SYLLABUS
Human Microscopic Anatomy (ANAT 6150)

DESCRIPTION:

ANAT 6150 is a graduate course designed to provide knowledge about the normal histological structure of cells, tissues, and organs of the human body with a strong emphasis on the clinical relevance. Because there is an inseparable relationship between structure and function, emphasis is placed on structural-functional correlates at both the light and electron microscopic levels. Descriptions of alterations in normal histology through disease or injury provide an understanding of the etiology of various diseases, including cancer. Histological terms and concepts are taught for the purpose of identification and precise communication. Students will also have access to virtual histological slides tailored to the content of the lectures, such that students will become fluent in identifying structures and their functional relationship with specific organs.

LEARNING OBJECTIVES:

1) Describe the basic structure of a cell, the function of membranes, and organelles.
2) Describe how the type and histological arrangement of the cells present within tissues and organs of each major body system relate to the function of those tissues and organs.
3) Recognize how histological structure and function relate to the etiology of various disease states.

CREDIT HOURS: 4

PREREQUISITE: Introductory Biology for Science or non-Science Majors. Enrollment in the Graduate Certificate in Anatomical and Translational Sciences (GCATS), the Master of Science in Anatomical and Translational Sciences (MATS) or permission of the Director of the GCATS-MATS Program.

LECTURE CONTACT TIME/HOURS: Two 1-hour 15-minute lectures per week, scheduled on Tuesdays and Thursdays

LABORATORY SESSIONS: Laboratory sessions (two 1-hour 15-minute labs per week) correlating with the weekly lecture contents will be held on Tuesday and Thursday afternoons using a virtual slide collection and online laboratory manual: https://blogs.gwu.edu/smhs-histology/ (Ross Hall, Room 643).

METHOD OF ASSESSMENT: Four multiple choice and short answer written exams worth 75% of the final grade, 4 practical exams (based on the laboratory slides) worth 20% of the final grade, and a written assignment worth 5% of the final grade.

Written Assignment: Three to four (3-4) pages, single spaced comparing and contrasting normal histological structure of your choice to a pathological state of your choice. This should include a description of tissue layers of the organ and tissue type of each layer. You should describe cell types and function of cell types that contribute to overall organ function. In the disease state, you should describe what is different about the tissue and how that affects the organ's function. You may include (not required) causes of the disease and general treatment options for the disease. You may include images to make your point; they are not counted toward the 3-4 page length. You can use journal articles, textbooks, and other sources (Centers for Disease Control and Prevention, American Heart Association, American Cancer Society, etc.). All reference material should be properly attributed, using the format of your choice (just be consistent throughout). References are also not included in the 3-4 page length.

GRADING SCALE:

A (4.0) = 90 – 100	C+ (2.3) = 78 – 78.9
A- (3.7) = 89.0 – 89.9	C (2.0) = 75 – 77.9
B+ (3.3) = 87.0 – 88.9	C- (1.7) = 72 – 74.9
B (3.0) = 80.0 – 86.9	F (0) = < 71.9
B- (2.7) = 79.0 – 79.9	Grades of D+, D, and D- are not used for graduate students at GW

FACULTY:

1) **Robert Hawley, Ph.D.**, Course Director ANAT 6150
   Professor of Anatomy & Cell Biology
   Email: rghawley@gwu.edu

2) **Ahdeah Pajoohesh-Ganji, Ph.D.**, Course Director ANAT 2150
   Associate Professor of Anatomy & Cell Biology
   Email: ahdeah@gwu.edu

3) **Kurt Johnson, Ph.D.**,
   Professor of Anatomy & Cell Biology
   Email: kurtj@gwu.edu

4) **Inhee Chung, Ph.D.**
   Assistant Professor of Anatomy & Cell Biology
   Email: inheec@gwu.edu

5) **Maho Shibata, Ph.D.**
   Assistant Professor of Anatomy & Cell Biology
   Email: mshibata@gwu.edu

6) **Andrew Ferriby, Ph.D**.
   Assistant Professor of Anatomy & Cell Biology
   Email: andrew.ferriby@gwu.edu

TEXTBOOK (Himmelfarb Library online access: unlimited simultaneous users):

Histology: A Text and Atlas by Wojciech Pawlina and Michael H. Ross, 8th ed. Lippincott Williams & Wilkins. ISBN: 9781496383426. This book presents in-depth coverage of the microanatomical, physiological, and clinical aspects of human cells, tissues and organs and is used in the medical microscopic anatomy course. It examines the relationship between basic science and microscopic anatomy and describes potential clinical disorders arising out of cell biological problems, as covered in the course.

There is no need to purchase the textbook. It can be found at the following link:
https://meded-lwwhealthlibrary-com.proxygw.wrlc.org/book.aspx?bookid=2583

HISTOLOGY GUIDES: The following websites can be used to study additional digital slides.
https://www.histologyguide.org//index.html
https://digitalhistology.org/

READING LIST*:* Appropriate Reference Articles (TBD)

CLASS POLICIES
Attendance policy: Mandatory
Late work: Accepted with permission, penalty may be incurred if unduly late as determined by instructor
Religious Holidays: Will be accommodated if requested

ACADEMIC INTEGRITY
"Students are responsible for the honesty and integrity of their own academic work, … Academic integrity violations are cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information."
Please read the entire code: https://studentconduct.gwu.edu/code-academic-integrity-0

SUPPORT FOR STUDENTS OUTSIDE THE CLASSROOM
DISABILITY SUPPORT SERVICES
Any student who may need an accommodation based on the potential impact of a disability should contact the Disability Support Services office at 202-994-8250 in Rome Hall, Suite 102, to establish eligibility and to coordinate reasonable accommodations. For additional information, please refer to:
https://disabilitysupport.gwu.edu/

COUNSELING SERVICES
The University offers 24/7 counseling assistance by calling 201-994-5300. For additional information, please refer to: https://healthcenter.gwu.edu/counseling-and-psychological-services

SAFETY AND SECURITY
For help in an emergency, call 911 or GW Police (202-994-6111).
For additional information on this important topic, please see: https://safety.gwu.edu/

IMPORTANT DATES
September 24, 2023: Last day to drop a course on GWeb
November 5, 2023: Last day to withdraw from a course with a grade of 'W' on GWeb

2023 Class Schedule for Human Microscopic Anatomy (ANAT6150)

Lectures: 9:45 – 11:00 a.m., Tues. & Thurs. in Ross Hall, Room 117 except when indicated below
Labs: 2:15 – 3:30 p.m., Tues. & Thurs. in Ross Hall, Room 643

Week	Date	Topic of Discussion	Faculty
1	Thu; 8/24	**Principles of Microscopy & Tissue Processing** **Cell Organelles I (no lab)**	Dr. Hawley
2	Tue; 8/29 Thu; 8/31	**Cell Organelles II (no lab)** **Epithelium (Dr. Pajoohesh-Ganji covering lab)**	Dr. Hawley Dr. Ferriby
3	Tue; 9/5 Thu; 9/7	**Connective Tissue** **Cartilage & Bone**	Dr. Pajoohesh-Ganji Dr. Johnson
4	Tue; 9/12 Thu; 9/14	**Blood & Bone Marrow** **Exam 1 (15%) & Practical Exam 1 (5%)**	Dr. Hawley
5	Tue; 9/19 Thu; 9/21	**Muscle Tissue** **Nervous Tissue**	Dr. Hawley Dr. Pajoohesh-Ganji
6	Tue; 9/26 Thu; 9/28	**Cardiovascular System** **Lymphoid System**	Dr. Hawley Dr. Johnson
7	Tue; 10/3 Thu; 10/5	**Renal System** **Skin**	Dr. Hawley Dr. Ferriby
8	Tue; 10/10 Thu; 10/12	**Exam 2 (20%) & Practical Exam 2 (5%)** **Fall Break (no class)**	
9	Tue; 10/17 Thu; 10/19	**Upper Gastrointestinal System** **Esophagus & Stomach**	Dr. Johnson Dr. Pajoohesh-Ganji
10	Tue; 10/24 Thu; 10/26	**Small & Large Intestine** **Liver, Pancreas, & Gall Bladder**	Dr. Johnson Dr. Ferriby
11	Tue; 10/31 Thu; 11/2	**Upper Respiratory System** **Lower Respiratory System (Ross Hall, Room 229)**	Dr. Hawley Dr. Hawley
12	Tue; 11/7 Thu; 11/9	**Exam 3 (20%) & Practical Exam 3 (5%)** **Female Reproductive System I**	 Dr. Chung
13	Tue; 11/14 Thu; 11/16	**Female Reproductive System II** **Male Reproductive System**	Dr. Chung Dr. Shibata
14	11/21 & 11/23	**Thanksgiving Break (no class)**	
15	Tue; 11/28 Thu; 11/30	**Pituitary & Pineal Glands** **Thyroid, Parathyroid, & Adrenal glands**	Dr. Pajoohesh-Ganji Dr. Johnson
16	Tue; 12/5 Thu; 12/7	**Eye** **Ear**	Dr. Pajoohesh-Ganji Dr. Johnson
	Mon; 12/11 12/13-12/19	**Written Assignment Due (5%)** **Exam 4 (20%) & Practical Exam 4 (5%)**	