



## MEDICAL HISTOLOGY (MICROSCOPIC ANATOMY) 2022

MEDS 3027C (undergraduate), PMM7007C (graduate)  
Lectures and labs: MSB 4051, T/R 9:30-10:50 am (in-person)  
Course Director: David S. Askew, PhD [David.Askew@uc.edu](mailto:David.Askew@uc.edu)  
MSB 1256A, 558-2395.

### Course description

Medical histology, also known as microscopic anatomy, is a branch of medical science that studies the structure and function of tissues that comprise organ systems. It is one of the most important tools used in anatomic pathology, a medical specialty concerned with the diagnosis of human disease. It is also widely used in biomedical research to understand how genetic manipulation of the laboratory mouse impacts organ system physiology. This course will introduce students to the field of histology and its applications to human medicine and research through lectures, interactive review sessions, hands-on microscopy, and case presentations.

### Integration with other courses in the medical sciences

Histology unites cell biology with microscopic anatomy and organ system physiology. As such, it fits into any curriculum that prepares students for entry into health professions or biomedical PhD programs. The prerequisite is introductory college-level biology, but previous coursework in cell biology or physiology is useful.

### Learning outcomes

After taking this course, the students will be able to:

- Recognize and distinguish the major organ systems at the light microscopic level
- Name the anatomic structures that comprise a tissue/organ and visually locate them on a histologic section

- Integrate the relationship between tissue structure and its function
- Describe how the function of a tissue is regulated
- List the medical and allied health disciplines that use histology for disease diagnosis
- Discuss some of the major pathological processes that are evident by histological analysis
- Compare and contrast the microscopic anatomy of human tissues to those of the mouse

## Textbook

Junquiera's Basic Histology: text and atlas 15e (Anthony L. Mescher), Lange publications. The online version is available at no charge to U.C. students. [histology textbook link](#). If you're off campus, you will need to use the UC off-campus access VPN login. If you have problems, contact the Health Sciences library at 558-5677.

## Lectures

The lectures will be conducted in person. Powerpoints will be posted to Canvas prior to each class, and the lecture will be recorded on Echo360.

## Laboratory

The labs are held in the CVC teaching labs on G-level. Students will have access to individual microscopes and shared slide-sets. The labs involve no biohazard risk because the slides are chemically fixed and sealed. Students may bring their laptops to the lab and use them on the bench.

## Office hours

The instructor is often available after each lecture, but appointments can be scheduled by email request.

## Attendance policy

- Lectures: attendance is not required for the lecture. However, it is highly encouraged because anatomy is like learning a language; repetition is key!
- Labs: Attendance at the labs is required and attendance is taken. Excused absence due to illness or other extenuating circumstances require communication prior to class. Unexpected absences due to emergencies must be reported as soon as possible, and documentation may be required.

## Academic integrity

Institutional policies related to academic integrity will be enforced.

## Accessibility

If a student requires special accommodation, they should meet with the course director before the start of the course to arrange for reasonable provisions to meet course requirements. Some accommodations may require prior approval by U.C. Accessibility Services.

## Grading

There are 3 in-person online exams that together comprise 75% of the total grade (20%, 25% and 30%). Each exam focuses on material since the last exam, but tissue recognition is cumulative. There are no makeup exams or quizzes, extra credit, or curves. Under exceptional circumstances, a student may petition the director to take the exam before a scheduled date. Unexpected absences due to illness must be reported to the course director as soon as possible.

|                                 |                      |
|---------------------------------|----------------------|
| 3 exams, including the final    | 75% (20%, 25%, 30%)  |
| Lab quizzes                     | 25%                  |
| Term paper (grad students only) | 50% of the lab grade |

### NOTE:

- Lab quizzes will open at the end of each lab and are due by the next Sunday at midnight. Late assignments are allowed, but Canvas will apply an automatic penalty of 25%/day. If you complete these at the last minute, and something comes up that prevents you from submitting on time, you will have to accept the late penalty.
- Graduate students: the lab grade (25%) is comprised of 12.5% lab exercises and 12.5% term paper. The paper is in the form of a short (35 page) “editorial commentary” or “research perspective” that highlights a notable publication that used histopathology in the methods. Students may submit a draft of their paper before Exam 2 if they wish to receive constructive feedback prior to final submission (due by the last lab).
- The case presentations (performed in groups) will be based on a student-chosen clinical case that involves histopathology in the diagnostic workup.

|    |        |    |       |    |       |    |       |   |      |
|----|--------|----|-------|----|-------|----|-------|---|------|
| A  | 94-100 | B+ | 87-89 | C+ | 77-79 | D+ | 67-69 | F | 0-59 |
| A- | 90-93  | B  | 84-86 | C  | 74-76 | D  | 64-66 |   |      |
|    |        | B- | 80-83 | C- | 70-73 | D- | 60-63 |   |      |

**What you can expect from this class:**

1. We will start and end on time.
2. We will stick to the syllabus as closely as possible.
3. Emails will be answered within 24 hours during the work week.
4. We will always welcome questions.
5. We will grade exams promptly.
6. We will be respectful, civil, and professional in all student interactions.

**What we expect from students:**

1. Be on time. "5 minutes early is on-time; on-time is late; late is unacceptable".
4. Accept that all course policies apply to all students equally.
5. Be respectful, civil and professional in your dealings with your instructors, and conduct yourself with personal integrity and honesty.

| Week                             | Date    | Topic   |
|----------------------------------|---------|---|
| <b>FUNDAMENTALS OF HISTOLOGY</b> |         |   |
| 1                                | T 01-11 | Intro to histologic analysis<br>Basic tissues: epithelial tissue    |
|                                  | R 01-13 | Basic tissues: connective tissue                                    |
| 2                                | T 01-18 | Basic tissues: muscle tissue<br><b>GROUP 1 HISTO LAB TOUR</b>       |
|                                  | R 01-20 | Basic tissues: neural tissue  |
| <b>ORGAN SYSTEMS</b>             |         |   |
| 3                                | T 01-25 | <b>LAB 1: basic tissues</b>   |
|                                  | R 01-27 | Integumentary system: skin & appendages                             |
| 4                                | T 02-01 | <b>LAB 2: integumentary system</b><br><b>GROUP 2 HISTO LAB TOUR</b> |
|                                  | R 02-03 | Specialized CT: cartilage & bone                                    |
| 5                                | T 02-08 | <b>LAB 3: cartilage &amp; bone</b>                                  |
|                                  | R 02-10 | <b>EXAM 1</b>   |
| 6                                | T 02-15 | Respiratory system  |
|                                  | R 02-17 | <b>LAB 4: respiratory system</b>                                    |
| 7                                | T 02-22 | Endocrine system  |
|                                  | R 02-24 | <b>LAB 5: endocrine</b>   |
| 8                                | T 03-01 | Hematopoietic system-1: blood & BM                                  |
|                                  | R 03-03 | <b>LAB 6: blood &amp; BM</b>  |
| 9                                | T 03-08 | Hematopoietic system-2: lymphoid tissue                             |
|                                  | R 03-10 | <b>EXAM 2</b>   |
| 10                               | T 03-15 | SPRING BREAK  |
|                                  | R 03-17 | SPRING BREAK  |
| 11                               | T 03-22 | <b>LAB 7: lymphoid tissue</b>                                       |
|                                  | R 03-24 | Male reproductive system  |
| 12                               | T 03-29 | <b>LAB 8: male reproductive</b>                                     |
|                                  | R 03-31 | Female reproductive system  |
| 13                               | T 04-05 | <b>LAB 9: female reproductive</b>                                   |
|                                  | R 04-07 | Urinary system & <b>LAB 10</b>                                      |
| 14                               | T 04-12 | GI system-1   |
|                                  | R 04-14 | <b>LAB 11: GI-1</b>   |
| 15                               | T 04-19 | GI system-2   |
|                                  | R 04-21 | <b>LAB 12: GI-2</b>   |
| Exams                            |         | <b>EXAM 3 (FINAL)</b>   |