Anatomy & Physiology I
Laboratory Course Syllabus:

General Information:

Section & Course Meetings: M 1:00-2:50, 3:00-4:50, 5:30-7:20
Lab Instructor: Joyce Reed
Office: 226 - Biology Graduate Student Office
E-mail: joyce.reed2021@msutexas.edu
Tutoring Hours: M 10:00 am -12:00 pm; W 10:00 am – 11:00 am

Required Texts:

1.) *Anatomy and Physiology Labs BIOL 1134L/1234L Midwestern State Univ* created from *Laboratory Manual for Saladin: Anatomy & Physiology: The Unity of Form and Function, 10th Edition*, by E. Wise, 2025.

2.) *Exploring Zoology: A Laboratory Guide, 3rd Edition, Anatomy & Physiology Dissections (customized for Midwestern State University),* by David G. Smith and Michael P. Schenk, 2025.

Course Description (from catalog):

Structure and function of the human body. Anatomical terminology, chemical and cellular bases of life, tissues, the integumentary, skeletal, muscular, and nervous systems, including sense organs. Concurrent laboratory participation with animal dissection required.

Course objectives:

- Practice general laboratory safety
- Demonstrate effective use of a compound microscope
- Demonstrate proper dissecting techniques
- Locate and describe the function of eukaryotic cell structures
- Identify anatomical structures and regions using proper anatomical terminology
- Identify the various tissue types based on microscopic anatomy
- Identify and locate the various bones and muscles within the rat and human
- Demonstrate and explain articulations of the various joint type in the human
- Identify the gross anatomical features of the central nervous system
- Describe the enervation of the human body
- Demonstrate and explain spinal reflexes and the functions of the sensory organs
- Demonstrate critical thinking through analysis of case studies[1*]

[1*] THECB core objective

- Demonstrate the ability to effectively communication scientific findings via poster presentation of a disease case study*
- Demonstrate the ability to Empirical and Quantitative analysis of a metric system homework activity and results section of case study if applicable*
- Demonstrate teamwork through collaboration on researching and preparation and presentation of a case study poster*

Attendance Policy:

Students are expected to attend all meetings of the classes in which they are enrolled. Although in general students are graded on intellectual effort and performance rather than attendance, absences may lower the student's grade where class attendance and class participation are deemed essential by the faculty member. In those classes where attendance is considered as part of the grade, the instructor should so inform students of the specifics in writing at the beginning of the semester in a syllabus or separate attendance policy statement.

An instructor who has an attendance policy must keep records on a daily basis. The instructor must give the student a verbal or written warning prior to being dropped from the class. Instructor's records will stand as evidence of absences. A student with excessive absences may be dropped from a course by the instructor. Any individual faculty member or college has the authority to establish an attendance policy, providing the policy is in accordance with the General University Policies. [MSU Student Handbook, p. 45]
Laboratory attendance is <u>required</u>. Unexcused absences for the laboratory midterm or final exams, or more than two (2) unexcused absences for laboratory sessions, will result in a final grade of "F" for the course.

Grading:

Lab constitutes 25% of the BIOL 1134 grade. Points are distributed as follows:

Weekly quizzes	**30%**	(Scores modified by participation/safety factor)
Midterm Exam:	**30%**	(Lab practical)
Final Exam:	**30%**	(Lab practical)
Poster Project	**10%**	(Scores determined by grading sheet given)

Quiz scores will be recorded as a percentage (e.g. 9/10 = 90%, 12/15 = 80%, etc.). Your final quiz percent average represents your quiz component. The laboratory midterm and final exam are both out of 100 and so are also recorded as a percentage. The poster project[2+] is a team assignment graded by the TA and team assessment of each other. The five percentages are averaged to give your final lab percentage, which is used to calculate your laboratory points for your section.

[2+] See appendix for instructions and rubric

Laboratory Information

Adherence to laboratory safety and attendance policies is critical to effectively and safely getting as much as possible from your laboratory work. Thus, a safety/participation factor is used as a modifier for the weekly quiz scores. Everyone starts each lab session at 100%. Violations of laboratory policies will result in deductions from this 100%.

During the first week of lab, students will be given reminders regarding lab safety and attendance as needed. After that, points will be deducted for each violation. The severity of the deduction is at the discretion of the instructor. The exception to this regards appropriate dress. As stated above, students wearing open-toed shoes or excessively short pants/skirts will not be permitted to enter the laboratory.

All assignments should be entirely completed by the student. The use of any generative AI tools to complete any aspect of assignments for this course is **not** permitted; therefore, any AI score over 50% will be treated as plagiarism according to MSU's Academic Misconduct Policies.

General Course Rules:

1. Laboratory safety rules **must** be followed at all times (see following section). Safety violations will result in deductions from the laboratory participation grade (see below).
2. Cell phones and pagers are to be turned off before lab begins.
3. Students are expected to read the introductory material prior to each lab session.
4. Cheating will not be tolerated. Anyone suspected of cheating will be subject to the consequences outlined in the University's academic honesty policy (Student Handbook, p. 120).
5. All lab sessions should be attended. We will not offer make-up labs. "Section jumping" is not allowed.
6. Punctuality is expected at all times. If you are more than 10 minutes late, you will miss the quiz for the day and be counted as absent.
7. Absences may be excused only by prior arrangement with the laboratory or course instructor. Absences will be excused for:
    a. **Death of an immediate family member.** An immediate family member is considered to be a grandparent, parent, sibling, spouse, in-law, aunt, uncle, or child.
    b. **Summons to appear in court or jury duty.** A copy of the summons is required.
    c. **Call to military service.** A copy of your orders to report is required.
    d. **University sponsored event.** Members of athletic teams, college bowl participants, etc. will be excused with proper notification.
    e. **Debilitating illness or disability.** Illnesses will be addressed on an individual basis. If a student is affected by an illness that is not debilitating, (i.e. flu, virus infection) which may result in the student missing one or more consecutive class sessions, that student will be marked as unexcused for the amount of days missed **unless a doctor's note is provided**.
8. All quizzes, exams, or assignments missed due to unexcused absences will be recorded as zeros.
9. If you have a documented disability that will impact your work in this class, please contact the TA or instructor to discuss your needs.
10. Each group is responsible for proper clean up at the end of the laboratory period. This includes proper cleaning and storage of microscopes, proper disposal of contaminated materials, disinfection of benches and workspaces, etc.

Laboratory Safety:

1. No food or drinks are to be taken into or consumed in the laboratory.
2. Open-toed shoes, sandals or similar footwear are not appropriate and should not be worn in the laboratory. Shorts and short skirts are also inappropriate in terms of laboratory safety. <u>These regulations are for your personal safety. Students wearing inappropriate dress will not be permitted to enter the laboratory.</u>
3. Long hair must be tied back as it is not only a potential source of contamination, but also a fire hazard.
4. Do not apply cosmetics or handle contact lenses in the laboratory.
5. Wash your hands thoroughly with soap and water before leaving the laboratory – even if only for a short time.

If you are uncertain about any safety concerns, speak to your TA or instructor.

*****Keep this page in your lab folder or notebook for future reference. You will sign the copy on Page 5 for your TA's record.**

Tentative Schedule of Laboratory Exercises

Date	Week	Exercise	Topic	Quizzes
Jan 26-27	**1**	1, 3	Introduction, Language of Anatomy, and The Microscope	Metric System Handout
Feb 2-3	**2**	4,5 A	The Cell, Cellular Transport Mechanisms	Language of Anatomy Packet
Feb 9-10	**3**	6A Histology Atlas	Classification of Tissues	Q2
Feb 16-17	**4**	6A, 7 Hist. Atlas	Classification of Tissues cont., Connective tissues, Integumentary System	Q3
Feb 23-24	**5**	9, 10	Bone Tissue Axial Skeleton	Q4
Mar 2-3	**6**	10, 11, 13	Appendicular Skeleton, Joints	Q5
Mar 9-10	**7**	**No Lab**	**Spring Break**	
Mar 16-17	**9**		**Midterm Exam**	
Mar 23-24	**10**	15	Muscular System Anatomy	**No quiz**
Mar 30-31	**11**	Dissection Manual	Rat Muscle Dissection	Q6
Apr 6-7	**12**	21,22	Spinal Cord, Reflex Physiology	Q7
Apr 13-14	**13**	19, 21	Brain & Cranial Nerves, Spinal Cord (Incl. brain dissection)	Q8
Apr 20-21	**14**	24, 25, 26	Special senses (eye dissection)	Q9
Apr 27-28	**15**	Posters	Poster presentation and exam review	Q10
May 4-5	**16**	**Final**	**Final Exam**	

Moved and combined with Week 2 due to inclement weather

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5. Lab attendance is **mandatory** and all lab sessions should be attended. We will not offer make-up labs. "Section jumping" is not allowed.
6. Punctuality is expected at all times. If you are more than 10 minutes late, you will miss the quiz for the day and be counted as absent.
7. Absences may be excused only by prior arrangement with the laboratory or course instructor. Absences will be excused for:
    a. **Death of an immediate family member.**
    b. **Summons to appear in court or jury duty.**
    c. **Call to military service.**
    d. **University sponsored event. Debilitating illness or disability.**
8. All quizzes, exams, or assignments missed due to unexcused absences will be recorded as zeros.
9. Those with a documented disability should communicate with the TA or instructor.
10. Each group is responsible for proper clean up at the end of the laboratory period. This includes proper cleaning and storage of microscopes, proper disposal of contaminated materials, disinfection of benches and workspaces, etc.

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8. Long hair must be tied back as it is not only a potential source of contamination, but also a fire hazard.
9. Do not apply cosmetics or handle contact lenses in the laboratory.
10. Wash your hands thoroughly with soap and water before leaving the laboratory – even if only for a short time.
11. If you are uncertain about any safety concerns, speak to your TA or instructor.

I hereby certify that I have read the safety recommendations provided for the laboratory and have located all of the safety equipment in the laboratory. I acknowledge and agree to adhere to the laboratory course rules as outlined above. I understand that failure to adhere to these rules may affect my grade or result in being asked to leave the lab.

Student's Name _____

Student Signature _____

Course _____ Date _____

Instructor's (TA) Name _____

Adapted from:
Biosafety in Microbiological and Biomedical Laboratories (BMBL), 5th Edition. 2007. US Government Printing Office. Washington, D.C. www.cdc.gov/od/OHS/biosfty/bmbl5/bmbl5toc.htm
Centers for Disease Control. 1996. "Universal Precautions for Prevention of Transmission of HIV and Other Bloodborne Infections." Washington, D.C. http://www.cdc.gov/ncidod/dhqp/bp_universal_precautions.html
Johnson, Ted, and Christine Case. 2010. *Laboratory Experiments in Microbiology*, Ninth Edition. San Francisco, CA: Pearson Benjamin Cummings.
School Chemistry Laboratory Safety Guide. 2006. U.S. Consumer Product Safety Commission. Bethesda, MD.
http://www.cpsc.gov/CPSCPUB/PUBS/NIOSH2007107.pdf

Appendix

Group Poster project

Case Study Presentation

A case (or clinical) study is a type of scientific report often used in the health sciences to describe a particular individual, his or her symptoms and a description of what doctors or other scientists did to identify the cause of symptoms, as well as the outcome for the patient.

In this assignment, your lab group will choose a case study that you find interesting and present the case study to your lab section. The case study should be about a patient who has a disease related to any of the topics that are covered during this course. For example diseases of muscles, nerves, bones, blood, brain. These directions and the poster template can be found on D2L for your lab section.

How to find a case study:

Tactic 1: Go to "Google Scholar" and simply google a disease, body region, organ that you are interested in. (Example: "hippocampus lesion"). Sort through the scientific articles that show in the results until you find a study about a person with that kind of disease.

- Some useful search terms could include "clinical study", "lesion", or a specific structure you are interested in (such as "protein pumps") and combinations of such search terms.

Tactic 2: Find a website of a medical journal, such as one of the following. You may just want to read through any articles that you find to look for something that interests you, or you may want to use the search function (usually toward the top right corner of the page) to search for an article about a particular region.

Examples:

- SAGE Journals Clinical Case Studies: http://ccs.sagepub.com/
- The New England Journal of Medicine: http://www.nejm.org/medical-articles/clinical-cases

2. After you've found a case study:

Your presentation will be in the form of a digital poster. A template has already been created for you to use (your presentation will not include multiple slides, but only the single slide provided.)

Use the following guidelines for each section of the poster:

Introduction

- Should briefly inform your audience of the patient and their symptoms.
- At the end of the introduction, state the hypothesis that the examiners had about the cause of symptoms.

Materials and Methods

- Provide a concise and clear description of rationale (include method descriptions as needed) for using particular tests.

Results

- Provide numerical, visual or observational data that resulted from methods used in previous section

Discussion

- Discuss physiology as it relates to the case
- State whether the hypothesis was supported by the results or not.

Reference(s)

- Appropriately document the source of your case study, as well as any other references you used in making your presentation. (See "Tips" below for help on how to do this).

How to write/cite a literature reference:

- First, make sure the resource is legitimate and is a trustworthy export on the topic. List each reference in the order that you used it on the poster.
- Your citation should look something like this:
    - Author's Last Name, Author's first name. (Year of publication) Title of article in sentence format. Title of Journal Volume number (Issue number, if given): page range
- Example:
    - Zola-Morgan S, Squire LR, and Amaral DG**.** (1986) Human amnesia and the medial temporal region: enduring memory impairment following a bilateral lesion limited to field CA1 of the hippocampus. Journal of Neuroscience 6(10): 2950-2967

The point of the citation is to provide enough information that anyone reading your handout could go and look up this article. If you found a case study online, go ahead and add the URL to the end of the citation.
How to cite your reference in the body of text:
o At the end of the sentence where you used information from a literature source, add a superscript number that matches the number of the reference in you reference section. As highlighted below.
o Like this: If this sentence uses a fact from the above article by Zola-Morgan and other authors, I'd cite them at the end of this sentence with a superscript number to match the number given in the list of references[1].

The presentation

- Print out one copy of your poster (on normal-sized computer paper, color is not necessary) to turn in to your TA.
- As your TA instructs you, either email a copy of your poster to your TA or bring a copy of the file with you to lab to be saved to a computer.
- You will present your case study poster as a group, in lab. All members of your group must participate in the planning, development and presentation of the case study.
- A rubric that will be used to grade your poster can be found the D2L website for your lab section.

Important Deadlines:

- Mar 2/3 - Have your Case Study approved by your TA.
- Apr 13/14 - Send a rough draft of your poster presentation to your TA via D2L.
- Apr. 24 - Submit a final copy of your poster presentation to your TA via D2L.

Grading

The actual poster of the presentation is worth 40 pts (90%) of the Poster Presentation grade. The other 10 pts (10%) come from your Teamwork and Communication Evaluation.
At the end of the presentation, each member of the group will fill out a form where they will fairly evaluate the contributions of each member during the course of the project (5 pts). The instructor will also evaluate each student's contribution during the oral presentation of the poster (5 pts). These scores will be added together for the Teamwork and Communication Subscore.

Poster Title:_____

Presenters: _____

Scale: Ranges from 0 (No) to 4 ("yes" or "well done")

Group Oral Presentation (16 pts):

	Score
An appropriate **hypothesis** was stated.	0 1 2 3 4
The presenters called attention to the **results,** referring to each figure on the poster. Numerical data, tables, medical images or other observation data was included.	0 1 2 3 4
The **discussion** tied the results back to the introduction and hypothesis. Discussion section was sufficient to understand diagnosis, disease and treatment.	0 1 2 3 4
The presenters were able to answer **questions** comfortably and informatively (including, "I don't know" if appropriate.)	0 1 2 3 4

Critical Thinking Subscore (24 pts):

The **introduction** was sufficient to clearly understand the case.	0 1 2 3 4
The **methods** section was clear and included rationale for tests or methods used.	0 1 2 3 4
The case study was appropriately cited and any additional **references** (if needed) were properly referenced and cited.	0 1 2 3 4
The poster **format** design made the presentation easy to follow. A clear Title, plus Introduction, Materials and Methods, Results, and Discussion sections were all present. Fonts were consistent throughout.	0 1 2 3 4
Material on the poster was **original** (not plagiarized) and **well-presented** (not simply read from the poster).	0 1 2 3 4
The **language** of the poster was clear, concise, appropriate for the audience, and was free of grammatical and spelling errors.	0 1 2 3 4

Teamwork and Communication Subscore (10 Pts): _____

Member Name: _____
Group Member Eval. Avg (1-5):
Instructor Eval. Avg (1-5):
Total TW & Com Avg.:

Member Name: _____
Group Member Eval. Avg(1-5):
Instructor Eval. Avg(1-5):
Total TW & Com Avg.:

Member Name: _____
Group Member Eval. Avg (1-5):
Instructor Eval. Avg (1-5):
Total TW & Com Avg.:

Member Name: _____
Group Member Eval. Avg (1-5):
Instructor Eval. Avg (1-5):
Total TW & Com Avg.: