Welcome to Biol 320: Histology!
Your instructor is Dr. Isaure de Buron: deburoni@cofc.edu

- How will we communicate?
- What will I learn in this course?
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How will we communicate?

I will use OAKS to post announcements, reminders, etc. and I will have virtual office hours set up via zoom each Wednesday 10:30-11:30 am. Just come in!

For course related questions, post your question on the discussion board on OAKS so that other students may answer if they wish; my philosophy is that you are in class to learn and that we all learn by asking questions. The discussion board is a great way for me to detect potential general misconceptions and, if need be, I can clarify something for all. This being said, we also learn best by resolving questions ourselves and I am asking you to make an effort to seek the answer before you ask a question.

If you want to discuss private matters or review exams, email me at: deburoni@cofc.edu and we will schedule a live zoom appointment. Please sign with your full name and indicate Histology in the subject of your message. Typically, I will respond to your email within 24 hours (my response time will be slower on weekends and unless it’s a real emergency I do not respond to emails after 7:00 pm). If you do not receive a reply within 48 hours, please re-send your message.
**Course objectives:** In this course you will learn how to identify tissues and organs via virtual microdissections. This course is designed for students who are planning to major in biology and are interested in the medical, veterinary, or other health related fields. The course includes lectures and laboratories that involve the use of virtual microscopy. The course focuses on the identification of animal tissue and organs, with an emphasis on humans, and an emphasis on understanding the association between structure and function in the major human anatomical systems.

**Learning outcomes:** Upon completion of this Histology course, successful students will demonstrate:
- an understanding of the basic principles of microscopy and histotechniques;
- a knowledge of the morphological characteristics of the four fundamental tissues in vertebrates;
- an understanding of the microanatomy of the principal organs in the vertebrate body;
- an ability to critically observe and identify fundamental tissues and organs on histological sections and micrographs.

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**Course organization**

This is a 4 credit course (lecture + lab): Expect to commit to the class approximately ~9 hrs a week. The course is online and will be conducted asynchronously via OAKS, meaning there are not specific times you must be logged into the course. **However, it is not self-paced.** Because learning histology builds upon itself, course material is organized into modules that must be completed in sequence. You will be able to start accessing the first module only after you pass the syllabus quiz (minimum score of 85%) and only after I release the successive modules in accordance with the course schedule.

Each Monday a new module will open at 8:00 am; for some systems, two modules will open at once; when this occurs, keep listening to lectures and corresponding lab sequentially – Each module has one lecture (sometimes split into several mini-lectures) pre-recorded with Voice thread, a lecture quiz, a lab, and a lab assignment. Some quizzes and some assignments will be combined. See assignments, quizzes, and tests below. You will need to watch the lecture in order to unlock the associated quiz.

Lecture quizzes will be available on Mondays at 2:pm and will be due before labs become available. Labs (zoom recordings) and lab assignments will be available at 2:00 pm on Wednesdays. You will need to watch the lecture(s) in order to unlock the associated labs, and you will need to watch the labs in order to unlock the assignments. Lab assignments will be due by 11:59 pm Sundays.

There will be 3 tests and one final comprehensive exam. All will combine lecture and lab material.

I encourage you to set a weekly schedule to work through the material in order to stay organized. Refer to the course outline. In contents and on p.8 of this syllabus, you will find a simple calendar that I recommend you keep available as a handy reference throughout the term; I also give you tips throughout the syllabus, such as below, to help you stay on task.

**Tip:** As a rule of thumb, I recommend you spend Monday-Tuesday on the lecture material of each module and Wednesday-Friday on the lab material - Of course, this will vary, depending on your time availability. However, remember that the lab will be effective ONLY if you have studied the lecture material prior to ‘stepping into’ the lab; hence study for the quiz.
What are the assignments and the tests?

**Syllabus quiz:** This quiz will have ~10 multiple choice and T/F type questions. It is open notes but you are not allowed to consult other individuals. It will not count towards your final grade. You will be allowed unlimited attempts (~ 20 min each) because you will need a minimum score of 85% to unlock the 1st module. This quiz will open Monday, January 10 at 8:00 am and will be due (and passed) by Tuesday January 18 11:59 pm, which is the last day to add (or drop) the course.

*Tip:* I recommend you take this quiz on the first day of class as soon as you read the syllabus and watch the orientation module so that you get started with the 1st module as soon as possible.

**Module Lecture Quizzes:** Lecture quizzes will be available a few hours after the lecture to give you time to study. They will open each Monday at 2:00 pm, will unlock only after you watch the associated lecture(s) and will be due by 2:00 pm on Wednesday of each week (exceptionally quiz for several modules will be combined - see calendar). This is because labs are most effective if you understand the lecture material before you “step into” the labs (see orientation zoom recording). **Lecture quizzes will be open notes (but not open web and you must work alone)** and typically will be ~ 15-20 Multiple Choice, and True or False questions. These lecture quizzes will be timed (~ 15 min). **No late quiz will be accepted.** I will drop the 2 lowest quiz grades, zero included - By Wednesday ~5:00 pm you will be able to see your grade on OAKS and also which questions you answered incorrectly. I will not provide the correct answers, which you will need to find, as this is an effective way for you to learn. Of course, if material is still unclear after you make an effort to understand your mistake, then contact me to make an appointment and we’ll chat via zoom.

*Be ready for lab:* In order to get the most out of the labs you need to know the histological characteristics of the tissues and organs you will study and it is in the lectures that you acquire this information. **Coming to lab without this knowledge is not beneficial,** whereas if you come to lab knowing what to look for in order to identify X or Y organ, you will be very effective with your time and you will have the satisfaction of being able to apply what you have learned.

**Module lab assignments:** Lab assignments will consist of identification of tissues and organs from micrographs that I will post and labeling of drawings that I will provide. Some assignments combine several modules (see schedule) and for some modules, no assignments will be posted (typically before you have a major test). Lab assignments unlock as soon as you watch the labs and will be due by 11:59 pm the Sunday after they are made available. **No late assignment will be accepted.** I will drop the 2 lowest grades (including zeros for missing assignments). I will do my best to grade these assignments within ~3 days.

*Tip 1:* In order to return your lab assignments in a timely manner this semester, I have to limit them to labeling and identification. However, I strongly recommend that you **draw and label** all tissues and organs you will study in lab. It’s the best way to learn histology! Use you atlas to familiarize yourself to variability both in morphology and stains.

*Tip 2:* I strongly recommend that, if your schedule allows, you plan on being done with your lab assignments before the week end. Do your best to not overlap modules and do not cram all material
before the tests. Histology can be very deceptive. **You may think that it is about photographic memories but it is not. It is about comprehension of microanatomy and critical thinking.**

**Tests:** All tests will **integrate lecture and lab material**, i.e. they will include micrographs for you to identify specific tissues, cells, and/or organs as well as multiple choice, short answers, matching, and True or False types of questions.

- **Test 1 will cover modules 1-7, test 2 will cover modules 8-12, and test 3 will cover modules 13-15.** Expect about 30-40 questions for each test. These tests will be timed (~35-45 min). Once you begin, you will not be able to pause, so plan accordingly. Tests will open on Thursdays at 2:00 pm and will be due by Sunday at 11:59 pm (you will not be able to access the test outside of this window of time). These tests are graded by hand and you will not be able to automatically see the questions that you have answered incorrectly. Feedback will be given individually via zoom session. **It will be your responsibility to schedule such a session. Do not wait the last week of class to do so.**

**Tip:** Don’t cram! Study the material as it is made available. Histology builds upon itself so this is very important. If you feel ready, try to take these tests by Friday afternoon to take an intellectual break over the weekend and be ready to start a new module on Monday.

- **Final test:** The final exam will be comprehensive (modules 1 - 16) and will have a similar format to tests 1-3. It will integrate lecture and lab material - Expect about 55-65 questions and it will take ~70-90 mins. This test will open on Thursday April 28) at 8:00 am and will be due by 11:59 pm on the last day of exams May 2 pm (you will not be able to access the test outside of this window and no late tests will be accepted).

All assignments and quizzes must be YOUR work only. You cannot request help from friends or family members. Your quizzes are open book and notes but not open web!

For tests, you are NOT allowed access to your notes, the atlas, the web, your phone, etc. - only your brain! **You cannot share questions.** Please respect and abide by the **College Honor Code.**

All course material will be made unavailable during the period of availability of the tests.

**Make-up quizzes and Exam policy**

I will drop the 2 lowest lab assignments and 2 lecture quiz grades (zeros included). No late assignments or quizzes will be accepted and these will be graded zero. **Technical difficulties are not valid reasons for missing an assignment or a quiz. You must use a computer (not a cell phone) to take these exams.** Make-up tests only will be given in cases of emergency. If you are experiencing an issue, please talk to me prior to the test if possible so we can determine what, if any, steps can and need to be taken.

**Tip:** Do not leave your quizzes, assignments, and tests until the last minute! Pace yourself when you take the quizzes and tests!
What material do I need to study?

Lectures are pre-recorded via Voice Thread (posted in OAKS content). Within each module, lectures are often divided into topics.

Labs will be pre-recorded via Zoom and I will be using virtual microscopy. The creators of the site histologyguide.org have kindly provided open access to their website. However, the materials must be restricted to internal distribution and cannot be used to create a replacement atlas. This means that you can go to the website and use it to study but it is illegal for any of us to download pics. Please take this restriction seriously - There are plenty of other micrographs on the web available for you to use to study.

I am not requesting you purchase a textbook but you need an atlas. Previous students in the course agree that using an atlas is very important to be successful in this course.

-I don’t request any particular atlas- You can use several to appreciate variability in tissues. Not all atlases provide micrographs at the same magnification, with same stain, etc.... You can purchase the atlas that goes with the above website: Atlas of Human Histology by Robert Sorenson and T. Clark Brelje (3rd edition, University of Minnesota Bookstore - see histologyguide.org to order). There are numerous other atlases that you could use – the more micrographs you see, the better off you will be. Examples are the Color Atlas of Histology by Gartner and Hiatt (Lippincott Williams & Wilkins Pub), the Wheater’s Functional Histology (Churchill Livingstone), or the Junqueira Basic Histology Text and Atlas (Lange). These do not have to be the latest edition but make sure they are in color.

You will need either colored pencils (pink, red, purple, black) and blank paper or a way to draw on a tablet. You will need to post your assignment via the OAKS dropbox (pdf file).

Technology

We will primarily use OAKS, Voice Thread (lectures) and Zoom (labs) for this course, as well as virtual microscopy using histologyguide.org. I will post all lectures, announcements, extra resources, assignments etc., on OAKS, which can be accessed through MyCharleston. If you experience technical difficulties, please contact CofCHelpdesk. If you experience trouble accessing course content, please email me as soon as possible. Please note that computer/internet failure and/or unavailability does not constitute an excuse for failure to complete an assignment on time. If you experience recurrent technical problems that prohibit you from completing multiple assignments, you may be asked to withdraw from the course. Student Support Resources, including workshops and tutorials, may be found at: Student Instructional Technology Services and the Student Instructional Technology Service.
**What other resources can I use to study?**

Here are several histology websites that you may find useful - Please note that this is not an exhaustive list of sites. **Be selective and critical when you navigate the web; preferentially use medical school sites and please share with others and let me know if you find gems!**

- [https://web.duke.edu/histology/VirtualMicroscopy.html](https://web.duke.edu/histology/VirtualMicroscopy.html) Follow directions - **USE MOZILLA FIREFOX** -and I would advise you to use the Aperio IMAGESCOPE (not the WEBScope). I cannot teach with this site b/c I cannot annotate but this is great site for you to practice.
- [https://www.kumc.edu/instruction/medicine/anatomy/histoweb/](https://www.kumc.edu/instruction/medicine/anatomy/histoweb/) This is the University of Kansas Medical School - Not virtual but a good collection of slides

**Grading:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
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<tbody>
<tr>
<td>Syllabus quiz</td>
<td>0 %</td>
</tr>
<tr>
<td>Lecture quizzes (2 lowest dropped)</td>
<td>10 %</td>
</tr>
<tr>
<td>Lab assignments (2 lowest dropped)</td>
<td>10 %</td>
</tr>
<tr>
<td>Test 1: 15 %</td>
<td></td>
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<tr>
<td>Test 2: 20 %</td>
<td></td>
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<tr>
<td>Test 3: 20 %</td>
<td></td>
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<tr>
<td>Final comprehensive test</td>
<td>25 %</td>
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</tbody>
</table>

**Grading Scale:**

- A-: 90-93 %
- A: 94-100 %
- B-: 80-83 %
- B: 84-86 %
- B+: 87-89 %
- C-: 70-73 %
- C: 74-76 %
- C+: 77-79 %
- D-: 60-63 %
- D: 64-66 %
- D+: 67-69 %
- F: < 60 %
What should I do to learn histology well and to succeed in this course?

- Learning how every type of cell in the body works and how these cells form different tissues and specific organs seems at first to be an extremely daunting task. However, if you keep in mind that there are only four basic tissues, it is simply a matter of learning to identify these tissues and how they are combined to form organs, which is related to their function. You will learn about these four tissues early in the course, so make sure you study from the start.

- Histology is about microscope slides and micrographs and requires a lot of repetition. You will be required to visually identify various cell types, tissues types, and organs from a series of virtual slides. Make sure you know the lecture material before you ‘step into’ the lab.

- There is no magic: correct identification takes time, attention to details, and independent practice. The more time you spend analyzing micrographs in histology atlases or on the web, the better the learning will be and the better you will be prepared for the tests. Be able to describe, recognize, identify, differentiate, and infer. In brief, Observe, analyze, and deduce (in this order!) is the motto in histology.

- Histology is about problem solving: Use critical thinking! Do not jump to a conclusion – Take the time to observe, pay attention to details, analyze critically, and then draw a conclusion.

- It is essential that you stay on top of the lectures and assignments. I will post due dates and reminders, but it is your responsibility to make sure you do not get behind (use the calendar!). Do not make the mistake of thinking this is an easy class because we’re meeting online. There is a lot of material and it will take a lot of effort and independent thinking, analysis, and practice on your part to master this material.

*Tip: Build tables where you can clearly enter histological characteristics of the various organs; then you will be able to compare what those organs have in common (e.g., capsule, lobules) but also what makes them unique (e.g., thymic corpuscles, white pulp). Also, draw, draw, draw and label your drawings! If you integrate your knowledge from the lecture (tables) and from the lab (drawings), you then know the histological structures that characterize any organ and if you can visualize from memory such structures (thanks to your drawings), then you optimize your learning.*

*In part from studentconsult.com*
Course outline and assignments schedule (all hours are EST)

No late quizzes, tests, and assignments will be accepted –
Office hour every Wednesday, 10:30-11:30 am

<table>
<thead>
<tr>
<th>Module #</th>
<th>Topic</th>
<th>Lectures: Watch to unlock quiz &amp; lab</th>
<th>Quizzes: Submit before Wednesday 2 pm</th>
<th>Labs: Watch to unlock assignments</th>
<th>Assignments Submit before Sunday 11:59 pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Syllabus</td>
<td>Mon 8:00 am (except *)</td>
<td>Mon 2:00 pm (except *)</td>
<td>Wed 2:00 pm (except *)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Cell &amp; Histotech.</td>
<td>10-Jan</td>
<td>10-Jan*</td>
<td>10-18 Jan*</td>
<td>NONE</td>
</tr>
<tr>
<td>2</td>
<td>Epithelial tissue</td>
<td>18-Jan*</td>
<td>18-Jan*</td>
<td>19-Jan</td>
<td>Will be next week combined with CT</td>
</tr>
<tr>
<td>3</td>
<td>CT</td>
<td>24-Jan</td>
<td>26-Jan</td>
<td>26-Jan</td>
<td>26-Jan</td>
</tr>
<tr>
<td>4</td>
<td>Cartilage</td>
<td>31-Jan</td>
<td>2-Feb</td>
<td>2-Feb</td>
<td>6-Feb</td>
</tr>
<tr>
<td>5</td>
<td>Bone</td>
<td>7-Feb</td>
<td>9-Feb</td>
<td>13-Feb</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Muscle Tissue</td>
<td>14-Feb</td>
<td>16-Feb</td>
<td>16-Feb</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Nervous tissue</td>
<td>21-Feb</td>
<td>Will be next week combined with ‘skin’</td>
<td>23-Feb</td>
<td>Will be next week combined with ‘skin’ - time to take test 1</td>
</tr>
<tr>
<td>8</td>
<td>Blood</td>
<td></td>
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<tr>
<td>9</td>
<td>Circulatory syst.</td>
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</tbody>
</table>

Test 1: lecture + lab integrated modules [1-7]: opens Thursday Feb. 24 @ 2:00 pm- Due by Sunday Feb 27 @ 11:59 pm.

9 + 10: Catch up + skin 28-Feb 28-Feb 2-Mar 2-Mar 6-Mar

Spring break March 7-11 – no class – no quiz – no assignment


12 Endocrine syst. 21-Mar 21-Mar 23-Mar 23-Mar

13 Digest. 1. 28-Mar will be next week combined with ‘Digest 2’ 30-Mar Will be next week - combined with ‘Digest 2’ - time to take test 2

Test 2: lecture + lab integrated modules [8-12]: opens Thursday March 31 @ 2:00 pm- Due by Sunday April 3 @ 11:59 pm.

14 Digest. 2 4-Apr 4-Apr 6-Apr 6-Apr 10-Apr

15 Urinary Syst. 11-Apr 11-Apr 13-Apr 12-Apr 17-Apr

16 Respiratory Syst. 18-Apr NONE 20-Apr

Test 3: lecture + lab integrated modules [13-15]: opens Thursday April 21 @ 2:00 pm - Due Sunday April 24 @ 11:30 pm

Monday April 25 – no new material – open for individual questions

Test Final (comprehensive): opens Thursday April 28 @ 8:00 am - Due Monday May 2 @ 11:59 pm

The course schedule is subject to change and I will notify you via OAKS if changes are necessary.
**Honor Code and Academic Integrity:**
Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved.

Incidents where the instructor determines the student’s actions are related more to misunderstanding and confusion will be handled by the instructor. The instructor designs an intervention or assigns a grade reduction to help prevent the student from repeating the error. The response is recorded on a form and signed both by the instructor and the student. It is forwarded to the Office of the Dean of Students and placed in the student’s file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This status indicator will appear on the student’s transcript for two years after which the student may petition for the XX to be expunged. The F is permanent.

Students can find the complete Honor Code and all related processes in the Student Handbook at [http://deanofstudents.cofc.edu/honor-system/studenthandbook/index.php](http://deanofstudents.cofc.edu/honor-system/studenthandbook/index.php)

**Disability/Access Statements:**
Any student eligible for and needing accommodations because of a disability is requested to speak with the professor during the first two weeks of class or as soon as the student has been approved for services so that reasonable accommodations can be arranged.

**Mental & Physical Wellbeing:**
At the college, we take every students’ mental and physical wellbeing seriously. If you find yourself experiencing physical illnesses, please reach out to student health services (843.953.5520). And if you find yourself experiencing any mental health challenges (for example, anxiety, depression, stressful life events, sleep deprivation, and/or loneliness/homesickness) please consider contacting either the Counseling Center (professional counselors at [http://counseling.cofc.edu](http://counseling.cofc.edu) or 843.953.5640) or the Students 4 Support (certified volunteers through texting "4support" to 839863 or visit [http://counseling.cofc.edu/cct/index.php](http://counseling.cofc.edu/cct/index.php)). You can also visit both on campus on the 3rd floor of Robert Scott Small. These services are there for you to help you cope with difficulties you may be experiencing and to maintain optimal physical and mental health.

**Center for Student Learning:**
The Center for Student Learning’s (CSL) academic support services provide assistance in study strategies, speaking & writing skills, and course content. Services include tutoring, Supplemental Instruction, study skills appointments, and workshops. Students of all abilities have become more successful using these programs throughout their academic career and the services are available to you at no additional cost. For more information regarding these services please visit the CSL website at [http://csl.cofc.edu](http://csl.cofc.edu) or call (843) 953-5635.