

BISC 415 - Vertebrate Histology – HYBRID Fall 2020
Lecture podcasts accessed online via BlackBoard
213 Shoemaker (all laboratory sessions, in person)

Instructor:

Dr. Carol A. Britson

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Zoom Office Hours: Wednesdays and Thursdays 10-11:30am, email for a video conference (Zoom) 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.

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: The Fall 2020 semester requires modified protocols and procedures. For this semester you will be assigned to a laboratory cohort that will meet in person once per week, and your attendance is required at each lab session. Laboratory practicals will be synchronous via Zoom video sessions and your attendance is also required. 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	% of Total Grade
Lecture Exams	3 exams, approx. 65 questions each	55%
Laboratory Material	7 lab quizzes, approx. 10 questions each	10%
	2 lab practicals, 100 questions each	25%
	Lab notebook	5%
	Literature review assignment	5%
Total		100%

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.

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** 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 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 2nd 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 of the 2nd 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 RebAlert texts and emails, and respond accordingly. RebAlerts 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) When scheduled, quizzes will be given at the beginning of each during each laboratory session. They will be short (10, 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. 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.

Classroom Health Requirements

- Properly worn face coverings or face masks are required inside all University buildings. Face-to-face sessions will not proceed unless all present have properly worn face coverings or face masks. (Students who have a diagnosed health concern which interferes with the wearing of face coverings or face masks may contact the Student Disability Services (SDS) Office to seek a University-approved accommodation. Please contact SDS at <https://sds.olemiss.edu/> for more information.)
- Students and faculty must complete the daily symptom checker before any face-to-face class meeting.
- Students and faculty must quarantine for 14 days if they have a positive COVID-19 test, possible virus exposure, or display any symptoms related to COVID-19.
- Students with COVID-19 should seek medical attention at the Student Health Center and contact their instructor to let them know that they are sick, quarantined, or have some other health-related absence.
- If students test positive for COVID-19 at any health care facility, they must contact the Student Health Center at 662-915-7274. (Faculty and staff should contact the Employees Health Service at 662-915-6550.) University Health Services will coordinate contact tracing to lessen the likelihood of spread.
- Upon entering the classroom, students and instructors should use provided cleaning supplies to wipe down the surfaces that they will touch during the class.

Non-adherence with Health Requirements

- Students have been informed of the COVID-19 guidelines for the school year (including face covering, social distancing, hand hygiene, etc.); therefore, students will not be allowed in classroom spaces when they are out of compliance with these guidelines.
- The University's Academic Conduct and Discipline Policy states that "disorderly behavior that disrupts the academic environment violates the standard of fair access to the academic experience." Failure to adhere to health requirements during the COVID-19 emergency will be deemed as disruptive to the classroom and will be enforced following the Academic Conduct and Discipline procedures.
- The University of Mississippi has adopted a tiered disciplinary protocol for non-adherence to COVID-19 health requirements. This disciplinary protocol is maintained by the Office of Conflict Resolution and Student Conduct (<https://conflictresolution.olemiss.edu/>).

Semester Schedule:

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

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

BISC 415 Calendar

August 2020						
◀ July						September ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24 12-1:50 A cohort	25 8-9:15 B cohort	26	27 8-9:15 C cohort	28	29
30	31 12-1:50 A cohort LAB QUIZ 1					

September 2020						
◀ August						October ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1 8-9:15 B cohort LAB QUIZ 1	2	3 8-9:15 C cohort LAB QUIZ 1	4	5
6	7 LABOR DAY HOLIDAY	8 8-9:15 B cohort	9	10 8-9:15 C cohort	11	12
13	14 12-1:50 A cohort LAB QUIZ 2	15 8-9:15 B cohort LAB QUIZ 2	16	17 8-9:15 C cohort LAB QUIZ 2	18	19
20	21 12-1:50 A cohort	22 8-9:15 C cohort	23	24 8-9:15 LECTURE EXAM 1 asynchronous via BlackBoard, proctored via Proctorio (tentatively 8am- noon)	25	26
27	28 12-1:50 B cohort LAB QUIZ 3	29 8-9:15 C cohort LAB QUIZ 3	30			

October 2020						
◀ September						November ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1 8-9:15 A cohort LAB QUIZ 3	2	3
4	5 12-1:50 B cohort	6 8-9:15 LAB PRACTICAL 1 all cohorts synchronous via Zoom	7	8 8-9:15 A cohort	9	10
11	12 12-1:50 B cohort LAB QUIZ 4	13 8-9:15 C cohort LAB QUIZ 4	14	15 8-9:15 A cohort LAB QUIZ 4	16	17
18	19 12-1:50 B cohort	20 8-9:15 A cohort	21	22 8-9:15 LECTURE EXAM 2 asynchronous via BlackBoard, proctored via Proctorio (tentatively 8am- noon)	23	24
25	26 12-1:50 C cohort LAB QUIZ 5	27 8-9:15 A cohort LAB QUIZ 5	28	29 8-9:15 B cohort LAB QUIZ 5	30	31

November 2020						
◀ October						December ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2 12-1:50 C cohort LAB QUIZ 6	3 8-9:15 A cohort LAB QUIZ 6	4	5 8-9:15 B cohort LAB QUIZ 6	6	7
8	9 12-1:50 C cohort LAB QUIZ 7	10 8-9:15 A cohort LAB QUIZ 7	11	12 8-9:15 B cohort LAB QUIZ 7	13	14
15	16 12-1:50 C cohort	17 8-9:15 LAB PRACTICAL 2 all cohorts synchronous via Zoom Literature Review Assignment due (submt via BlackBoard)	18	19 8-11 LECTURE EXAM 3 asynchronous via BlackBoard, proctored via Proctorio (tentatively 8am- noon)	20	21
22	23	24	25	26	27	28
29	30					

