

# Mayville State University

## BIOL 150L – General Biology I Lab

**Dr. Joseph Mehus**

Fall, 2021

**1 Semester Hours**

---

### **Contact Information:**

Office: 701-788-4802; Email: [joseph.mehus@mayvillestate.edu](mailto:joseph.mehus@mayvillestate.edu); Office Location: SB 134

### **Hours of Availability:**

Available via email; arranged Skype for Business meetings as requested

### **Instruction Mode:**

Online asynchronous

### **Time Zone:**

All times listed in this course/syllabus/course content is in Central Standard Time (CST)

---

### **Course Description**

Laboratory exercises designed to explore proper lab technique, microscopy, cell structure and chemistry, membranes/diffusion/osmosis, enzymes, cellular respiration, photosynthesis, mitosis, meiosis, homeostasis, genetics, and protein synthesis.

### **Pre-/Co-requisites:**

Recommended BIOL 150 - General Biology Lecture

### **Purpose of the Course**

The purpose of this general biology course is to deepen your understanding of the scientific method of inquiry and expand your knowledge of living things and what they need to sustain life through experimental observations. We will use various laboratory investigations to explore organic structures, the processes that regulate life functions, the effects of living and nonliving factors on biological systems, and how organisms have changed over time.

### **Course Objectives**

Through numerous instructional strategies and learning experiences, the following outcomes are expected to be met by the learner after completing this course:

- The learner will be able to describe the biological structure and function of the cell and the molecules that make it up.
- The learner will be able to illustrate and elaborate on the flow of energy in living systems.
- The learner will be able to describe the processes and importance of cell division and meiosis.
- The learner will be able to distinguish between the two processes of mitosis and meiosis.
- The student will be able to discuss the general history/foundational work/forefathers of biology.
- The learner will be able to convey their knowledge of the scientific method.
- The learner will be able to identify the link between DNA, RNA, and protein and describe the processes of transcription and translation.

### **Program Student Learning Outcomes (SLOs) Addressed in This Course (required)**

The Academic Program Student Learning Outcomes document can be found in your course shell. It contains all learning outcomes pertaining to Essential Studies courses and all majors and minors. The document has an index, so you can quickly find the degree you are pursuing.

As part of Mayville State's effort to demonstrate continuous improvement in achieving student learning outcomes, this course:

<input checked="" type="checkbox"/> introduces SLO # 1 <input type="checkbox"/> reinforces SLO # <input type="checkbox"/> masters SLO # For Major / Minor: <input type="text" value="Biology"/>	<input checked="" type="checkbox"/> introduces SLO #2 <input type="checkbox"/> reinforces SLO # <input type="checkbox"/> masters SLO # For Major / Minor: <input type="text" value="Biology"/>	<input checked="" type="checkbox"/> introduces SLO # 3 <input type="checkbox"/> reinforces SLO # <input type="checkbox"/> masters SLO # For Major / Minor: <input type="text" value="Biology"/>	<input checked="" type="checkbox"/> introduces SLO # 4 <input type="checkbox"/> reinforces SLO # <input type="checkbox"/> masters SLO # For Major / Minor: <input type="text" value="Biology"/>
---	--	---	---

Students will be asked to produce a Yuja student video describing a current topic of discussion in biology that allows them to express and work through ethical dilemmas, social and/or cultural issues that may potentially impact local, regional, or national economies. The assessment activity will encompass the SLO's associated with the current biology program curriculum map. This topic will vary each semester at the discretion of the instructor. This video will be between 5-7 minutes and express their viewpoints on topics that are supported by current biology research.

As part of Mayville State's effort to demonstrate continuous improvement in achieving Essential Studies Learning Outcomes, this course will assess

ELO #   ☐1   ☐2   ☒3   ☐4

as part of the Essential Studies and Capstone Courses. As part of Mayville State University's Essential Studies curriculum, this course seeks to prepare students for twenty-first century challenges by gaining: 1) Knowledge of human cultures; 2) Intellectual and practical skills; 3) Personal and social responsibility; 4) Integrative and applied learning. Students will be asked to produce a Yuja student video describing a current controversial topic in biology that allows them to express and work through ethical dilemmas. This topic will vary each semester at the discretion of the instructor. This video will be between 5-7 minutes and express their viewpoints on topics that are supported by current biology research. Purely opinion responses, while potentially impactful, will earn points unless supported by current research in the biological field.

### **Course Improvements Based on Most Recent Assessment Findings**

This course will be assessed in the future (based on the 2019-2025 assessment curriculum map) and the findings will be reported in this syllabus.

## **Required Materials**

Raven Biology (11<sup>th</sup> ed. or newer) HIGHLY RECOMMENDED

REQUIRED Lab kit from Mayville State University Bookstore

Computer that meets the university technology requirements

MS Office

Fully functional Webcam that also records audio

Printer

Digital Camera/Cell phone

Technology MUST be able to run the Yuja program successfully for watching and making videos

24/7 high speed internet access

\*\*\* There are many editions to this textbook. If you choose to use one that is older or newer, rest assured, the content is the same in the different versions. While the content is the same, you may see a difference in chapter/page numbers. It is up to the student to look at the content provided and determine which chapter in your book it corresponds too during this course.

## **Instructional Strategies**

We will use the following methods to assist you in your learning of General Biology.

- Direct instruction
- Indirect instruction
- Interactive instruction
- Experimental learning
- Guided and independent study
- Cooperative learning activities
- Class discussions
- Lab exams
- Application
- Inquiry approach
- Simulations
- Questioning skills
- Case studies
- Instructional strategies

## **Learning Experiences**

- Read all chapters/lab protocols before attempting assignments/quizzes. Lab students who are not enrolled in the lecture portion may be at a disadvantage as they do not get lecture content. By continuing with the course, students acknowledge and accept this.
- Watch video/animations provided by instructor
- Items that earn points (quizzes/outlines/exams/etc.) will be given via the detailed schedule at the end of this syllabus. All submissions will require the use of Microsoft office (which is available for free for all

MSU students) and students may convert submissions to PDF form. Apple programs are not supported in the LMS (Blackboard), for instance, Pages.

- Assignments given through Blackboard or other instructional programs.
- It is important for you to check your grades in Blackboard. If you find that the instructor has made a mistake while entering your grade, you have one week to bring it to the attention of the instructor. After a ONE WEEK period, grades will be locked in Blackboard.
- Please refrain from requesting extensions as they will not be granted. Please note this before starting the course. If requesting an extension, you need to provide a university excused absence and include documentation IN YOUR INITIAL EMAIL.

### **Instructional Technologies Utilized in this Course**

- Blackboard Ally
- Blackboard Learn
- Skype for Business
- Microsoft Office (Word, Powerpoint) and the ability to convert these to PDFs
- YouTube
- Various videos/animations provided by publisher

### **Expectations/Protocols**

As a student of BIOL 150, I expect that you:

- Fully review/read the course syllabus and go to it if you have questions before asking the instructor;
- Fully complete the assignments/quizzes/outlines/protocols for each lab.
- Have all lab materials in hand along with all required technology to include internet access.
- Check your university email as well as check for announcements within the course shell every single day.

As the instructor of BIOL 150, you should expect of me that I:

- Clearly provide you a syllabus and course schedule that displays the deadlines for each section of content
- Create an online classroom environment that supports your understanding of content;
- Fairly grade assignments and exams

### **Instructor/Student Communication**

Email is the primary and preferred method of contact. My email address is provided at the top of the syllabus. I check my email regularly during the work week and will likely respond within 24-48 hours. Email is not checked after work hours or on weekends, so please plan accordingly and do not think I am ignoring you. Emailing the day something is due and expecting immediate feedback is likely not in the best interest of the student.

If you choose to call my office (number at the top of this document) please leave a detailed message including which class, which item in the content area, and student name, and I will respond via email as it is the preferred method of contact and we also have a paper trail of our conversation. Phone messages are not checked during the evenings nor on weekends.

Students are REQUIRED to use their Mayville State University email address for correspondence. If you email from an outside network email address, faculty are not responsible for missed messages as they may be filtered out of the inbox. As an instructor I will only email you from my MSU email address or from other university

platforms (ConnectND or Blackboard). You need to check your MSU email account daily as well as check announcements in the course daily as that is our main method of communication.

### **Method of Evaluation/Grading**

Your grade will be TENTATIVELY determined on total points earned out of the total points possible in the course.

Course grades will be calculated out of total course points.

There will be a total of 12 labs each worth 20 points, and 2, 50-point lab exams. Lab exams are open resource and no recording/proctoring is required.

You will earn a letter grade based on your total points earned out of the possible total points (percentage). Total point percentages will be carried out to the tenths place value and rounded to the nearest whole number for the final grade ( $\geq 0.5$  is rounded up). Your percentage will determine your final grade.

90-100% = A

80-89% = B

70-79% = C

60-69% = D

0-59% = F

### **Enrollment Verification**

The U.S. Department of Education requires instructors of online courses to provide an activity which will validate student enrollment in this course. The only way to verify that a student has been in this course is if he or she takes an action in the LMS (Blackboard), such as completing an assignment or a taking a quiz. Logging into Blackboard is **NOT** considered attendance. The enrollment verification for this course is the syllabus quiz that you **MUST** earn 100% to open the first of the course content. If it is not completed your enrollment in this course will be at risk and you may be removed from the course.

### **Proctor Notification**

There is no proctor needed for this course.

### **Late Arrivals**

Students who enroll after the first date of enrollment and whom miss assignments understand that these are ultimately “missed points” and that those missed points could negatively impact their grade. By continuing in the course, this is understood and accepted by the late enrolling student.

### **Important Student Information**

Navigate to Blackboard > MaSU tab > Student Resources tab to find a document entitled, “Important Student Information,” which includes information about:

- ✓ Academic Grievance Concerns and Instructor English Proficiency
- ✓ Starfish - Student Success System

- ✓ Students with Documented Disabilities
- ✓ Academic Honesty
- ✓ Emergency Notification
- ✓ Continuity of Academic Instruction for a Pandemic or Emergency
- ✓ Family Educational Rights and Privacy Act of 1974 (FERPA)
- ✓ Diversity Statement

### **Course Timeline/Schedule**

PRINT THIS COURSE SCHEDULE. The course will follow this outline. Times for drop boxes to close for outlines and assignments is 5:00pm(CST) on the dates listed below. Late work is not accepted. Do not email late work to the instructor and ask for special exceptions. Student can work ahead by completing work early, which is encouraged to eliminate the possibility of late work. It is best practice to complete works one day early to eliminate “emergency situations.” New items will open upon completion of previous work before due dates. If something does not open early, please contact the instructor via email to resolve the issue. Exams need to be completed before 5pm (CST) on the dates listed below. Late exams will not be allowed.

<b>Topic</b>	<b>Due Date</b>	<b>Assignment Checklist</b>
<b>Lab Kit Check/Microscope Setup</b>	<b>8/31/21</b>	<b>Enrollment Verifications</b>
Lab Safety	9/8/21	<input type="radio"/> Lab
Scientific Method	9/15/21	<input type="radio"/> Lab
Microscopy	9/22/21	<input type="radio"/> Lab
Cell Chemistry/Enzymes	9/29/21	<input type="radio"/> Lab
Biological Molecules	10/6/21	<input type="radio"/> Lab
Cells: Prokaryotic and Eukaryotic	10/13/21	<input type="radio"/> Lab
Membranes/Diffusion/Osmosis*	10/20/21	<input type="radio"/> Lab
<b>Lab Exam 1</b>	<b>10/27/21</b>	<input type="radio"/> <b>Exam</b>
Cell Respiration*	11/3/21	<input type="radio"/> Lab
Photosynthesis	11/10/21	<input type="radio"/> Lab
Mitosis	11/17/21	<input type="radio"/> Lab
Sexual Reproduction & Meiosis	11/24/21	<input type="radio"/> Lab
DNA Extraction & Genetics	12/1/21	<input type="radio"/> Lab
<b>Lab Exam 2</b>	<b>12/13/21</b>	<input type="radio"/> <b>Exam</b>

## **Teacher Education Program**

The following InTASC Principles are reflected in the readings and activities related to this course:

2. The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards. BIOL 150 Online Course Syllabus
3. The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self-motivation.
4. The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.
5. The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
8. The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.