

BIOSCI 152 – FOUNDATIONS OF BIOLOGICAL SCIENCES II

LECTURE AND LABS – FALL 2021

INSTRUCTORS:

Lectures on Microbiology (Sept 2-Sept 24)
Dr. Daad Saffarini, Lapham Hall N309 , daads@uwm.edu
Office hours: Wed 10:30 am – 11:30 am or by appointment
(contact me for flexibility with office hours)



Lectures on Plant Biology (Sept 27-Nov 3)
Dr. Filipe Alberto, Lapham Hall, S575, albertof@uwm.edu
Office hours: : Tuesday 10 am – 11 am or by appointment
(contact me for flexibility with office hours)



Lectures on Animal Biology (Nov 5-Dec 13)
Dr. Jen Gutzman, Lapham Hall N515, gutzman@uwm.edu
Office hours: Monday 11 am – 12 pm or by appointment
(contact me for flexibility with office hours)



Please reach out to us if you need help or have questions!

LECTURE TIMES: MWF 9:30am-10:20am in Lapham 162

Note: for information concerning cancellation of classes due to severe weather, please call 229-4444 or go <https://uwm.edu/news/weather-bulletin-service/>.

LABORATORY: All labs (801-810) meet in Lapham S286

PREREQUISITES: Biology 150 (*grade of C or better*)

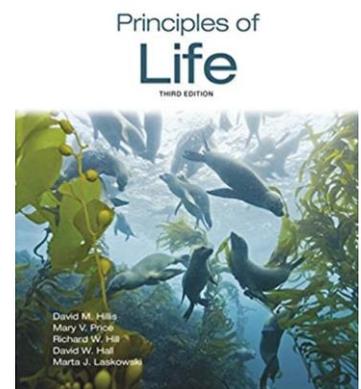
RESOURCES:

Required Text: Hillis et al. 2019. Principles of Life, **3rd ed.**, W.H. Freeman
Hardbound book: ISBN:9781319017712
Loose-leaf book: ISBN:9781319249397
e-book: ISBN:9781319249403

Lab Manual: for Biological Sciences 152 Individual exercises will be available for download from Canvas. Use a 3-ring binder to store and organize the lab exercises.

Required Lab Coat: We will have some dissections in our labs, therefore each student will need a personal lab coat, sharing lab coats is not an option. All students are required to bring their lab coat with them to each lab class. You can find lab coats through UWM books by e-campus on our course requirement list (<https://uwm.ecampus.com/shop-by-course>). Here you will find a list of options, choose the lab coat with the appropriate size. You only need one lab coat. **NO LAB COAT = NO ENTRY INTO THE LAB.** Below are the ISBN: numbers for each lab coat of different sizes if needed. 8780000107450, 8780000107481, 8780000107474, 8780000107511, 8780000107504, 8780000107467, 8780000107498

Canvas: Announcements, lectures, and other support materials will be posted on Canvas. Make sure that your Canvas account is set up to forward notifications to your email. With any problems with Canvas, contact the [help desk at UWM](#) during office hours or use the 24/7 [Canvas support](#). THIS IS CRITICAL FOR ONLINE DELIVERY OF MATERIALS. You are RESPONSIBLE for keeping up with all announcements and notifications.



COURSE DESCRIPTION:

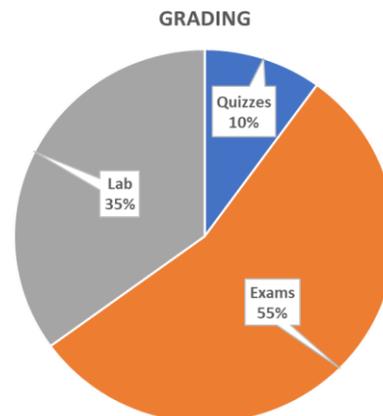
Introduction to microbiology, plant biology, and animal biology. Second half of the two-semester introductory course sequence for majors in Biological Sciences, Conservation and Environmental Science, and other natural science majors. This is a **4 credit** course. Note: for more information on the Department of Biological Sciences and Biological Sciences majors, please visit our Web Home Page: <http://www.uwm.edu/Dept/Biology>

GRADING:

Lecture exams account for **55%** of the total course grade and are based on 5 equally weighted non-cumulative exams covering lecture material. (11% for each lecture exam). Exams are multiple choice.

Lecture Quizzes account for **10%** of the total course grade and will be given on Canvas throughout the semester.

Laboratory Scores account for **35%** of the total course grade and will be based on weekly quizzes, lab reports, and completion of lab manual question sheets. See Laboratory Section below for lab grading details.



FINAL GRADES: Final grades will be assigned following the scale below: **This scale will not be made more stringent.**

A 93-100%	B+ 87-89%	C+ 77-79%	D+ 67-69%	F 0 - 59%
A- 90-92%	B 83-86%	C 73-76%	D 63-66%	
	B- 80-82%	C- 70-72%	D- 60-62%	

You need to earn a C or better in BIO SCI 152 to continue with courses in Biological Sciences programs.

WORKLOAD STATEMENT:

As well as attending all lecture and laboratory classes, it is expected that students will need to spend at least an additional 4 hours per week reviewing lecture material and completing textbook readings to prepare for exams, 3 hours per week studying for and completing on-line quizzes, and a minimum of 3 hours per week preparing for laboratory class materials and quizzes.

MISSED EXAMS/LAB SESSIONS:

There are no make-up exams. If you miss an exam, a make-up exam will be considered only for **legitimate** reasons with written documentation (serious illness, family emergency). If the missed exam is due to an emergency, the instructor must be notified within 24 hours. An excused non-emergency absence (religious holiday) from an exam must be discussed with the instructor at least one week *prior* to the exam date. The make-up exam format is at the discretion of the instructor and may not be the same format as the regularly scheduled exam.

You **cannot** make up a *missed lab*. If you miss a lab class, please contact your TA immediately to discuss options to catch up on the material.

ON-LINE QUIZZES ON CANVAS

Research shows that regular testing on material drastically improves retention. To help you with keeping up with self-testing on lecture material, and prepare for the exams, we have provided a series of *Lecture Quizzes* in Canvas as review of the material covered in lecture. The quizzes will count for **10% of your total course grade** (see above). You need to complete each quiz at least once, but you can take it twice and the highest score will count towards your grade. You will gain most benefit from using quizzes as a test, after studying the material, without referring to your notes or text (see **Study Tips and Guide** on Canvas below).

In order to access these quizzes, you first will have to complete a quiz based on finding things in this syllabus

LEARNING SUPPORT:

Resources will be provided on Canvas to help you structure your study and learning for this class. Lecture material posted on Canvas includes *Learning Objectives* which help you focus on the material to be learned for the exam. If you need help with how to study, please contact the instructors!

Supplemental Instruction is available for this course. See additional details on Canvas.

If you need special accommodations to support your learning in this course, please contact the instructors as soon as possible. Link to Accessibility Resource Center: <https://uwm.edu/arc/>

Academic Misconduct – The university’s responsibilities include the promotion of academic honesty and integrity and procedures to deal effectively with instances of academic dishonesty. You are responsible for the honest completion and representation of your work, for the appropriate citation of sources, and for the respect of others’ academic endeavors. Cheating, plagiarism (including ‘self-plagiarism’), or other acts of misconduct will result in a severe penalty to you. **You are responsible for knowing what behavior constitutes academic misconduct.** Student academic misconduct procedures are specified in Chapter UWS 14 and Faculty Document No. 1686 and can be found at <https://uwm.edu/academicaffairs/facultystaff/policies/academic-misconduct/>

The following UWM web page is dedicated to campus-wide policies regarding religious observances, incompletes, academic misconduct, grade appeal procedures, final examination policy, students called to military service, discriminatory conduct, and complaint procedures. More details can be found at: www.uwm.edu/Dept/SecU/SyllabusLinks.pdf.

STUDY TIPS - HOW TO DO AS WELL AS YOU CAN IN BIOSCI 152

Come to class, listen and engage in the lecture material – **write notes** or annotate the notes provided on Canvas to help you engage with the material.

- Engage with the in-class exercises and questions
- Use active learning strategies for your revision at home by yourself or with a study partner.

Active Learning strategies: You need to make your learning and revision as *active* as possible! Just reading through the lecture material and reassign the book is useful but it is very passive and so has limited value on its own.

For most of the lecture notes posted on Canvas, there are **learning objectives** and **vocabulary words**. Use these to work out what material to focus on – these are clear lists of what we want you to know and therefore what will be included in the exam! [For course sections without learning objectives, go through the notes and find your own key points]

EIGHT-STEP PROCESS for more active learning

1. **Reading Review:** Begin by reading short sections of the material (from lecture notes or slides posted on Canvas, and/or your own lecture notes).
2. **Write out** key ideas, highlight words, draw diagrams to summarize ideas and relationships – writing engages your mind more than passive reading and therefore provides better quality learning.
3. **Review vocabulary:** Using flash cards to test yourself or study partners on vocabulary words and their meanings (in both directions - look at the term and try to remember the meaning, look at the meanings and try to remember the term).
4. **Learning Objectives:** Review the **learning objectives**. Put your notes aside (so you can't see them) and try to remember and write down all you can for each learning objective. Keep going until you have finished the lecture.
5. **Review:** If you get stuck, repeat step 1 and 2 above.
6. **Repetition:** Do these steps as many times as you can to test yourself on the material.
7. **Quizzes:** When you have done the steps above, you can go to the **quizzes on Canvas** and take the quiz, without any lecture material visible – test yourself! Identify questions you got wrong, and do not understand or can't remember, and then go back to step 1 and 2 to review that specific material. You can take the quiz again if you need to test yourself again after more review.
8. **Repetition:** This will take several study sessions, not just the evening before the exam! Below are some additional ideas about studying from a teaching specialist (note the overlap with my comments above)!

Please talk with the instructors if you need help with understanding and learning the material!

Additional Resources:

There are many resources to help you at UWM, including:

General resources: <https://uwm.edu/studenthandbook/student-resources/>

Student Success Center: <https://uwm.edu/studentsuccess/>

Writing Center: <https://uwm.edu/writing-center/>

Tutoring and Supplemental Instruction: <https://uwm.edu/studentsuccess/tutoring-and-supplemental-instruction/>

LECTURE AND EXAM SCHEDULE

Lectures will be available on Canvas before the dates listed below. Exams will be available only **on the dates indicated**. We recommend that you plan to view and work on lectures at latest on the dates listed below, and make time for regular review and quiz testing to keep up with the schedule of five mid-term exams.

DATE	TOPIC	Text Reading <i>(Aim to read before viewing lecture!)</i>
Sept 3	A short History of Life on Earth “The age of microbes”	1-6, 398-9
Sept 6	Labor Day	
Sept 8	Microbial Cell structure and function	90, 415-419
Sept 10	Bacterial diversity and metabolism	420-424
Sept 13	Archaeal diversity and metabolism	424-426
Sept 15	Microbial ecology	427-433
Sept 17	Symbiosis and disease	427-431
Sept 20	Viruses	265-266, 434-437
Sept 22	Protists	444-460
Sept 24	Exam I (covers material Sept 3 – Sept 22)	
Sept 27	Fungi	497-518
Sept 29	Introduction to Plants – evolution, adaptation, habitats	404-6, 463-465, 956-8, 661
Oct 1	Life cycles, non-vascular and seedless vascular plants	464-76
Oct 4	Seeded vascular plants – Gymnosperms	476-84
Oct 6	Flowering plants - pollination	484-95, 640-56
Oct 8	Flowering plants - fruits and seeds	640-56, 150
Oct 11	Plant cells, tissues, meristems	90-101, 150-65, 579-96
Oct 13	Exam II (covers material Sept 27 – Oct 11)	
Oct 15	Leaf anatomy and photosynthesis	584, 117-25, 600
Oct 18	Water and nutrient transport in plants	35, 74-81, 611-19
Oct 20	Plant nutrition	599-605
Oct 22	Plant nutritional adaptations	604-11
Oct 25	Plant sensory responses and hormones	630-5, 658-67
Oct 27	Secondary compounds and medicinal plants	670, 289
Oct 29	Plant breeding, GM crops, and genetic diversity	253-71, 313, Appx D3-D8
Nov 1	Plants and preservation of habitats	997-1001, 1014-15, 1023-25, 1040-46
Nov 3	Exam III (covers material Oct 15 – Nov 1)	
Nov 5	Introduction to Animals and Animal development I	520, 359-65, 892-6
Nov 8	Animal development II: Stages of development	871-92
Nov 10	Animal diversity I: Key innovations and themes of protostomes	519-51
Nov 12	Animal diversity II: Key innovations, themes of deuterostomes	551-72
Nov 15	Animal Form and Function: fundamentals	685-97, 720-1
Nov 17	Nutrition, feeding and digestion	678-85, 697-701
Nov 19	Excretory systems: nitrogen waste, water and salt balance	713-8, 759
Nov 22	Exam IV (covers material Nov 5 - Nov 19)	
Nov 24-26	Thanksgiving Break (No classes Nov 24-26)	
Nov 29	Respiratory gas exchange	728-44
Dec 1	Circulatory Systems	744-63, 707-8
Dec 3	Muscles and Movement	828-45
Dec 6	Nervous Systems	766-84, 794-801
Dec 8	Sensory Systems	784-94
Dec 10	Control systems: endocrine and neural integration	806-823
Dec 13	Animal reproduction	850-68
Dec 22	Exam V will be held during our scheduled final exam time (covers material Nov 29-Dec 13) Wednesday, December 22, 7:30AM-9:30AM	

LABORATORY DETAILS AND SCHEDULE – LAB SECTIONS 801 - 810

All Laboratory Classes all meet in **Lapham S286**.

Sec 801: Monday 11:00am-1:50pm	Sec 804: Tuesday 11:00am-1:50pm	Sec 807: Wednesday 11:00am-1:50pm	Sec 809: Thursday 11:00am-1:50pm
Sec 802: Monday 2:00pm-4:50pm	Sec 805: Tuesday 2:00pm-4:50pm	Sec 808: Wednesday 2:00pm-4:50pm	Sec 810: Thursday 2:00pm-4:50pm

If you have questions about the lab class material, need help with how to do as well as you can in quizzes and reports, or miss a lab class for any reason, ***please contact your Teaching Assistant for help!***

Our Teaching Assistants:

Kane Stratman

Sections: 801, 804

Email: stratma8@uwm.edu

Office hours: Wednesday and Thursday 2-3PM

Location: Lapham S292



Claudia Rodriguez

Sections: 802, 808

Email: rodri829@uwm.edu

Office hours: Tuesdays 1-3PM

Location: Lapham N409



Md Shaheduzzaman

Sections: 805, 810

Email: shahedu2@uwm.edu

Office hours: Wednesdays 12-2PM

Location: Lapham 436



Sierra Wachala

Sections: 807, 809

Email: wachala@uwm.edu

Office hours: Wednesday 2-3pm
and Thursday 9:45-10:45am

Location: Lapham S568



Laboratory equipment, live specimens and greenhouse materials for BIOSCI 152 laboratory classes are expertly prepared and supplied by **Elizabeth Muslin** and **Paul Engevoid**.

Required Lab Text: Biology 152 Lab Manual available as individual lab exercises on **Canvas**.

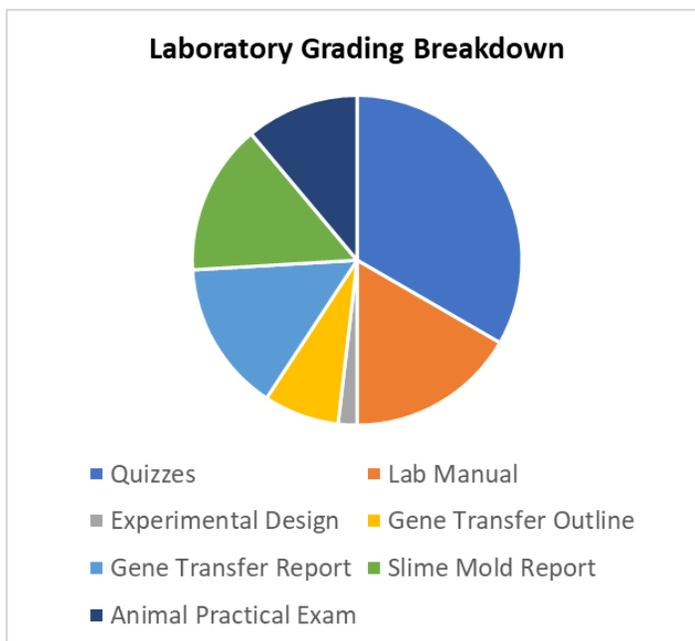
General lab policies for your safety and fair assessment

1. Please turn off cell phones and store away from the lab bench.
2. No consumption of food or drink permitted in the lab.
3. Read the lab before coming to class, and bring with you to the lab each week.
4. Lab assignments are due as noted on the schedule.
5. Lab quizzes can only be made up with prior permission. (Your lowest lab quiz score will be dropped from the grade calculations)
6. Please have the lab manual with you during the lab as it may be needed as part of quizzes.
7. We expect and promote academic honesty and do not tolerate cheating, plagiarism (including self-plagiarism) or other forms of misconduct. You are responsible for knowing what constitutes academic misconduct: www4.uwm.edu/acad_aff/policy/academicmisconduct.cfm
8. If you are re-taking this course, please note that all submitted lab work must be original. You may not re-use previously submitted lab assignments.

Attendance Policy: You are required to attend all laboratory classes. In extreme circumstances and illness, it is your responsibility to contact your TA and to arrange attendance at an alternative lab.

Laboratory Grading - Assessment and Assignments: The laboratory portion of this course is worth **35%** of the final grade for the course. There are multiple components of your laboratory grade:

1. Quizzes, 10 (each 10 points each, lowest score dropped)	90 points
2. Lab Manual Pages (5 points each, lowest score dropped)	45 points
3. Hypothesis and experimental design – slime mold experiment	5 points
4. Gene transfer outline	20 points
5. Gene transfer report	40 points
6. Design your own experiment – slime mold report	40 points
7. Animal Diversity lab practical exam	30 points
Total	270 points



LABORATORY SCHEDULE

If you have questions about the laboratory grading components or are unsure about the expectations for written reports or quizzes, ***please talk with your TA!***

All lab exercise manuals must be downloaded from Canvas. Please read before class.

Sep 2 - 3	No lab classes
Sep 6 - 10	No Lab classes
Sep 13 - 17	Lab 1. Scientific method and hypothesis testing Lab 2. Gene transfer in <i>E. coli</i> <i>Hypothesis and Experimental Design due before your next lab (i.e. 9/20 – 9/24)</i>
Sep 20 - 24	Lab 2. Gene transfer in <i>E. coli</i> (continued) Lab 3. Microbial symbiosis Quiz 1. <i>Experimental Design Assignment approved and returned from TA</i>
Sep 27 – Oct 1	Lab 4. Survey of protists, fungi, and algal diversity Quiz 2. Setup the slime mold experiment
Oct 4 - 8	Lab 5. Survey of plant diversity and life cycles Quiz 3. <i>Gene transfer outline due</i>
Oct 11 - 15	Lab 6. Flowers, fruits, and plant reproduction (at NWQ Greenhouse, meet in Lap S286) Quiz 4.
Oct 18 - 22	Lab 7. Plant Morphology and Adaptations, Leaf structures and functions Set up for Lab 8 - Plant nutrition, hormones, and tropisms Quiz 5. <i>Graded outlines will be handed back.</i>
Oct 25 – 29	Lab 8. Plant nutrition, hormones, and tropisms (continued) Quiz 6. <i>Gene transfer lab report due.</i>
Nov 1 – Nov 5	Lab 9. Animal development I: Echinoderms and amphibians Quiz 7.
Nov 8 – Nov 12	Lab 10. Animal development II: Chicken Quiz 8. <i>Gene transfer reports will be handed back from TA</i>
Nov 15 – Nov 19	Lab 11. Animal diversity I: Porifera, Cnidaria and Lophotrochozoa Lab 12. Animal diversity II: Ecdysozoa (nematodes, arthropods); Annelid responses Quiz 9. <i>Slime mold report due</i>
Nov 22 - 26	<i>Thanksgiving Break – No lab classes</i>
Nov 29 – Dec 3	Lab 13. Animal diversity III: Deuterostomes Quiz 10. <i>Graded slime mold reports handed back from TA.</i>
Dec 6 - 10	Lab 14. Animal Practical Exam (Based on Labs 9-13)

COVID-19 SYLLABUS STATEMENTS, FALL 2021

1. Panther Community Health and Safety Standards

UWM has implemented reasonable health and safety protocols, taking into account recommendations by local, state and national public health authorities, in response to the COVID-19 pandemic. As a member of our campus community you are expected to abide by the Panther [Interim COVID- Related Health & Safety Rules](#). These standards apply to anyone who is physically present on campus, in UWM-controlled facilities, or participating in a UWM-sponsored activity.

2. With respect to indoors spaces on UWM facilities (classrooms, labs, performance spaces, etc.): • **Masks are always required while indoors on UWM campuses** and in UWM-controlled facilities, with limited exceptions – environments where hazards exist that create a greater risk by wearing a mask (for example, when operating equipment in a lab with the risk of a mask strap getting caught in machinery, or when flammable materials are being used). Such exceptions must be approved in advance.

- A student who comes to class without wearing a mask will be asked to put on a mask or to leave to get one at a mask handout station. Failure to do so could result in student discipline.
- You should check daily for COVID symptoms by completing the self-check at <https://uwm.edu/coronavirus/symptom-monitor/>. Symptoms may appear 2-14 days after exposure to the virus and include fever, cough, or shortness of breath or difficulty breathing. See the for more information about COVID-19 symptoms.
- If you test positive for or are diagnosed with COVID-10 based on symptoms, you should complete this Dean of Students Office form: https://cm.maxient.com/reportingform.php?UnivofWisconsinMilwaukee&layout_id=4. By doing so, you will get information on resources, help UWM identify individuals you may have come into contact with on campus so that UWM can work with the local health department, and allow UWM to clean campus areas you visited as appropriate.

3. Attendance Policy

Do not attend your in-person class if you have COVID-19, if you are experiencing symptoms consistent with COVID-19, if you have been in close contact with others who have symptoms, if you need to care for an individual with COVID-19, or have other health concerns related to COVID-19.

- You should be aware of each of your course's attendance policies. In case of illness, you should contact your current instructor immediately to discuss options for completing course work while ill.
- Notify your instructor in advance of the absence or inability to participate, if possible.
- Participate in class activities online and submit assignments electronically, to the extent possible.

- Reach out to your instructor if illness will require late submission or other modifications to deadlines.
- If remaining in a class and fulfilling the necessary requirements becomes impossible due to illness, contact your instructor to discuss other options.

As your instructor, I will trust your word when you say you are ill, and in turn, I expect that you will report the reason for your absences truthfully.

4. Class Content If your class will be recorded, include one of the following statements in your syllabus.

- **Face-to-Face Class Recording (Lecture Capture)** Our class sessions maybe be audio-visually recorded for students who are unable to attend in person and for students who are unable to attend at the scheduled time. Students who participate during an in-person class session are agreeing to have their audio/video or image recorded.
- **Synchronous Online Class Recording** Should our class move online, online class sessions will be audio-visually recorded for students who are unable to attend at the scheduled time. Students who participate with their camera engaged or who utilize a profile image are agreeing to have their audio/video or image recorded. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded.

5. Potential for Reversion to Fully Online Instruction

Changing public health circumstances for COVID-19 may cause UWM to move to fully online instruction at some point during the semester. UWM will communicate with students about moving to fully online instruction if the situation develops.

6. Navigate Student Success Platform and Mobile App

Students are encouraged to use a tool called Navigate. This tool can help you learn about academic resources, set up study groups in your courses, make appointments with your academic advisor, get reminders on important dates, and much more. In addition, Navigate allows instructors to send Progress Reports to students throughout the term, allowing for updates on your academic progress in a course in addition to your grade. You can log into the platform here: <https://uwmilwaukee.campus.eab.com/> or by finding the Navigate link under the Current Students tab on the UWM home page. More information on how you can use Navigate and the app, including tutorials, can be found on UWM's Navigate website.