



2600 South Neal Street, Commerce, TX 75249-3011
Department of Biological and Environmental Science
Phone: 903-468-8648

Course Number: BSC 426; CRN-22542 (lecture), 22824 (lab)

Course Title: Histology

Spring 2015

- **Co-requisite:** BSC 426L
- **Instructor:** K. Parameshwaran, Ph.D.
Assistant Professor of Biomedical Sciences
Department of Biological and Environmental Sciences
Texas A&M University-Commerce
- **Office:** Science Building (STC), Room 201
- **Phone:** (903) 468-8648
- **Email:** kparameshwaran@tamuc.edu
- **Lecture & Lab:** Meets 1/20/2015 through 5/15/2015
MWF 10:00a-10:50a Location: STC205
M 1:00p-3:50p Location: STC205
- **Office hours:** T and R 3.00-5.00 PM (or by appointment)
- **Course Overview:**

Histology is a discipline which examines the structure and correlating functions of tissues and cells using light microscopy, electron microscopy and other specialized microscopic methods. The course will involve a study of general tissue characteristics and will explore histologically and ultrastructurally the different tissue types in the body including epithelial, connective, skeletal, blood/vascular, muscular, and neurological tissues as well as the various organ systems including cardiovascular, lymphatic, integumentary (skin), digestive, respiratory, urinary, endocrine, male and female reproductive, and special senses (eye and ear). While the course's emphasis will be a study of the appearance of normal cells and tissues, selected abnormal/diseased tissues will be examined as well (e.g., bone osteoporosis, heart myocardial infarctions, neurological diseases, etc.) and functional correlations will be made.

Student Learning Outcomes (SLO):

Upon completing the course, students will be able to:

1. Demonstrate proficiency and expertise in the proper use of the light microscope in examining histological specimens on glass slides.
2. Understand the basic concepts of tissue fixation, dehydration, embedding, sectioning, staining and mounting of slides for histological examination, immunofluorescent staining and electron microscopy.
3. Recognize, identify and describe the characteristic structures of cells, tissues and organ systems of the body at the light microscope histologic level, and for selected tissues, at the electron microscopic ultrastructural level.

4. Know and understand the characteristics of tissues of the body (epithelium, connective, muscle, nerve) and their relationships in the various organ systems of the human body.
5. Understand the basic functions of cells and cellular organelles, tissues and organ systems of the body as correlated with their histological structures.
6. Identify and understand the histological features of selected tissues/organ systems resulting from disease processes (e.g., atherosclerosis, osteoporosis, pulmonary pneumonia, etc).

**Textbook: Histology-A Text and Atlas (sixth edition)
By Michael M. Ross and Wojciech Pawlina**

The lectures/discussions/microscopy observations will be related to materials covered in the Ross and Pawlina Text/Atlas. Chapters or parts of chapters will be assigned. The reading will be helpful in understanding and supplementing the materials covered in class.

Class Policies:

Attendance:

Attendance is expected at all classes. Attendance will be taken. Students who do not maintain 80% of attendance will be dropped from the class. A maximum of 5% of the final score can be earned by attending all the lectures and lab.

Class Participation:

Portions of some classes will be spent examining histological specimens using the light microscopes along with formal lecture material. It will be important to interact with instructors and other students and to participate in class discussions and share information noted on the various histological specimens.

Lectures:

PowerPoint slides will be used for most of the lectures. The lectures and class discussions will not totally replace the information you will need to learn. Reading in your textbook and your studies of glass slides under the light microscope are important learning activities. Power point slides, however, will certainly illustrate and emphasize the overall important concepts for the course.

Reading Assignments:

Specific reading assignments will be given for the textbook (Ross and Pawlina). This book is very detailed and comprehensive in nature. Therefore materials covered in lecture will not always cover all aspects of a given chapter. Order of topics discussed in lecture for the most part will follow the order of the material presented in the text. Consultation with the instructor is encouraged should there be difficulty in determining what portions of the text need to be read/studied.

Examinations/Quizzes/Essay

1. Unit Examination: There will be three unit examinations. Each unit examination will count 10% with a total of 30% towards your final grade.
2. There will be 5 quizzes collectively contributing 25%.
3. A comprehensive final examination will be administered during the regular examination week. A combined final written examination and practical examination will 30%.
4. Essay and Oral Presentation: A required 2-3 page typed (double spaced) essay will contribute 5%. Such activities as writing an essay on some histological concept, doing an in depth literature search on a disease process that is relevant to histology, writing a detailed description of a specialized histological technique and its use in research (e.g., immunofluorescent antibody staining; laser confocal microscopy; immunoelectron microscopy etc.), an essay on work done to develop a certain histological concept, the use of a selected histological technique(s) to analyze a clinical or research problem (e.g., how histology may be used to detect certain kinds of cancers or how histology is used to determine where specific proteins or nucleic acids are located in cells

and tissues, etc.). A five minute oral presentation based on this essay will be made to the class followed by questions from the class. Please consult with the instructor, Dr. Parameshwaran, to receive advice and/or gain approval of your project topic by Wednesday, April 1, 2015.

5. Attendance: 5%. Zero credit for attendance less than 80%.

Grading System:

3 examinations (10% each)	= 30%
5 Quizzes (5% each)	= 25%
Attendance	= 5%
Comprehensive final	= 30%
Essay and presentation	= 5%

Grading:

A	- 90-100%
B	- 80-89%
C	- 70-79%
D	- 60-69%
F	- 0-59%

Academic integrity:

A Texas A&M University-Commerce student does not lie, cheat, steal, and does not tolerate those who do. A violation of the Texas A&M honor code and academic integrity involves any of the following offenses: cheating, fabrication, falsification, multiple submissions, plagiarism, and complicity in any of these offenses. The first instance of cheating will result in a "ZERO" on the examination and/or on the assignment. The second instance of cheating will result in a "ZERO" for the course. Cheating involves copying information from another student, non-allowable materials or source and plagiarism. Once again, violations of academic integrity will not be tolerated. This class will be conducted in strict observance of the Honor Code. Refer to your Student Handbook for details.

Conduct Policy:

As per the Texas A&M Universities Student's Guide Handbook, Policies and Procedures, Conduct, all students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment.

Cell Phones, Laptop Computers and other Electronic Devices:

Please turn your cell phone (and other electronic devices) off during class. If you are anticipating an urgent call or if you must be on an important call, please place your cell phone on vibration mode and if you get such a call, step into the hallway to attend to the phone conversation.

If you utilize a laptop in class to take notes, please be aware of potentially distracting others in class. It is not acceptable to use your computer to do outside work, surf the web, or carry on personal communications while in class. Texting is prohibited.

While recordings of this class may be made for personal use with **prior permission**, recordings may not be sold or distributed to others. You may make copies of these notes for your personal use; copies of these notes may not be distributed to anyone other than persons who are currently enrolled in the class nor may any copies be sold.

Students with Disabilities/Reasonable Accommodation:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities.

If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University- Commerce

Gee Library, Room 132

Phone: 903-886-5150 or 903-886-5835

Fax: 903-468-8148

StudentDisabilityServices@tamuc.edu

Plagiarism:

Plagiarism is a criminal activity. You must cite all sources of information. Unreferenced copying of material, whether parts of sentences, whole sentences, paragraphs, or entire articles can result in a score of zero for your assignment and may result in further disciplinary action.

Topics covered:*

Week 1: Jan. 21-23	Introduction; Histology Methods.
Week 2: Jan.26-30	Cell - cytoplasm, nucleus, ultra structure and function.
Week 3: Feb. 2-6	Tissues; epithelial tissues and glands
Week 4: Feb. 9-13	Connective tissue, cartilage
Week 5: Feb. 16-20	bone; adipose tissue; blood
	Exam I
Week 6: Feb. 23-27	muscle tissue
Week 7: Mar. 2-6	nerve tissue
Week 8: Mar. 9-13	cardiovascular system
Week 9: Mar. 16-20	lymphatic system
Week 10: Mar. 23-27	Digestive system
Week 11: Mar. 30-Apr. 3	respiratory system; Exam II
Week 12: Apr. 6-10	Urinary system
Week 13: Apr. 13-17	Endocrine organs
Week 14: Apr. 20-24	Male reproductive system
Week 15: Apr. 27-30	Female reproductive system; Exam III
Week 16: May 4-8	Eye and ear; essay and presentation
Week 17: May 11-15	Comprehensive Final Exam

* This schedule is approximate and might change based on the amount of time spent for each topic. Quizzes will be scheduled based on the amount of material covered. Date and time of quizzes will be announced in class and also students will be notified by email.