

**COMPARATIVE VERTEBRATE HISTOLOGY**  
**ZOO 4756c**  
**Syllabus for Fall 2018**

**Instructor:** Frank T. Logiudice  
**Office:** Biology Building, Room 202c  
**Office Phone Number:** (407) - 823-2495  
**Email Address:** Frank.Logiudice@ucf.edu  
**Prerequisites:** ZOO 3713c or equivalent  
**Required Text:** *Comparative Veterinary Histology with Clinical Correlates*  
by Aughey and Frye, 1<sup>st</sup> Edition  
ISBN-13: 978-1840761481 and ISBN-10: 1840761482

**Website:** See UCF Webcourses

**Course Description:** Comparative vertebrate histology is a study of vertebrate anatomy on the tissue level. It is a microscopic examination of vertebrate cells, tissues, organs, and organ systems. The course will focus on the diversity of histology across vertebrate classes within organ systems and in its functional and evolutionary significance.

**Grades:** The student's grade will be determined by three lecture exams (worth 100 points each) and three lab exams (also worth 100 points each).

Total points available is 600.

Grading Scale :

A = 600 - 540

B = 539 - 480

C = 479 - 420

D = 419 - 360

F = 359 - 0

Note: +/- grades are not used in this class.

**Attendance:** Due to the volume of material presented during this course, good attendance is a essential ! You alone are responsible for all missed work.

**Make - Up Policy:** Lab exams will not be made up under any circumstances. Lecture exams may be made up at the instructor's discretion. (Note : Such is a rare event.)

**Preparation:** You are expected to be prepared for every class. That includes reading all assigned materials before each lecture and lab session.

**Important Dates:** Add Deadline - Aug. 24  
 Drop Deadline – Aug. 23  
 Withdrawal Deadline – Oct. 26

**Office Hours:** MWF 12:00-1:00 in BL 202c and by appointment

**ZOO 4756c      COMPARATIVE VERTEBRATE HISTOLOGY      FALL 2018**  
**COURSE OUTLINE**

<b>Week</b>	<b>Topics</b>	<b>Text Material</b>
----- UNIT 1 -----		
Aug 19	Introduction to Histology	Ch 1
Aug 26	Epithelial Tissue	Ch 2
Sep 2	Connective Tissues	Ch 3
Sep 9	Special Connective Tissues	Ch 3 & 4
Sep 16	Muscle Tissue	Ch 5
----- UNIT 2 -----		
Sep 23	Nervous Tissue and Nervous System	Ch 13
Sep 30	The Circulatory System	Ch 6
Oct 7	The Lymphatic System	Ch 15
Oct 14	The Respiratory System	Ch 7
Oct 21	The Digestive System	Ch 8
----- UNIT 3 -----		
Oct 28	The Integument	Ch 16
Nov 4	The Urinary System	Ch 9
Nov 11	The Reproductive System	Ch 11 and 12
Nov 18	The Endocrine System	Ch 10
Nov 25	The Special Senses: The Eye and the Ear	Ch 16

**Tentative Lecture and Laboratory Exam Schedule**

	<b>Lecture Exam Date</b>	<b>Laboratory Exam Date</b>
Unit 1:	26 September	25 September
Unit 2:	31 October	30 October
Unit 3:	3 December (10:30-11:30)	27 November

NOTE: The dates for these exams may need to be changed as the semester progresses. If such becomes necessary, you will be notified at the earliest possible time.

Lab	Topics
----- UNIT 1 -----	
Aug 22	<p>Introduction to Histology</p> <p>ML 1442</p> <ul style="list-style-type: none"> <li>• Salamandra, t.s. through thorax and forelegs of larva</li> </ul> <p><i>Plus other slides showing appropriate features</i></p>
Aug 28	<p>Epithelial Tissue</p> <p>ML 1443</p> <ul style="list-style-type: none"> <li>• Squamous epithelium, isolated cells</li> </ul> <p>ML 1444</p> <ul style="list-style-type: none"> <li>• Ciliated epithelium of mammal</li> <li>• Columnar epithelium of mammal</li> <li>• Mammary gland of cow, t.s.</li> <li>• Parotid gland of cat, t.s.</li> </ul> <p><i>Plus other slides showing appropriate features</i></p>
Sep 4	<p>Connective Tissues</p> <p>ML 1443</p> <ul style="list-style-type: none"> <li>• Adipose tissue of mammal, fat stained</li> <li>• Fibrous connective tissue, w.m. from pig mesentery</li> </ul> <p>ML 1444</p> <ul style="list-style-type: none"> <li>• Mucous tissue, t.s. of navel string</li> <li>• Red bone marrow of cow, sec. or smear</li> <li>• White fibrous tissue, l.s. of tendon of cow</li> </ul> <p><i>Plus other slides showing appropriate features</i></p>
Sep 11	<p>Special Connective Tissues</p> <p>ML 1442</p> <ul style="list-style-type: none"> <li>• Gallus, chicken, blood smear, with nucleate red corpuscles</li> <li>• Rana, frog, blood smear, with nucleated corpuscles</li> </ul> <p>ML 1443</p> <ul style="list-style-type: none"> <li>• Blood smear, human</li> <li>• Compact bone of cow, t.s.</li> <li>• Hyaline cartilage of calf, t.s.</li> </ul> <p>ML 1444</p> <ul style="list-style-type: none"> <li>• Bone development, l.s. of fetal finger.</li> <li>• Elastic cartilage, sec. stained for elastic fibers</li> </ul> <p><i>Plus other slides showing appropriate features</i></p>
Sep 18	<p>Muscle Tissue</p> <p>ML 1443</p> <ul style="list-style-type: none"> <li>• Smooth muscles of cat, t.s. and l.s.</li> <li>• Striated muscles of cat, l.s.</li> <li>• Striated muscle of cat, t.s.</li> </ul> <p><i>Plus other slides showing appropriate features</i></p>

----- UNIT 2 -----

Oct 2

Nervous Tissue and Nervous System

ML 1443

- Motor nerve cells, smear from spinal cord
- Nerve fibers isolated, Ranvier's nodes
- Spinal cord of cat, t.s.
- Cerebellum of cat, t.s.
- Cerebrum of cat, t.s.

ML 1444

- Brain of mouse, entire organ l.s.
- Cerebellum, t.s. silver stained for Purkinje cells
- Peripheral nerve of cat or rabbit, l.s.
- Sympathetic ganglion, t.s. multipolar nerve cells

Oct 9

The Circulatory System and the Lymphatic System

ML 1442

- *Gallus*, chicken, blood smear, with nucleate red corpuscles
- *Rana*, frog, blood smear, with nucleated corpuscles

ML 1443

- Blood smear, human
- Artery of cat or rabbit, t.s.
- Vein of cat or rabbit, t.s.

ML 1444

- Heart of mouse, sagittal l.s.
- Heart muscle of cat, l.s. and t.s.
- Lymph gland of cat or rabbit, t.s.
- Red bone marrow of cow, sec. or smear
- Spleen of cat, t.s.
- Thymus gland of cow, t.s. with Hassall bodies
- Vermiform appendix of rabbit, t.s.

Oct 16

The Respiratory System

ML 1442

- *Gallus*, chicken, lung t.s.
- *Rana*, frog, lung t.s., a simple bag-like lung

ML 1443

- Lung of cat, t.s.

ML 1444

- Olfactory region of dog or rabbit, t.s.
- Trachea of rabbit, t.s.

Oct 23

The Digestive System

ML 1442

- *Cyprinus*, carp, small intestine t.s.
- *Cyprinus*, carp, liver t.s.
- *Gallus*, glandular stomach t.s.
- *Rana*, frog, large intestine t.s., with goblet cells
- *Rana*, frog, liver t.s. showing bile ducts

- Rana, frog, stomach t.s.

#### ML 1443

- Tongue of cat, t.s. with cornified papillae
- Fibrous connective tissue, w.m. from pig mesentery
- Stomach of cat, fundic region t.s.
- Small intestine of cat or rabbit, t.s.
- Liver of pig, t.s.
- Pancreas of pig with islets of Langerhans t.s.

#### MS 1444

- Tooth, t.s. through root or crown
- Parotid gland of cat, t.s.
- Esophagus of rabbit, t.s.
- Large intestine (colon) of rabbit, t.s.
- Gall bladder of rabbit, t.s.
- Taste buds in tongue of rabbit (*Papilla foliata*), t.s.

### ----- UNIT 3 -----

#### Nov 6 The Integument

##### ML 1442

- *Cyprinus*, carp, skin t.s..
- Fish scales, cycloid, ctenoid and placoid scales w.m.
- Gallus, chicken, skin with developing feathers t.s. or l.s.
- Gallus, chicken, unfeathered skin of foot t.s.
- Gallus, chicken, wing and down feathers w.m.
- Lacerta, lizard, skin with scales, sagittal l.s.
- Rana, frog, skin t.s. showing glands
- Salamandra, skin with poison glands t.s.

##### ML 1443

- Scalp, human, l.s. of hair follicles

##### ML 1444

- Mammary gland of cow, t.s.
- Nail development of embryo, sagittal l.s.
- Scalp, human, t.s. of hair follicles
- Skin of human palm, t.s.

#### Nov 13 The Urinary System and the Reproductive System

##### ML 1442

- *Cyprinus*, carp, kidney t.s.
- *Cyprinus*, carp, testis t.s. showing spermatozoa
- Gallus, chicken, ovary with developing eggs t.s.
- Rana, frog, kidney t.s.
- Rana, frog, testis t.s. to show spermatogenesis

##### ML 1443

- Kidney of cat, t.s.
- Ovary of rabbit, t.s., developing follicles
- Testis of mouse, t.s., spermatogenesis

##### ML 1444

- Kidney t.s., vital stained with trypan blue showing storage
- Penis of rabbit, t.s.
- Epididymis of rabbit, t.s.
- Ovary with corpus luteum t.s.
- Fallopian tube of pig, t.s.
- Placenta of rabbit, t.s.

- Prostate gland of pig, t.s.
- Sperm smear of bull
- Ureter of rabbit, t.s.
- Urinary bladder of rabbit, t.s.
- Uterus of rabbit, t.s.
- Uterus of rat, containing embryo t.s.
- Vagina of rabbit, t.s.

Nov 20

## The Endocrine System, the Eye and the Ear

### ML 1443

- Pancreas of pig with islets of Langerhans t.s.

### ML 1444

- Adrenal (suprarenal) gland of rabbit, t.s.
- Hypophysis (pituitary body) of cow or pig, l.s.
- Cochlea (internal ear) of Guinea pig, l.s. shows organ of Corti
- Epiphysis (pineal body) of cow or pig, t.s.
- Eye of cat, anterior part with cornea t.s.
- Eye of cat, posterior part with retina t.s.
- Thymus gland of cow, t.s. with Hassall bodies
- Thyroid gland of cow, t.s.

Note: Other slides may be added to the list as appropriate. In particular, for the four basic tissues classes organ system slides can be used to illustrate the various tissue types (ex; the cat lung can be used to show simple squamous epithelium, simple cuboidal epithelium,, hyaline cartilage, and smooth muscle).