

**BISC 415 - Vertebrate Histology – Fall 2019**  
**516 Shoemaker (Lecture 8:00 - 9:15 am, TX)**  
**516 Shoemaker (all laboratory sessions)**

**Instructor:**

Dr. Carol A. Britson

Phone: 915-7988

Office: 206 Shoemaker

Email: [cbritson@olemiss.edu](mailto:cbritson@olemiss.edu)

Office Hours: Tuesdays and Wednesdays 10-11:30am, or by appointment

**Lecture Text (required):**

Mescher, A. L. 2016. Junqueira's Basic Histology Text and Atlas, 14th Ed. McGraw-Hill Co., Inc.  
ISBN: 978-0-07-184270-9. (If you have a copy of an earlier edition, that is OK.)

**Laboratory Atlas (required):**

Ross, M.H., Pawlina, W., and T.A. Barnash. 2009. Atlas of Descriptive Histology. Sinauer Associates, Inc.  
ISBN: 978-0-87893-696-0.

Additional lecture and laboratory supplements will be available in MS Word and PDF (portable document files) format on the BlackBoard Course Management system (password protected). Your computer must have Adobe Reader software installed to read PDF files. If you do not have Adobe Reader, go to <<http://www.adobe.com/products/acrobat/readermain.html>> for the free download.

**Course Description:**

Structure of principal tissue types and organ systems. (3 Lecture, 2 Lab hours) Prerequisite requirements for this course are BISC 160, 161, 162, 163 and 330 and CHEM 105 and 106. Prerequisites may also be satisfied by equivalent coursework as approved by the department and by consent of instructor. This course is also a prerequisite for BISC 518, Microtechnique.

**Course Objectives:**

By the end of the course, students are expected to develop proficiency in the following areas of histology:

- 1) Identification, description, and correlation of structure with function in epithelial, connective, muscle and nervous tissues including specific types within each category of tissue.
- 2) Identification, description, and correlation of structure with function of tissues with organs of the major systems of the vertebrate body (primarily of the Class Mammalia).
- 3) Basic and advanced microscope skills including care and use of the microscope, measurement and quantitative analysis of microscopic structures, and recreation of 3-dimensional structure from serial sections.
- 4) Physical and virtual microscopy including advantages and disadvantages of each technique including dual examination.

**Course Policies:**

**Attendance:** You are expected to attend all lectures, and you will be held responsible for all announcements made during the lectures. Attendance will be taken at all laboratory sessions. Attendance will be verified and reported to the university via MyOleMiss.

**Students who are absent on the first day of class will be dropped from the class by the Dean of the College of Liberal Arts.**

**Grading:** You will be evaluated on your performance in both the lecture and laboratory portions of this course. Your final grade will be determined by the scale shown below. There will be NO extra credit points. All students will be treated equally and fairly, and all grades will be calculated in the same way, regardless of extenuating circumstances or any other reason(s) not related to your actual performance in the course. ***Biology majors and minors need to earn a grade of C or better in this course to fulfill degree***

**requirements.** The grade of C- will not be used in the course. For additional information on the plus/minus grading system, please visit <http://www.olemiss.edu/info/grading.html>.

Grade	Percent Score
A	93-100
A-	90-92.99
B+	87-89.99
B	83-86.99
B-	80-82.99
C+	75-79.99
C	70-74.99
D	60-69.99%
F	0-59.99%

The distribution of graded material is shown below:

Category	Item	Point Value
<b>Lecture Exams</b>	4 exams, 100 points each	400
<b>Laboratory Material</b>	weekly quizzes (lowest dropped), 5 points each	50
	2 lab practicals, 100 points each	200
	Lab notebook	25
	Literature review assignment	25
<b>Total course points</b>		<b>700</b>

**Make-up exams (lecture):** Make-up lecture exams will be given at the discretion of the instructor under the following circumstances: major illness with physician documentation, family emergency with documentation and contact person, or a University-sponsored function with written documentation from the sponsoring department. Advance notification for a missed exam is essential except under extreme circumstances, in which case the instructor MUST be notified by 5pm the day of the exam. During the examination period, exams will NOT be passed out to student(s) UNDER ANY CIRCUMSTANCES after 20 minutes have elapsed from the start of the exam (i.e., DON'T OVERSLEEP!).

**Make-up exams (laboratory):** Acceptable absence excuses as outlined above must be submitted to the laboratory instructor. Make-up lab exams are scheduled at the convenience of the instructor.

All make-up work must be completed within one week of the original due date except in cases of extenuating circumstances.

**Disability Access and Inclusion:** The University of Mississippi is committed to the creation of inclusive learning environments

for all students. If there are aspects of the instruction or design of this course that result in barriers to your full inclusion and participation, or to accurate assessment of your achievement, please contact the course instructor as soon as possible. Barriers may include, but are not necessarily limited to, timed exams and in-class assignments, difficulty with the acquisition of lecture content, inaccessible web content, and the use of non-captioned or non-transcribed video and audio files. If you are approved through SDS, you must log in to your Rebel Access portal at <https://sds.olemiss.edu> to request approved accommodations. If you are NOT approved through SDS, you must contact Student Disability Services at [662-915-7128](tel:662-915-7128) so the office can: 1. determine your eligibility for accommodations, 2. disseminate to your instructors a Faculty Notification Letter, 3. facilitate the removal of barriers, and 4. ensure you have equal access to the same opportunities for success that are available to all students.

**Laboratory Notebook**

- For each slide that you examine, record the (1) tissue description on the label; (2) stain used, if available; (3) date prepared, if available; and (4) preparer's name or initials, if available.

- For each type of specimen that you examine, write down the reference page for the text description given in your book. Then write down your description of how the tissue and cells **look to you**. Comparing the two will help you study and be able to recognize tissues and tissues within organs for the practicals. List what structures are easy to find and which are more challenging. Identify structures that consistently look like published photos and which ones show wide variation. Before the digital age, students were required to prepare drawings of all tissues. If drawing helps you, then include sketches as well.
- For each **VIEW** of a specimen you may also wish to record how many different types of cells, tissues, structures, organs, etc. that you can identify. This is a critical skill to develop as many tissue types can be found throughout the body but it is the arrangement of tissues with each other that allows you to identify a specimen. Additionally, one specimen (e.g., a skin section) can be used to identify multiple entities.
- For each week's list of structures (i.e., cells, tissues, organs, etc.) you will need to record a "date of identification" and source (e.g., "P" for a physical slide, "V" for a virtual slide). This information needs to be recorded each time an identification is made. Your ability to recognize a structure in a new setting increases the more times you have identified that structure in the past. Most students easily recognize structures that they have identified at least five times prior to a practical. Examples for recording this information will be provided in lab.
- In several of the laboratory sessions, you will be required to perform blood cell counts, micro-measurements of specimens, etc. These data are to be included in the laboratory notebook.

The notebook must be bound with no loose pages and is due the day of the 2<sup>nd</sup> lab practical. The elements listed above must be categorized by lab session and date examined. Points will be deducted if the notebook is not bound.

### ***Literature Review Assignment***

Histology is a tool *for* study as well as a field *of* study. For this assignment you will select a peer-reviewed journal article (The Anatomical Record is a good place to start) for review of histological techniques, research questions, and major results. Specific instructions will be available at midterm. This assignment will be due the week before the 2<sup>nd</sup> lab practical.

***Student conduct:*** (1) Academic dishonesty of any kind will NOT be tolerated. (2) All cell phones and pagers must be turned off during lecture. If you are on call for employment related purposes, you must provide documentation from your employer. (3) Visiting web sites during class will NOT be tolerated. (4) Do not call me at home. My email and voicemail keep date and time records of any messages.

***Inclement Weather:*** In the event that the University cancels classes due to inclement weather, we will adjust the schedule accordingly. For lecture we will shift our topic or event (e.g., exam) to the next class period. For laboratory, students will schedule open lab periods.

***Campus Emergencies:*** <http://emergency.olemiss.edu> provides information about campus-related emergencies due to weather or other circumstances. Know what you will do in the event of an emergency. Read ReAlert texts and emails, and respond accordingly. ReAlerts allow the university to communicate essential information to the campus community when a disaster occurs.

## **Laboratory Information**

### **Daily Laboratory Protocol, Techniques and Rules:**

- 1) Laboratory readings **MUST** be finished prior to starting the laboratory!
- 2) Weekly quizzes will be given at the beginning of each during each laboratory session. They will be short (5, 1pt questions), cover the assigned readings, and require you to find selected microscopic features.
- 3) Active participation is expected during all laboratory sessions. Participation will involve asking questions, answering my questions, assisting other students, and being observant of items 4-8.
- 4) We have over 3200 slides. Please, no hoarding of slides during the laboratory session and pass the "good ones" around to other students.
- 5) Students will use the same microscope during each laboratory session for the duration of the course (I will record the UM property number of the scope but you should as well). This will help

- track any equipment malfunction and will cut down on transmission of germs (e.g., begin each laboratory session by wiping the eye cup with an alcohol pad).
- 6) Report slide damage that may occur during the course of the laboratory. Slides break, it happens, but I do need to keep track of the collection.
  - 7) Proper technique for use of immersion oil and lens wipes (e.g., Kim Wipes™) must be followed at all times.

**Additional Resources**

There are numerous internet resources (virtual slide libraries, self-testing, microscope use and care, etc.) listed on blackboard.

**Semester Schedule:**

Topics, sources of text-based information, exam dates, and due dates for all lecture and laboratory material are on the following page.

Week of:	Lecture	Readings (Mescher)	Laboratory	Readings (Ross et al.); see lab protocol for specific specimens
8/26/2019	Histology Intro & Techniques	Chapter 1 (read ch. 2&3 for review); Appendix (stains)	Meet in lab on first day	Chapter 1
	Epithelial Tissue	Chapter 4		
9/2/2019	Epithelial Tissue	Chapter 4	Labor Day Holiday	
	Connective Tissue	Chapter 5		
9/9/2019	Adipose Tissue & Cartilage	Chapter 6, 7	Epithelial Tissue, Quiz	Chapter 2, 3
	Bone	Chapter 8		
9/16/2019	<b>Exam 1 (9/17/2019)</b>		Connective Tissue, Quiz	Chapter 4, 5
	Nerve Tissue; Nervous System	Chapter 9		
9/23/2019	Nerve Tissue; Nervous System	Chapter 9	Cartilage and Bone, Quiz	Chapter 8
	Muscle Tissue	Chapter 10		
9/30/2019	The Circulatory System	Chapter 11	Nervous Tissue, Quiz	Chapter 7
	The Circulatory System	Chapter 11		
10/7/2019	Blood Cells	Chapter 12	Muscle Tissue, Quiz	
	<b>Exam 2 (10/10/2019)</b>			
10/14/2019	Hemopoiesis	Chapter 13	<b>Lab Practical (10/8/2019)</b>	Chapter 9
	Immune System & Lymphoid Organs	Chapter 14		
10/21/2019	Digestive Tract	Chapter 15	Circulatory Organs, Quiz	Chapters 6, 10
	Organs Associated W/Dig. Tract	Chapter 16		
10/28/2019	The Respiratory System	Chapter 17	Blood & Lymphoid organs, Quiz	Chapters 12, 13
	The Respiratory System	Chapter 17		
11/4/2019	<b>Exam 3 (11/5/2019)</b>		GI tract, Quiz	Chapters 14, 15
	Skin	Chapter 18		
11/11/2019	The Urinary System	Chapter 19	GI acc. organs & Respiratory Organs, Quiz	Chapter 11, 16
	Endocrine Glands	Chapter 20		
11/18/2019	Endocrine Glands	Chapter 20	Integument, Quiz	Chapter 17, 18-19 (selected)
	Male Reproductive System	Chapter 21		
12/2/2019	Female Reproductive System	Chapter 22	Urinary & Endocrine Organs, Quiz	
	<b>Exam 4 (12/5/2019)</b>			
12/9/2019			<b>Lab Practical (8am, Tuesday, 12/10/2019)</b>	

