Mac or PC only, no iPad, tablet, or Chromebooks).

- Personal Safety Equipment
    a. **Goggles** will be required for the microbiology laboratory starting week 2. Each individual is responsible for providing their own goggles. You will not be able to perform this laboratory without goggles. (Goggles are available at the bookstore).
    b. **Lab coat (not required).** While it is *advised* that you wear a lab coat during the lab microbiology lab, it is **not** a requirement. We will allow you to wear long

pants and long-sleeved shirts. This lab coat will not be given to you but must be provided by you. (Lab coats are available at the bookstore).

c. **Shoes with closed toes.** You must wear closed toe shoes at all times. If you show up in open-toed shoes you will not be able to participate in lab.

- Recommended Textbooks:

d. "A Student Handbook for Writing in Biology, sixth edition", Karin Knisely, Sinauer Freeman Publ, (ISBN: 9781319308322). The 5th edition is also suitable if you can find a cheap copy. This book is available from the bookstore and is a wonderful resource on how to write lab reports as well as how to use Microsoft Word and Microsoft Excel. <u>This text provides important information for writing in upper-level biology courses, so you should hold onto it even after this semester is over.</u>

e. "A Primer in Biological Data Analysis and Visualization Using R, 2nd Edition", Gregg Hartvigsen, Columbia University Press., (ISBN 9780231202138). This book will help you understand statistical analysis and how to use the statistical software 'R'. You will use this textbook in Ecology next year and possibly in other advanced level biology classes so hold onto it.

Course Goals, Content, and Learning Objectives

General Biology Laboratory II (Biol 120) may be very different from your previous Biology laboratory courses in that it stresses the scientific process in Biology more than facts and details. Our main goal is to help you employ the scientific method to understanding problems in biology so that you can apply the scientific method to your upper level biology courses.

The course specific Learning Objectives of General Biology Laboratory are as follows;

- to understand experimental design and conduct research in an applied project.
- to model and utilize some of the techniques and equipment used in experimental biology.
- to illustrate some important biological concepts and techniques such as plant growth, water quality testing, and statistical analysis.
- to develop skills and approaches for communicating science to lay and expert audiences via written and oral presentation.

This lab course fulfils one part of the GLOBE Broad Knowledge Area of Scientific Literacy when paired with a lecture course (Biol 117 or 119). Scientific Literacy recognizes the importance of being able to understand, evaluate, and replicate quantitative and symbolic forms of reasoning as the basis of scientific arguments built on empirical evidence, in order to work ethically with technology and contribute to a scientifically informed society.

In Biol 120, Students will demonstrate scientific reasoning applied to the natural world by;

- understanding the methods scientists use to explore natural phenomena, including observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence, and employment of data analysis or mathematical modeling.
- applying scientific data, concepts, and models to questions in biology.

Since the approach of this laboratory stresses scientific process, it is important to understand that *how* you do the laboratory can often be as critical as the results you obtain. If you come in unprepared and work haphazardly it will be difficult to analyze your data and answer the questions asked in the laboratory manual. This approach is not meant to make the laboratory difficult, but to give you a closer approximation of experimental laboratory science. It also gives you more control over your grade in the laboratory since your understanding of, and care in executing the lab experiments and activities should enhance your grade. The content of the laboratory course will periodically match-up with the material taught in the lecture class, so expect new content to be introduced in lab that is not addressed in the corresponding lecture class (e.g. Biol 119: General Biology II Lecture). For this reason, attendance is critical to your understanding of the laboratory content.

Health and Wellbeing in the COVID-19 era

The changes brought on by COVID-19 have impacted us all in a number of ways and will continue to do so at various times and to varying degrees during the upcoming semester. Your health and wellbeing are foundational to your ability to learn, and if you find that you are feeling unwell (physically or mentally) and it is impacting your ability to complete your coursework, please reach out. Because the learning environment will be different than it has been in the past, the indicators that usually let you know something is wrong may not be as clear to you or those around you as they would be during a typical semester. Please remember that it's never too late to ask for help.

In a similar way, I will occasionally ask for some patience and flexibility on your part. The pandemic is affecting faculty as well as students and creating demands that would not be present in an ordinary semester. If I am slow responding to an email, if I take some time to grade an assignment, if I am a bit late posting a video lecture, please be patient (and feel free to send me a 'What's Going ON, Feissner" e-mail; I will not be offended). You will never suffer any disadvantage in the course because of delays on my part.

This is a hybrid course

Lectures are online (Prelab) lecture:

This course consists of two required educational elements each week. Part 1 is a prelab lecture that introduces each week's lab and provides important background and instructions that will be needed to be successful in lab. These videos are hosted on YouTube and are found within the modules in your Canvas Lab course. These lectures are where a substantial portion of the content in the course will be presented. The lectures are integral to the course and must not be skipped. Videos will always be available to watch on Monday morning of each lab week (and will often be available earlier). There will be a weekly quiz that includes content from the lecture videos.

It can be a challenge to determine out what needs to be done each week, especially for courses with substantial online content. Here is a general guide for how to approach this course every week...

1. On Sunday or Monday each week, look for and watch lecture videos posted to the current week's Module. These must be watched BEFORE you attend lab each week and

will be helpful for the pre-lab quiz each week. The Powerpoint files used to make those videos are posted as well, so you can review on your own.
2. Download and look over the lab for the week. This will be found in the current week's module.
3. Take the prelab quiz after reviewing the prelab lecture materials.
4. Attend Lab at your section's two-hour meeting time (Tues, Wed, or Thurs)!

Labs are Required and are Face-to-face:

We greatly value the learning opportunities we'll have in our in-person class meetings and hope that you will actively participate in this important element of the learning process. The pandemic era presents challenges to in-person learning, but by working together we can make this a safe experience.

It is essential that all students in in-person classes follow some basic procedures to help keep themselves, other students, and our faculty and staff safe. Although these processes may seem inconvenient, they reflect current public health guidance that helps minimize the spread of coronavirus. Please incorporate these essential health and safety measures into your normal routine, consider the ways that your actions may affect the health and wellbeing of those around you, and try to approach this semester with a spirit of empathy and compassion.

Lab Makeups:

Labs often use materials (e.g. living organisms) that are only available for a week, so makeup opportunities are very limited. If you know that you will miss a a lab in advance, please email your faculty instructor to let them know, and to arrange to sit in on another lab section that week. You will require permission from BOTH your instructor and the instructor of the section you wish to attend. If a makeup opportunity is not possible, you will be allowed to work on the lab assignment with your lab group after attending office hours to get caught up with the experiment.

3-lab policy (attendance requirement):

This lab meets one time each week for a total of twelve in-person classes of experimentation and one in-person project presentation. Attendance is mandatory, but reasonable allowances for absences are accepted on a limited basis. However, you must not miss more than two labs (for any reason, excused or not) during the semester or you will be given a failing grade for the course (or you may withdraw). If you anticipate needing to miss more than two labs, please contact Dr. Sancilio (sancilio@geneseo.edu) to notify the school of your extended absence or extenuating circumstances.

Attendance and Public Health

As we continue to deal with variants of the COVID-19 virus well into the future, I share these expectations for classroom attendance and protecting public health. SUNY Geneseo is a residential liberal arts college where we all learn together in a shared space. Engaging in discussions and collaborative problem solving is vital to creating a classroom community. This classroom community is vital for engaging in discussions, solving problems, and answering questions together. Learning is an active process, and it requires engagement - on my part and yours. I promise to create an interactive and collaborative classroom space, and in return I expect you to attend and engage in the activities.

We know that COVID is shifting from a pandemic to endemic stage, and it's possible that some of you may get infected over the course of the semester. Because we want you to be successful and because we value your contribution to the course, we expect you to prioritize attendance. If you are experiencing symptoms associated with COVID on a day we have class, please take a self-test. If you test negative and feel well enough to attend, put on a well-fitting mask, come to class, and maintain physical distance as much as possible. If your symptoms do not allow you to attend class, stay home (except to go to the health center), rest, and take care of yourself. I expect you to communicate with me directly about your absences. I can support you to keep up with class if you are out for COVID-related reasons, but I need you to take responsibility for being transparent and clear in letting me know when you are out and why. Although I can work with you on keeping up, you may miss some course content and extended absences may impact your ability to realize your full potential in this class. For extended absences (i.e., more than a couple of days of classes), you should contact the Dean of Students, Dr. Sancilio (sancilio@geneseo.edu), who can assist with reaching out to your faculty.

Finally, I want you to succeed and learn in this class, and I want to protect our community from illness as best as I can.

Instructional Team and Course Structure

The Biology 120 Laboratory course is a very large class (greater than 200 students every semester) requiring the cooperation of a teaching team, rather than a single instructor, to provide the best educational experience for all students. The Biol 120 teaching team consists of one faculty course leader (Dr. Feissner), faculty lab instructors, and experienced undergraduate lab instructors (ULIs). The roles and duties of each team member are described below.

Course Leaders:

Dr. Feissner is the coordinator of Biol 120 and teaches the Monday online Prelab Lectures. The course leader oversees all labs and works closely with the faculty and Undergraduate Lab Instructors in preparing and teaching all labs.

Faculty Instructors:

Faculty instructors are full-time faculty in the Biology Department that oversee lab sections. Due to the size of the Biol 120 class, two labs sections are held together in adjoining lab rooms. The Faculty instructor will work with one section during the lab period.

Undergraduate Lab Instructors (ULIs):

ULIs are instructional personnel in some lab sections. ULIs are exceptional upper-class students that have previously taken Biol 120 as well as volunteered as an assistant. Your ULI is your co-lab instructor and helps to oversee your section alongside your Faculty Instructor. While your faculty instructor oversees your section, your ULAI can be a go-to person for all questions regarding the lab, especially during the times when the instructor is working with other lab groups. ULIs cannot address any grading or canvas issues.

Lab groups:

Students will be assigned to laboratory groups the first laboratory period. Each lab bench will work as a 2, 3, or 4-person group (depending on enrollment). Your groups *will* change during the semester so it is helpful to note things that worked well with your group to share in your new groups.

Course Requirements

Quizzes:

Most weeks will have a short quiz that includes questions on the current lab (20 to 30%) and previous weeks' labs (70 – 80%). Quizzes will be administered online and must be completed outside of class within a limited window of time. Instructions for online quizzes will be provided in advance, and a practice quiz will be administered prior to the start of graded quizzes to iron out any technical problems you might face.

Each quiz will cover material from the previous week(s) as well as the current week's lab. Quizzes will stress application of principles learned and interpretation of data as well as essential concepts. The most common types of questions require you to make observations, formulate a hypothesis, interpret data or predict the outcome of an experiment. Some of your quiz questions will come from the prelab videos and others from your in-lab experiences. Therefore, watching the videos and reading the lab before your meeting will not only enhance your laboratory experience but also be beneficial to your grade. Quizzes will be administered online starting Monday mornings at 12:01 AM and will terminate at 11:59 PM the next day (48 hours). No makeup quizzes will be given. You may submit your quiz after the submission deadline but will lose 33% of the total credit each day (NO credit will be awarded after Friday). If you miss a quiz you must have a valid excuse to be excused from the grade.

Online Quiz Notes:

1) Quizzes consist of random questions pulled from a pool of similar questions. Therefore, every student will get a different quiz with different questions and different answers. Collaboration is not permitted.
2) Quiz answers will be available to review at 11:59 PM on the Friday after the quiz was administered. A review period of 7 days will be provided in which you may ask to have a quiz regraded. **After 7 days, no quiz grades will be changed.** All quizzes will remain visible for review at the end of the semester to study for the final exam.

Written Assignments:

The written assignments will include brief reports in a written format stressing different aspects of scientific processes. **These will be group assignments**. Your final grade on some of the written assignments may be weighted by your group members' assessment of your contribution to the final product.

Oral Presentation:

The ability to communicate effectively is essential for scientists. Your lab group will have to make a short report on your final results from your microbiology project (which will include some form of visual aid, usually a Powerpoint presentation).

Professionalism:

Your choices can affect the learning experiences of other students in the class as well as your own. Please arrive on time, stay through class, turn off your cell phone (including vibration mode), and use laptops and other technology only for class-related activities. It is understood that the continuing development of new technology can be beneficial to the process of

education. For this reason, laptops and smartphones are permitted for note-taking and viewing classroom materials such as weekly lab handouts. Unacceptable classroom use of technology includes, but is not limited to social media websites, e-mail, and cell phone photography (except as required for lab activities). Students that are viewed as distracting or disruptive may be asked to leave the classroom.

Grading

Grades will follow the following point distribution:

>=92%, A;	77-79%, C+
90-92%, A-	73-77%, C
87-89%, B+	70-72%, C-
83-86%, B	60-69%, D
80-82%, B-	<60%, E

Under most circumstances, there will be no adjustment to your grades. There is no quota for particular letter grades. Helping your classmates in the lab (not to be confused with cheating) will not hurt your grade, and is instead more likely to improve your grade. Final grades will be rounded to the nearest whole percentage point at the end of the semester (87.2% -> 87%, 89.7% -> 90%), while grades for assignments themselves will NOT be rounded.

Grades will be based on the following system:

1.	Quizzes	35%
2.	Reports	65%
	Total	100%

Important Policies & Responsibilities to maintain a respectful environment:

Student Accommodations

SUNY Geneseo is dedicated to providing an equitable and inclusive educational experience for all students. The Office of Accessibility will coordinate reasonable accommodations for persons with documented physical, emotional, or cognitive disabilities, as well as medical conditions related to pregnancy or parenting. Students with letters of accommodation should submit a letter to each faculty member at the beginning of the semester and discuss specific arrangements. Please contact the Office of Disabilities https://www.geneseo.edu/accessibility-office

- Student responsibility: Please submit your letter of accommodations to your faculty instructor at the beginning of the semester and make an appointment to discuss arrangements.
- Instructor responsibility: We are committed to working with you to figure out how to create a just learning environment while meeting the learning outcomes of the course. Unless you communicate otherwise, we will keep all accommodations confidential.

Geneseo's Library offers frequent workshops to help students understand how to paraphrase, quote, and cite outside sources properly. These sessions are meant to educate about the importance of using original ideas and language, and how to incorporate paraphrases and quotes into writing. The complete list of library workshops can be found at

www.geneseo.edu/library/library-workshops. Academic dishonesty includes cheating, knowingly providing false information, plagiarizing, and any other form of academic misrepresentation. College policies and procedures regarding academic dishonesty are available at www.geneseo.edu/handbook/academic-dishonesty-policy.

Communication.

Everyone is expected to check their email at least twice a day, and use email, Canvas, or other mutually-agreed upon methods to communicate with each other. Please make sure to set Canvas notifications to send you emails with updates, and set aside time to read these so you don't miss anything important. You can also meet with professors and teaching assistants in drop-in hours or by appointment. E-mail is usually the fastest way to get in touch with us. Because our jobs require that we deal with many students, **please include your name, *section #* and Biol. 120 in all e-mails sent to us.**

Uphold the Student Code of Conduct.

Plagiarism and other forms of academic dishonesty (cheating, turning in another student's work as your own) is not tolerated at SUNY Geneseo. Consulting with other students for individual assignments is fine, but you must each produce original written answers or code (no copying and pasting). Check with the instructional team if you are not sure where the line between collaboration and copying stands on any assignment. Evidence of plagiarism and/or academic dishonesty is grounds for a score of '0' on any assignment and further action including notifying the department chair, which can result a report filed with the Dean of Students. For full details of the Student Code of Conduct, please see the Student Handbook.

Academic Integrity & Plagiarism

Geneseo's Library offers frequent workshops to help students understand how to paraphrase, quote, and cite outside sources properly. These sessions are meant to educate about the importance of using original ideas and language, and how to incorporate paraphrases and quotes into writing. The complete list of library workshops can be found at www.geneseo.edu/library/library-workshops. Academic dishonesty includes cheating, knowingly providing false information, plagiarizing, and any other form of academic misrepresentation. College policies and procedures regarding academic dishonesty are available at www.geneseo.edu/handbook/academic-dishonesty-policy.

Respect copyright and licensing.

All materials used in this course, including lectures, slides, videos, and handouts, have specific licensing and copyright restrictions that identify how they can be used, distributed, and adapted. The original work created by me, your instructor, is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License. Materials created by other authors have their own licensing and copyright restrictions. Please do not violate the restrictions we have put on our intellectual property. This includes, but is not limited to, transferring files to websites such as StudyBlue and Course Hero, storing old tests in sorority/fraternity test banks, and passing on assignments to friends who may take the course in the future. Be aware that UUP (Union of University Professionals, the union representing faculty on this campus) is seeking to take legal action against groups who violate copyright, and that posting or selling copies of materials to such groups may put a student in legal jeopardy.

Exceptions:

Policies can have exceptions! When problems arise in completing class work, please make an appointment to talk with us. Sometimes it is possible to identify additional options or solutions that do not appear here.

BIOL 120: General Biology Laboratory II Spring, 2024 - Laboratory schedule: rev.12/27/23

Week #	Week of:	Laboratory	Quizzes and Notes
1	Jan. 22	Intro to Biol 120 Safety, group contracts, scientific papers.	• **Prelab meetings will be recorded and posted to Canvas by 8:00 AM on Monday mornings. Review is required before your lab meeting.**
2	Jan. 29	Integrated and Applied Learning/Research project: Microbiology Lab Part I – Techniques	• QUIZ #1 • ****BRING GOGGLES TO LAB THIS WEEK****
3	Feb. 5	Integrated and Applied Learning/Research project: Microbiology Lab Part II – Techniques	• QUIZ #2 • ****BRING GOGGLES TO LAB THIS WEEK****
4	Feb. 12	Integrated and Applied Learning/Research project: Microbiology Lab Part III – Research Development	• QUIZ #3 • ****BRING GOGGLES TO LAB THIS WEEK****
5	Feb. 19	Integrated and Applied Learning/Research project: Microbiology Lab Part IV – Finish data collection and analysis	• QUIZ #4 • ****BRING GOGGLES TO LAB THIS WEEK****
6	Feb. 26	**Diversity Summit** – No Labs this week	• n/a
7	Mar. 4	Group Oral Presentations - Microbiology	• In Lab - Schedule will be established week of 2/19
8	Mar. 11	**Spring Break** – No labs this week	• *n/a*
9	Mar. 18	Biostatistics Using R I	• QUIZ #5
10	Mar. 25	Biostatistics Using R II	• QUIZ #6
11	Apr. 1	TBD	• QUIZ #7
12	Apr. 8	TBD	• QUIZ #8
13	Apr. 15	TBD	• QUIZ #9
14	Apr. 22	TBD	• QUIZ #10
15	Apr. 29	TBD	
16	May 6	No Labs This Week	