

BIOLOGY LAB FOR HEALTH-RELATED SCIENCES AND NON-MAJORS
Biology 1140L-502
Fall 2024

Syllabus

| | |
|----------------------|--|
| Instructor: | Dr. James Farslow |
| Classroom: | Arts and Sciences, Room 135 |
| Class hours: | Thursday, 10:30 – 1:15 |
| Office: | Arts and Sciences Building, Adjunct Faculty Offices |
| Office Hours: | Wednesday and Thursday, 2:45 – 3:45, UNM Valencia Adjunct Offices; or by appointment (email me). |
| E-mail: | jfars@unm.edu (Best way to contact me during the week. I do not respond to e-mail from Friday afternoon to Sunday evening.) |

Course Description (from the catalog): This course is a laboratory that complements the concepts learned in the theory course. Students will learn skills involved in scientific measurement, microscopy, and mathematical analysis. Students will also perform experiments and data analysis related to cell structure and function, chemistry, enzyme activity, and genetics. Meets New Mexico General Education Curriculum Area 3: Physical and Natural Sciences.

This is a one credit-hour course. The lab meets for two hours and 45 minutes of direct instruction for sixteen weeks during the Fall 2024 semester. Please plan for a minimum of four hours of out-of-class work (homework, study, assignment completion, and class preparation) each week.

Student Learning Objectives: At the completion of this course students will be able to:

1. By the end of the course, students will be able to explain the nature and process of science and use it to critically evaluate scientific information and to develop a testable hypothesis to explain phenomena of the natural world.
2. By the end of the course, students will be able to analyze data, construct and interpret graphs.
3. By the end of the course, students will be able to explain the importance of water to life and apply basic chemistry to the biology of cells.
4. By the end of the course, students will be able to describe how the features of eukaryotic cellular structures and functions are related, including organelles, membranes, and the cytoskeleton.
5. By the end of the course, students will be able to use the laws of thermodynamics to explain energy transformation and describe the various metabolic energy-transformation pathways in eukaryotic cells.
6. By the end of the course, students will be able to explain the significance of

meiosis, sexual reproduction, and the generation of genetic diversity and its relation to patterns of inheritance.

7. By the end of the course, students will be able to explain the goals and mechanisms of nuclear division by mitosis and its role in the cell cycle.

8. By the end of the course, students will be able to explain the structure and functions of DNA in cells and the mechanisms for replication and regulation of gene expression.

Text: None required. Materials will be available each week on Canvas for the student to print out and bring in. Make sure to print out the materials ahead of time for each lab.

Course Webpage on canvasinfo.unm.edu (Canvas): Course information including this syllabus, labs, and grades will be available via canvasinfo.unm.edu. I will also send out emails to the class periodically. Students should check email at least every couple of days, especially the day before class.

Attendance Policy: Attendance will be taken each class as per UNM-Valencia policy. Students risk being dropped by the instructor if they have more than four absences. It is the student's responsibility to drop the course if the student no longer wishes to attend or is unable to attend. Students are responsible for finding out what they missed in class. Class begins at 10:30 am. At 10:35 students will be considered late. Students who are late or absent may receive a **zero** for any quiz or exam administered that day. **Do not be late for exams or quizzes. You cannot makeup exams. Exception to the above with respect to assignments and quizzes:** Contact me if you have a valid excuse (illness, death in the family, car accident, etc.) to arrange a make-up quiz, but you will need to provide evidence (doctor's note, etc.). Busy traffic is not an excuse. It is the instructor's prerogative to decide whether an excuse is valid.

Academic dishonesty (from the UNM Catalog): "Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, including dismissal, against any student who is found responsible for academic dishonesty. Any student who has been judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course.

Academic dishonesty includes, but is not limited to, dishonesty on quizzes, tests or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; and misrepresenting academic or professional qualifications within or outside the University."

Additionally:

Copying and pasting material from a webpage into your homework assignment is plagiarism. The same method you use to look up the information on the internet is probably the same method I will use to check if you copied it. All I need to do is Google your answer, and yes, I do check.

Also, if you work on homework assignments together, make sure the assignment is in your own words and with your own graphs. Don't just copy what your study partner wrote down.

Any instances of plagiarism will, at the very least, receive a zero for that portion of the assignment. This also applies to anyone who allows someone to cheat off of them.

During exams, make sure to keep answer sheets close to you or covered by the exam.

Electronic Device Usage: Students may use laptops or tablets to take notes. However, students will not use these devices for checking e-mail, web surfing, or other non-class activities during class. Cell phones will be silenced during class. No calling, talking, or texting during class. If you have an emergency call, take it outside the classroom please.

Student Behavior: Students will comport themselves as adults in an academic setting. Please do not engage in private conversations or act in an otherwise disruptive manner during class, or you will be asked to leave. If you need to ask the person next to you a question, make it short, do it quickly and quietly. I expect students to extend this courtesy to each other as well.

Students should bring notebook paper, either loose-leaf or spiral, and something to write with to class every day. Take notes during class. Any material discussed in class is fair game for quizzes and exams.

COVID-19 Policy: COVID-19 Health and Awareness. UNM is a mask friendly, but not a mask required, community. If you are experiencing COVID-19 symptoms, please do not come to class. If you do need to stay home, please e-mail me as soon as possible. I can work with you to provide alternatives for course participation and completion. Let me, an advisor, or another UNM staff member know that you need support so that we can connect you to the right resources. Please be aware that UNM will publish information on websites and e-mail about any changes to our public health status and community response.

Lab Policies: No food or drink is allowed in the lab. No vaping or using tobacco products in lab. Students are responsible for cleaning up their areas by the end of class. If students leave a mess, they will lose points from the lab. Keep in mind this is a lab and you may be handling things you don't want on your skin. Long pants, closed shoes, and long sleeves are recommended.

Grading Breakdown:

| | |
|--|-----|
| Quizzes (4 best @ 25 points each) | 100 |
| Assignments (12 @ 10 points each) | 120 |
| Discussion Board (12 @ 10 points each) | 120 |
| Midterm Practical Exam | 100 |
| Final Practical Exam | 100 |
| Total points | 540 |

Quizzes: The quizzes will be done on Canvas. The dates for the quizzes are listed in the Course Outline at the end of the syllabus, and they are on the day of the lab. The quizzes will be open on Canvas on the specified dates from 8 am to midnight. Students will work on the quizzes individually. Once students begin a quiz, they will have 15 minutes to complete it. The quizzes will have 10 questions and be multiple choice. There will be 5 quizzes, and the lowest grade will be dropped. The quizzes are worth 25 points each.

Assignments: Assignments will be sets of questions from the lab and will be turned-in in class during the next week's lab. Make sure your name is on the assignment to receive credit. There are 12 assignments worth 10 points each.

Discussion Board: The Discussion Board is on Canvas. A video with questions will be posted each week, and students will respond with at least **three substantive** sentences about the topic to receive full credit. Watch your grammar and punctuation, and make sure you have at least **three substantive** sentences or you will not get credit. Do not just respond "That's interesting" or "Okay". If there are two parts to the question, make sure to address both parts for full credit. These discussion responses will count as 10 points each toward the student's grade. There is usually not a right or wrong answer. The questions are intended to stimulate thinking about the subject. **Do not** use AI programs to make your answers. I want to know what you think, not a computer. Students **must** post their responses by midnight on Sunday of that week for credit. Students are encouraged to respond to each other and discuss the week's topic. The discussion board will be asynchronous, meaning that you need to remember you are sending messages that people can respond to when they are able, not a real-time conversation. Students are expected to treat each other and opposing viewpoints with respect. **No trolling.** Students will adhere to the principles of Netiquette, which can be found on the course Canvas site under Course Information. This should not, however, preclude students from disagreeing or correcting each other, but do it respectfully. I do read all of your responses, but because of the number of responses I usually do not respond to them.

Exams: There will be a midterm and a final exam. These exams will be practical exams. The students will answer questions at stations around the lab. Students will begin at specified stations with an answer sheet, they will have one minute to answer the question (fill in the blank), and then they will move all at once to their next station ("rotate"). After everyone has been to all the stations, the students will have the opportunity to go back to stations. There is no talking among students during practical exams. There will also be two essay questions after all students have finished with the stations.

In all assignments or exams, answers must be legible and of reasonable font size. If I can't read an answer, it will likely get counted wrong.

Final grades will be awarded based on the percentage of points earned relative to total points. **Note:** Please do not think at the end of the semester that if you have a 60% going into the final exam, you only need to make an 80% on the final to pass the course. **This is incorrect.**

Remember the final exam is only 100 points out of 540. If you have a 60% for the course going into the final, you will not be able to pass the course, even if you get a 100% on the final. If, on the other hand, you make 70% or higher on all coursework and exams through the semester (that includes the final), you will pass.

| Grade | From | To |
|-------|------|-------|
| A+ | 98 | 100 |
| A | 93 | 97.99 |
| A- | 90 | 92.99 |
| B+ | 88 | 89.99 |
| B | 83 | 87.99 |
| B- | 80 | 82.99 |
| C+ | 78 | 79.99 |
| C | 70 | 77.99 |
| D | 60 | 69.99 |
| F | 0 | 59.99 |

Extra Credit: Students can earn an extra credit of 20 points once for the semester if they review a research paper from the primary scientific literature. It must be primary research, not a review or opinion article, and it must be from a peer reviewed journal. Your review should be about 1000 to 1500 words (about two to three pages). Clearly spell out at the top of your review (i.e., in your title) the title of the paper and the authors names, as well as the name of the journal, and the issue and page number of the article. See me if you are interested in this for further details. I need to approve your article before you write the review.

Students with Disabilities: Please make sure that Equal Access Services has contacted me as soon as possible to ensure that your accommodations are provided in a timely manner.

Accommodations: UNM is committed to providing equitable access to learning opportunities for students with documented disabilities. As your instructor, it is my objective to facilitate an inclusive classroom setting, in which students have full access and opportunity to participate. To engage in a confidential conversation about the process for requesting reasonable accommodations for this class and/or program, please contact the Accessibility Resource Center at arcsrvs@unm.edu or by phone at 505-277-3506. The UNMValencia Equal Access Services (Sarah Clawson, Coordinator), at (505) 925-8840 or by email at sjclawson@unm.edu.

Testing Center: Use of the Testing Center will only be for those identified by Equal Access Services as requiring it, or for unusual circumstances as determined by me.

Title IX Statement. In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered “responsible employees” by the Department of Education (see p. 15 -<http://www2.ed.gov/about/offices/list/ocr/docs/qa->

201404-title-ix.pdf). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see: <https://policy.unm.edu/university-policies/2000/2740.html>.

Course Outline

| Week | Date | Subjects | Quizzes |
|------|--------|---|---------|
| 1 | 22-Aug | Course Introduction/ Scientific Method and epidemiology | |
| 2 | 29-Aug | Data Collection and Graphing | Quiz 1 |
| 3 | 5-Sep | Aseptic Method | |
| 4 | 12-Sep | Biological Molecules | Quiz 2 |
| 5 | 19-Sep | Microscopy and Cell Biology | |
| 6 | 26-Sep | Diffusion and Osmosis, Review | Quiz 3 |
| 7 | 3-Oct | Midterm Practical Exam | |
| 8 | 10-Oct | Fall Break, 10-11 Oct | |
| 9 | 17-Oct | Enzymes | |
| 10 | 24-Oct | Cellular Respiration I - Aerobic | |
| 11 | 31-Oct | Cellular Respiration II - Anaerobic | Quiz 4 |
| 12 | 7-Nov | Genetics I - PCR | |
| 13 | 14-Nov | Genetics II - Electrophoresis | |
| 14 | 21-Nov | Mitosis, Review | Quiz 5 |
| 15 | 28-Nov | Thanksgiving Break, 28-29 Nov | |
| 16 | 5-Dec | Final Practical Exam | |

** Instructor reserves the right to make required changes during the course.