

Biology 345: Histology
Spring, 2008

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Office hours: Monday, Tuesday, Wednesday, Friday 8:00-9:00 a.m.

Required text: *Basic Histology*, Junquiera and Carneiro. McGraw Hill, 11th edition. 2005.

Prerequisite: Biology 112 (General Zoology)

Course description:

Histology traditionally was known as the normal microscope anatomy that is revealed by the light microscope. This course will deal with the study of structure but not in isolation from function, since morphology and physiology are intimately related. In other words, we will consider Functional Histology. I will try to present a modern picture of the microscopic and submicroscopic structure of many cells, tissues, and organs in the mammalian body. The tools of histology have changed so that we do not solely rely on the compound light microscope, but microscopic anatomists constantly use the phrases contrast, ultraviolet, transmission and scanning electron microscopies, etc. We will also consider how normal histophysiology is applied to problem-solving in diseases (pathology).

The lab is designed to give you training in the recognition of cells, tissues, and organs. I will also present the principles of microtechniques and may have you prepare some slides with hematoxylin and eosin, and the Periodic Acid Schiff Reaction (PAS). I find modern histology an interesting, exciting part of biology and look forward to sharing my enthusiasm for the subject with you.

Attendance:

I expect you to attend class unless there are extreme extenuating circumstances. Please be on time. Chronic tardiness is rude and distracting to both the instructor and your peers. Missing an exam without a valid excuse means that the exam will be given a score of zero and averaged with other test grades for the semester. In the event that the exam is missed for a valid reason, it will not count against the final average and the remaining test scores will be averaged.

Grading:

There will be three hourly exams. The average of these grades represents two-thirds of your grade, and the laboratory one-third prior to the final exam. The average obtained from these scores will be two-thirds of your final grade, and the end-of-the-term exam counted as one-third. In arriving at the final grade, I will consider intangibles such as interest, industry, neatness, etc.

Honesty policy:

I adhere to the honesty policy formulated by Moravian College. Read the paragraph in the student handbook and carefully consider its statements.

Course objectives:

- A. To re-emphasize the correct use of the light microscope.
- B. To learn some of the basics of fixation, embedding, microtomy, and staining of cells, tissues and organs.
- C. To correlate structure and function (histophysiology) of cells, tissues and organs.
- D. To be able to diagnose “unknown” tissues and organs and provide evidence for your decision.
- E. To be able to recognize in some instances the histopathological nature of certain diseases such as malaria and intestinal disorders.

Cancelled classes:

The Registrar’s Office will post cancelled classes on the intranet. Students and faculty may access this listing from on- or off-campus; a link to the page exists on both the home page and main page of the intranet (link is <http://home.moravian.edu/public/regis/cancellations.htm>). The Registrar’s Office will also notify, via distribution list, key individuals on campus for posting of information about cancelled classes. The distribution list includes the Academic Affairs office, department secretaries, LouAnn Vlahovic (campus operator), and Ann Claussen (Hauptert Union).

Mrs. Vlahovic will also post class cancellations, due to inclement weather, on Moravian’s Weather Hotline (**610-625-7995**).

If the school closes due to inclement weather or another emergency, notification will be posted on the website (listed above), on the Weather Hotline, and on local TV (Channel 69) and radio stations (AM 790, AM 1400, FM 96.1, FM 100.7, and FM 104.1).

Language skills:

Why is spelling important? Imprecision produces confusion. Many biological and/or medical terms are similar; often they have the same Latin or Greek derivations. Notice the similarities associated with creatine and creatinine. If one was ordered as part of a physical exam, would you like to be billed for the wrong test results?

In all professions, written communication is very important. Would you hire someone whose application is filled with grammatical or spelling errors?

TENTATIVE LECTURE SCHEDULE

Mon	Jan	14	Orientation, History, Microscopes
Wed	Jan	16	Epithelium, pp. 66-89
Fri	Jan	18	continued
Mon	Jan	21	No Classes. Observance of Martin Luther King, Jr. holiday.
Wed	Jan	23	Connective tissue, pp. 91-122
Fri	Jan	25	continued
Mon	Jan	28	Cartilage, pp. 128-133
Wed	Jan	30	Bone, pp. 134-148
Fri	Feb	1	Blood, pp. 223-237
Mon	Feb	4	continued
Wed	Feb	6	Malaria
Fri	Feb	8	EXAM #1
Mon	Feb	11	Muscle, pp. 182-204
Wed	Feb	13	continued
Fri	Feb	15	Nerve, pp. 153-180
Mon	Feb	18	Nerve (continued)
Wed	Feb	20	Central nervous system
Fri	Feb	22	Circulatory and Immune systems, pp. 205-223, 254-279
Mon	Feb	25	Circulatory and Immune systems (continued)
Wed	Feb	27	continued
Fri	Feb	29	Review
March	3-7		No Classes. SPRING RECESS
Mon	Mar	10	Skin, pp. 360-372
Wed	Mar	12	continued
Fri	Mar	14	EXAM #2
Mon	Mar	17	Oral cavity, pp. 281-287, 317-320
Wed	Mar	19	Esophagus and stomach, pp. 287-297
Fri	Mar	21	No Classes. GOOD FRIDAY
Mon	Mar	24	No classes. EASTER MONDAY
Wed	Mar	26	Intestines, pp. 298-315
Mon	Mar	31	Parasites of the Intestine
Wed	Apr	2	Liver and gall bladder, pp. 323-338
Fri	Apr	4	Pancreas, pp. 321-323

Mon	Apr	7	Urinary system, pp. 373-390
Wed	Apr	9	continued
Fri	Apr	11	EXAM #3
Wed	Apr	16	Male reproductive system, pp. 418-433
Fri	Apr	18	continued
Mon	Apr	21	Female reproductive system, pp. 435-454
Wed	Apr	23	continued
Fri	Apr	25	Review

TENTATIVE LABORATORY SCHEDULE
(Bring lecture text to the laboratory – Room 302)

January 18	Orientation and epithelia
January 25	Microtomy
February 1	Connective tissue, cartilage, bone
February 8	Blood, malaria
February 15	Nerve preparation, cerebrum, spinal cord, cerebellum, neuroglia
February 22	Aorta, vena cavae, small arteries, small veins
February 29	PRACTICAL EXAM
March 7	No Classes. SPRING BREAK
March 14	Tooth, tongue, parotid, submaxillary, sublingual glands, esophagus
March 21	No Classes. GOOD FRIDAY
March 28	Stomach, small intestine, pancreas, large intestine
April 4	Liver, gall bladder, kidney, ureter
April 11	Testes, epididymis, vas deferens, prostate, seminal vesicle
April 18	Ovary, oviduct, mammary gland, vagina
April 25	PRACTICAL EXAM

Note: Eating, drinking, and smoking are prohibited in lab. At the beginning of the semester, you will be assigned a microscope and box of slides. You are responsible for these items. Microscopes, slide projectors, etc., are never to be taken from the lab or building.