

# BIOLOGY 331, HISTOLOGY

The Department of Biological Sciences  
University of Mary Washington

Spring Semester, 2008

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## I. COURSE INSTRUCTOR & OFFICE HOURS

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Office Hours:  
TR, 11:00 AM -1:00 PM  
F, 9:00 - 10:30 AM  
All other times by appointment

## II. MEETING TIMES

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Lecture: MWF, Noon - 12:50, 314 Jepson Science Center  
Lab: Wednesday, 9:00 - 11:50, 314 Jepson Science Center

## III. COURSE DESCRIPTION

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Histology is a study of the anatomy and physiology of normal tissues, with an emphasis on tissue structure. Biology 331 is a human histology course. As such, the course concentrates on the structure and function of normal human tissues and organs. This course has the flavor of any anatomy and/or physiology course that you may have had in the past. The course should be of particular interest to any student interested in the structure and function of animal bodies in general and the human body specifically, and it has particular application to any student pursuing a possible career in human and veterinary medicine, dentistry, nursing, and other allied health fields.

The course is designed for intermediate-to-advanced biology students who have completed general biology, general chemistry, and cell biology. This course, however, is NOT a cell biology course; we do not discuss the detailed cellular mechanisms that are discussed in a cell biology course. Cell biology is a prerequisite because understanding the way animal cells work is useful in the course.

## IV. THE LABORATORY

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The laboratory component of the course involves the classic microscopic study of vertebrate / mammalian / human tissue slides with a compound light microscope. The laboratory manual is very unique. The lab manual is a comprehensive interactive on-line laboratory manual developed specifically for this course. The manual is accessed by going to my personal website ([www.gallik.mwc.edu](http://www.gallik.mwc.edu)) and clicking on the IT (Instructional Technology) tab; it behaves predictably in Microsoft Internet Explorer 5.0 or greater.

The world wide web has been used academically to provide supplemental laboratory resources designed in the anatomic sciences, and especially in histology, for several years. With its dependence on detailed, relatively high-resolution color images, histology is a discipline that requires a vehicle that can store and deliver a large library of images to students, and the web is just such a vehicle. As a result, many academic web sites offer on-line histology resources, mostly in the form of atlases: photographs with simple captions. The digital laboratory manual for histology developed for this course has four specific features that, when combined, make it the first of its kind. First, each chapter contains a comprehensive text that systematically guides students through the microscopic study of mammalian and human tissues. Second, fully-labeled images, taken at the four magnifications commonly available on student microscopes, accompany the text. Third, each chapter contains background information that introduces each organ and organ system. And finally, all of this is brought to the student on-line.

Before this on-line manual was used in our course, students used a conventional lab manual, which we often changed from year -to-year. These manuals proved to be undesirable for several reasons. First, the text, while somewhat descriptive, did not effectively and systematically guide student study. Second, the conventional lab manuals lacked the required color images. This forced students to supplement their manuals with their classroom text and supplemental atlases neither of which were designed to be a lab manual. Thus, students were constantly searching from one source to another to find the information they needed to guide and confirm their microscopic study. Students were frequently frustrated, and it was difficult for me, as the instructor, to move fast enough among the students to answer their barrage of questions in a timely fashion. Based on student survey information and my observations, this digital manual has been effective in removing much of this frustration.

The manual could be used on its own to study the histology of tissues. However, the intent of this manual is NOT to replace the microscope, but rather to serve as a genuine laboratory manual, along side the microscope, to guide students through the traditional microscopic study of tissues. The development of the manual is based on the premise that histology does not only involve identification, but also involves the ability to examine a specimen under the microscope, understand how to navigate about the specimen, and understand how to properly evaluate the specimen at all magnifications.

## **V. COURSE PREREQUISITES**

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Biol 211 (Cell Biology), or its equivalents, is a prerequisite for the course.

## **VI. REQUIRED TEXT**

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Ross and Pawlina, Histology. A Text and Atlas. 5th edition. Lippincott Williams & Wilkins, 2006.

## VII. BLACKBOARD

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This course utilizes UMW's Blackboard Web portal for the dissemination of course materials. The course will be listed on the Blackboard page of all enrolled students.

All lectures are presented in Powerpoint. The Powerpoint presentation for each lecture will be posted in Adobe's Portable Document Format (PDF) on the Blackboard site well in advance of each lecture, and it is highly recommended that you print out each lecture's handout before the day of lecture so you are not tied-up in printing traffic right before class. To access the lecture slides and handouts, you will need Adobe Reader installed on your computer. If you do not have Adobe Reader installed, you can get a free download using the link on the course Blackboard page. If you live off campus and access blackboard via dial-up access, you might find download speeds for some of the lecture handouts to be slow, and you might find it necessary to print materials on-campus.

Be aware that the course's blackboard site is NOT a reliable site for ALL course announcements. While some course announcements may be posted on-line, others may not. The only reliable source for course announcements is lecture. **You are responsible for all course announcements and course materials distributed in lecture or lab whether you are in attendance or not.**

## VIII. EXAMINATIONS

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Four pairs of lecture - lab examinations will be given at regular intervals throughout the semester. Each lecture – lab examination pair is worth 25% of the final grade. Exam dates are indicated on the lecture & lab schedules. Each of the lecture exams will consist of conceptual questions. The conceptual section will contain a mixture of objective and subjective questions. Each lab exam is a practical examination; questions will focus on the microscopic identification of cells, tissues and organs.

## IX. GRADING

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The following grading scale and grade definitions will be applied to the final grade:

93 - 100 %	A	unusual excellence
90 - 92 %	A-	
87 - 89 %	B+	
83 - 86 %	B	work distinctly above average
80 - 82 %	B-	
77 - 79 %	C+	
70 - 76 %	C	work of average or medium quality
65 - 69 %	D+	
55 - 64 %	D	the lowest passing mark, work of below average quality
<55 %	F	failure (result: no course credit)

The instructor reserves the right to curve the grading scale downwards.

## **X. USE OF THE TEXT**

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Required reading assignments from the text will be given frequently to supplement lecture. These required readings should be treated as lecture material and be studied as thoroughly as the lecture notes. Otherwise, while it is not required, it is suggested that students read along as the chapters in the book are covered in lecture. Relevant chapters are noted with each unit in the course lecture schedule. It would be extremely valuable to read ahead in preparation for lecture.

## **XI. HONOR SYSTEM**

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The MWC honor system is in effect at all times.

## LECTURE SCHEDULE

Jan	14	Introduction
	16	Epithelium
	18	Epithelium
	21	Connective Tissue Proper
	23	Connective Tissue Proper
	25	Adipose
	28	Cartilage
	30	Cartilage
Feb	01	Bone
	04	Bone
	06	Bone
	08	<b>Lecture Exam #1</b>
	11	Muscle
	13	Muscle
	15	Muscle
	18	Nerve Tissue
	20	Nerve Tissue
	22	Nerve Tissue
	25	Cardiovascular System
	27	Cardiovascular System
	29	Cardiovascular System
Mar	10	Integumentary System
	12	Integumentary System
	14	<b>Lecture Exam #2</b>
	17	Digestive System
	19	Digestive System
	21	Digestive System
	24	Digestive System
	26	Respiratory System
	28	Respiratory System
	31	Respiratory System
Apr	02	Urinary System
	04	Urinary System
	07	Urinary System
	09	<b>Lecture Exam #3</b>
	11	Male Reproductive System
	14	Male Reproductive System
	16	Male Reproductive System
	18	Female Reproductive System
	21	Female Reproductive System
	23	Female Reproductive System
	25	Review
Apr	30	<b>Lecture Exam #4; Noon - 2:30</b>

## LABORATORY SCHEDULE

Jan 16	Introduction
Jan 23	Epithelial Tissue
Jan 30	Connective Tissue / Adipose
Feb 06	Cartilage / Bone
Feb 13	<b>Lab Exam #1</b>
Feb 20	Muscle
Feb 27	Nerve Tissue
Mar 12	Cardiovascular System
Mar 19	<b>Lab Exam #2</b>
Mar 26	Integumentary System
Apr 02	Digestive System
Apr 09	Respiratory System / Urinary System
Apr 16	<b>Lab Exam #3</b>
Apr 23	Endocrine System / Reproductive Systems
Apr 30	<b>Lab Exam #4; Noon - 2:30</b>