

BIOL 4400 – Vertebrate Histology

Biology Department, College of Arts and Sciences, Valdosta State University

Fall Semester, 2024

CRN 86761 Section A (4 credit hours)

Instructor - Dr. J. Mitchell Lockhart

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Office Hours: 9:00-10:00 and 11:00-12:00 Monday and Wednesday, one hour by MS Teams between 10:00AM-12:00PM on Thursday or by appointment

Course hours: Lecture – Monday, Wednesday, Friday 10:00-10:50AM – BC 1202
Laboratory – Monday and Wednesday – 12:00-1:50PM - BC 2071

Textbook - Junqueira's Basic Histology Text & Atlas, Anthony L. Mescher (14th edition) (**Required**)

Laboratory Textbook - None, labs will be available online.

Prerequisites: BIOL 1107 and BIOL 1108 and 8 semester hours of upper division biology courses.

Course Objectives: As stated in your handbook, the study of vertebrate histology with emphasis on the four primary tissues (epithelium, connective, muscle, and nerve). Laboratory work consists primarily of detailed microscopic study and drawings of tissues from prepared slides.

Attendance: MANDATORY! I do keep track of who is and isn't attending lecture and laboratory. This course has a considerable amount of new concepts and terminology and it is in your interest to attend class regularly. Any student disrupting the classroom and affecting the learning experience of others will be asked to leave. Along these lines, **NO** cell-phones, beepers, and/or associated earpieces or headphones are allowed either in the **lecture room or laboratory**. If you bring them to class, they must be turned **OFF (not on vibrate)** and placed **out of view**. Students are not permitted to leave the lecture or laboratory rooms to receive messages during regular course time. My policy is not to give a warning, rather, if a cell-phone or beeper activates during lecture/laboratory or you attempt to view or send messages, **you will lose one LETTER GRADE from your final grade**. Viewing a cell-phone or pager that activates on "silent" mode during a quiz or exam will be treated as an instance of **CHEATING** and handled accordingly (**in addition to the above penalty**). Those wishing to utilize laptop computers **as part of the class** are required to sit in the first few rows of the classroom. Viewing any material other than class material will result in the same penalties above.

From the Valdosta State University Catalog:

Whether online or face-to-face, a student who misses or does not participate in more than 20% of the scheduled course or course activities could be subject to receiving a failing grade in the course.

The University does not issue an excuse to students for class absences. In case of absences as a result of illness or special situations, instructors may be informed of reasons for absences, but these are not excuses.

I will enforce this absence limit, therefore after 9 lecture absences (for any reason) a student will be assigned an F for the course. After 6 laboratory absences (for any reason), a student will be assigned an F for the course.

Repeated tardiness will be dealt with by **administratively withdrawing** the student(s) from the course AND/OR mandatory first of class quizzes for the entire class.

Students With Documented Disabilities: Students requiring accommodations or modifications because of **documented** disabilities should discuss this need with Dr. Lockhart at the beginning of the semester. Students with disabilities who are experiencing barriers in this course may contact the Access Office (<https://www.valdosta.edu/student/disability/>) for assistance in determining and implementing reasonable accommodations. The Access Office is located in University Center Room 4136 Entrance 5. The phone numbers are 229-245-2498 (V), 229-375-5871. For more information, please visit VSU's Access Office or email: access@valdosta.edu. To request reasonable accommodations for pregnancy and childbirth, contact Christina Kidd, Student Conduct Coordinator at chkidd@valdosta.edu. Please note, you will be required to provide documentation from an appropriately licensed medical professional indicating the requested accommodations are medically necessary.

Grades: Since the lecture and laboratory for this course are intimately associated, we will have 4 combined lecture/laboratory exams. Exam questions will be in a variety of formats including (but not limited to) essay, short answer, multiple choice, fill in the blank, drawings, etc...Any questions concerning grading should be brought to the attention of the instructor **NO LATER** than one week following return of the exam. **NO make-up exams will be given.**

The final grade will be a combination of your exam scores, final exam score, and the projects discussed below:

| | |
|--------------------------|----------------------------------|
| Exam 1, 2, 3 and 4 | 200 pts. each (each worth equal) |
| Laboratory Portfolio | 300 pts. |
| Pathology Powerpoint | 50-100 pts. |
| Comprehensive Final Exam | 300 pts. |
| Total | 1450-1500 pts. |

Grade Scale: 90-100 = A, 80-89 = B, 70-79 = C, 60-69 = D, <60 = F

Privacy Act: Because of the Buckley Amendment or Privacy Act, grades will not be discussed over the phone, given to friends, or given to relatives.

Cheating: Refer to the Student Code of Ethics in the Valdosta State University Student Handbook. A student caught cheating will be penalized ranging from receiving a zero for that assignment or test to failing the class.

Title IX: Valdosta State University (VSU) upholds all applicable laws and policies regarding discrimination on the basis of race, color, sex (including sexual harassment and pregnancy), sexual orientation, gender identity or expression, national origin, religion, age, veteran status, political affiliation, or disability. The University prohibits specific forms of behavior that violate Title IX of the Education Amendments of 1972. Title IX of the Education Amendments of 1972 prohibits discrimination on the basis of sex in education programs and activities that receive federal funding. VSU considers sex discrimination in any form to be a serious offense. Title IX refers to all forms of sex discrimination committed against others, including but not limited to: sexual harassment, sexual assault, sexual misconduct, and sexual violence by other employees, students or third parties and gender inequity or unfair treatment based on an individual's sex/gender. The designated Title IX Coordinator for VSU is Mr. Darius Thomas. To view the full policy or to report an incident visit: <https://www.valdosta.edu/administration/student-affairs/title-ix/>

Student Opinion of Instruction Statement: At the end of the term, all students will be expected to complete an online Student Opinion of Instruction survey (SOI) that will be available through SmartEvals. Students will receive an email notification through their VSU email address when the SOI is available (generally at least one week before the end of the term). SOI responses are anonymous to instructors/administrators, and they will be able to access results only after they have submitted final grades. Before final grade submission, instructors will not be able to see any responses, but they can see the percentage of students who have or have not completed their

SOIs. While instructors will not be able to see student names, an automated system will send a reminder email to those who have yet to complete their SOIs. Students who withdraw or drop a course will also be sent invitations to complete the Dropped Course Survey. Complete information about the SOIs, including how to access the survey, is available on the [SOI Procedures webpage](#).

Coronavirus Resources: VSU cares about student success both on and offline, and a variety of resources are available to help students both academically and personally during the Fall 2020 semester. One of the best resources is VSU's Coronavirus FAQ page located at <https://www.valdosta.edu/health-advisory/faq.php>. Information is available there about a variety of topics in VSU's return-to-campus plan. A website devoted to the health and wellness of VSU students can be seen at <https://www.valdosta.edu/administration/finance-admin/campuswellness/student-resources.php>.

You can find information, including how you can access the Brightspace Pulse app that will allow you to view BlazeVIEW on your smartphone at <https://www.d2l.com/products/pulse/>. In BlazeVIEW, all VSU students have a course with guides for how to use tools in BlazeVIEW; search for "VSU BlazeVIEW Student Tutorial 2020."

Face Coverings: As the Blazer Creed articulates, members of the VSU community are expected to live by the high standards of civility, integrity, and citizenship and embrace their responsibility as a member of the Blazer community. In recognition of this responsibility, and in response to the best available science and current guidance from the Centers for Disease Control and Prevention and the Georgia Department of Public Health, **every student must wear a face covering that covers their nose and mouth at all times while in any campus building, including in this classroom.** This requirement is intended to protect the health and safety of all VSU students, the instructor, and the entire university community. Anyone attending class without a face covering will be asked to put one on or leave. Students should also be sure they maintain a distance of at least six feet away from their fellow students and instructor and are seated in a seat that is designated to ensure that distance. Students who refuse to wear face coverings appropriately or adhere to other stated requirements may face disciplinary action for Code of Conduct violations.

Virtual Proctored Exams:

Using LockDown Browser and a Webcam for Online Exams

To help ensure academic integrity, this course requires the use of LockDown Browser and a webcam for online exams. The webcam can be built into your computer or can be the type that plugs in with a USB cable. Watch this [short video](#) to get a basic understanding of LockDown Browser and the webcam feature. A student [Quick Start Guide](#) is also available.

SYSTEM REQUIREMENTS

Respondus LockDown Browser must be installed on the computer you will use to take the quiz. Visit the [eLearning Respondus webpage](#) to confirm your computer meets the system requirements for using Respondus LockDown Browser and Monitor. For instructions on how to install the Respondus LockDown Browser, see the [Respondus Quick Start Guide](#)

NOTE: Respondus LockDown Browser and Respondus Monitor may not function properly on devices or networks with institutional security settings managed by third-party organizations. For students who can access VSU's campus, appropriate devices such as laptops and webcams can be checked out from Odum Library's New Media Center (NMC). The NMC is located on the 1st floor of Odum Library, room 1240. Their hours of operation and equipment loan procedures and policies are available on the [New Media](#)

Center website. Alternatively, students may [reserve rooms in the NMC](#) or utilize any open study rooms outside the NMC that may meet their needs. For more information about Study Rooms, visit [Odum Library Study Rooms and Spaces](#) and check the [Library Hours of Operation](#).

Additionally, if you plan to use Respondus Monitor on a VSU campus computer, such as VSU's Odum Library's lab computers, you will not need to download or install Lockdown Browser, instead select "Launch" when prompted. Computers that support Respondus Monitor are located in room 3250 of Odum Library.

Respondus Consent Form

You will need to complete the Respondus Consent form during the first week of class and then, if you consent to use Respondus, you must complete the practice quiz to test your equipment. The class will have a test run with the system prior to the first exam.

If you are unable to access the appropriate equipment or if prefer to use an on-site testing option, further information is available on the Respondus Consent Quiz in BlazeVIEW.

If you experience technical difficulties prior to beginning your Respondus test, contact your instructor and eLearning. For technical difficulties during your proctored examination, contact Respondus Technical Support and your instructor immediately.

Important Dates: Midterm – October 10; Final Exam – Tuesday, December 10, 10:15AM-12:15PM

Laboratory Portfolio (300 points)

In laboratory, you will be preparing an exhaustive series of original drawings of your observations of tissues through the microscope. Each lab unit has a series of designated drawings you are to do. **These are to be drawings of your observations through a microscope, not of your ability to copy an image at home from a picture.** Should it become necessary that I check every notebook at the end of each lab I will. I will spot check notebooks during lab to see that you are making satisfactory progress. Each drawing should fill one page of paper and should be labeled to include identification of the image and magnification. Any significant features of your drawing should be labeled. You will be graded on effort (which isn't hard to determine) NOT on artistic ability. Keep these drawings in a notebook and PROTECT IT CAREFULLY! You will also scan each of these images and at the end of the semester you will turn in an original AND electronic portfolio.

Due Date: Day of the final lab period

Pathology Powerpoint (50-100 points)

For this assignment, you will do a "research powerpoint" on a pathologic topic of your choosing (for example, skin cancer, breast cancer, etc...**I will provide a list**). Select a topic (confirm it with me to avoid duplication) and prepare a powerpoint on your topic. Include word slides with a description of your topic and, MOST IMPORTANTLY, histologic images of both NORMAL and PATHOLOGIC tissues. If you can't find histologic/pathologic images – SWITCH TOPICS! Do not worry about citing references. I am interested in good topics and good images. The number of slides is not important, but be thorough (5 is too few, 500 is too many, 30-40 should be sufficient). **Due Date: To be determined**

*** The Instructor reserves the right to modify the above contents with proper notification.**

Course Outcomes:**Course:**

By the end of BIOL 4400, students who successfully complete the course should have:

1. Gained factual knowledge, to include anatomy/histology terminology, methods, and principles, about Vertebrate Histology. (DO – 2,3,5; VSUGEO – 5)
2. Learned fundamental principles, generalizations, or theories of Vertebrate Histology. (DO – 2,3,5; VSUGEO – 5)
3. Learned to apply course material (to improve thinking, problem-solving, and decisions) in Vertebrate Histology. (DO – 2,3,5; VSUGEO – 5)
4. Developed specific skills, competencies and points of view needed by professional in the fields most closely related to Vertebrate Histology. (DO – 2,3,5; VSUGEO – 5)
5. Acquired an interest in learning more by asking questions and seeking answers about Vertebrate Histology. (DO – 2,3,5; VSUGEO – 5)

Department:

1. Develop and test hypotheses, collect and analyze data, and present the results and conclusions in both written and oral formats used in peer-reviewed journals and at scientific meetings.
2. Describe the evolutionary processes responsible for biological diversity, explain the phylogenetic relationships among the major taxa of life, and provide illustrative examples.
3. Demonstrate an understanding of the cellular basis of life.
4. Relate the structure and the function of DNA/RNA to the development of form and function of the organism and to heredity.
5. Interpret ecological data pertaining to the behavior of the individual organism in its natural environment; to the structure and function of populations, communities, and ecosystems; and to human impacts on these systems and the environment.

Valdosta State University General Education Outcomes:

1. Students will demonstrate understanding of the society of the United States and its ideals. They will possess the requisite knowledge of the society of the United States, its ideals, and its functions to enable them to become informed and responsible citizens. They will understand the connections between the individual and society and the roles of social institutions. They will understand the structure and operational principles of the United States government and economic system. They will understand United States history and both the historical and present role of the United States in the world.
2. Students will demonstrate cross-cultural perspectives and knowledge of other societies. They will possess sufficient knowledge of various aspects of another culture, including the language,

social and religious customs, aesthetic expression, geography, and intellectual and political history, to enable them to interact with individuals within that society from an informed perspective. They will possess an international viewpoint that will allow them to examine critically the culture of their own nation and to participate in global society.

3. Students will use computer and information technology when appropriate. They will demonstrate knowledge of computer concepts and terminology. They will possess basic working knowledge of a computer operating system. They will be able to use at least two software tools, such as word processors, spreadsheets, database management systems, or statistical packages. They will be able to find information using computer searching tools.
4. Students will express themselves clearly, logically, and precisely in writing and in speaking, and they will demonstrate competence in reading and listening. They will display the ability to write coherently in standard English; to speak well; to read, to understand, and to interpret the content of written materials in various disciplines; and to listen effectively and to understand different modes of communication.
5. Students will demonstrate knowledge of scientific and mathematical principles and proficiency in laboratory practices. They will understand the basic concepts and principles underlying scientific methodology and be able to collect, analyze, and interpret data. They will learn a body of scientific knowledge and be able to judge the merits of arguments about scientific issues. They will be able to perform basic algebraic manipulations and to use fundamental algebraic concepts to solve word problems and equations. They will be able to use basic knowledge of statistics to interpret and to analyze data. They will be able to evaluate arguments based on quantitative data.
6. Students will demonstrate knowledge of diverse cultural heritages in the arts, the humanities, and the social sciences. They will develop understanding of the relationships among the visual and performing arts, literature and languages, and history and the social sciences. Students will be versed in approaches appropriate to the study of those disciplines; they will identify and respond to a variety of aesthetic experiences and engage in critical thinking about diverse issues. They will be able to identify the components of and respond to aesthetic experiences in the visual and performing arts. They will develop knowledge of world literature within its historical and cultural frameworks. They will understand modern issues within a historical context and the role of the individual in various forms of societies and governments.
7. Students will demonstrate the ability to analyze, to evaluate, and to make inferences from oral, written, and visual materials. They will be skilled in inquiry, logical reasoning, and critical analysis. They will be able to acquire and evaluate relevant information, analyze arguments, synthesize facts and information, and offer logical arguments leading to creative solutions to problems.
8. Students will demonstrate knowledge of principles of ethics and their employment in the analysis and resolution of moral problems. They will recognize and understand issues in applied ethics. They will understand their own value systems in relation to other value systems. They will judge values and practices in a variety of disciplines.

BIOL 4400 Tentative Lecture Schedule - FALL 2024

This is the order which we will go through topics:

1. Histology and Its Methods of Study
 2. The Cytoplasm
 3. The Cell Nucleus
 4. Epithelial Tissue
 5. Connective Tissue
 6. Adipose Tissue
 7. Cartilage
 8. Bone
 9. Nerve Tissue and The Nervous System
 10. Muscle Tissue
 11. The Circulatory System
 12. Blood
 13. Hemopoiesis
 14. The Immune System and Lymphoid Organs
 15. Digestive Tract
 16. Organs Associated with the Digestive Tract
 17. The Respiratory System
 18. Skin
 19. The Urinary System
 20. Endocrine Glands
 21. The Male Reproductive System
 22. The Female Reproductive System
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23. The Eye and Ear: Special Sense Organs

Probable Exam Dates:

Exam 1 – September 13

Exam 2 – October 9

Exam 3 – November 6

Exam 4 – December 6

Final Exam – Tuesday, December 10 – 10:15AM-12:15PM

Tentative Lab Schedule
FALL 2024

This is the order which we will go through labs

1. Cell Structure I
 2. Cell Structure II
 3. Epithelium and Glands
 4. Connective Tissue I
 5. Connective Tissue II
 6. Connective Tissue III
 7. Nervous Tissue
 8. Muscle
 9. Cardiovascular and Lymphatic Systems
 10. Hematopoietic System I: Peripheral Blood
 11. Hematopoietic System II: Bone Marrow
 12. Immune System I
 13. Immune System II
 14. Oral and Nasal Cavities
 15. Digestive System I
 16. Digestive System II
 17. Salivary Glands and Pancreas
 18. Liver and Gall Bladder
 19. Respiratory System
 20. Integumentary System
 21. Urinary System
 22. Endocrine System I
 23. Endocrine System II
 24. Male Reproductive System I
 25. Male Reproductive System II
 26. Female Reproductive System I
 27. Female Reproductive System II
 28. Female Reproductive System III
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29. The Eye
 30. The Ear

Probable Laboratory Exam Dates: **Lab Exam 1 – Sept. 12, Lab Exam 2 – Oct. 11, Lab Exam 3 – Nov. 8, Lab Exam 4 – Dec 6**