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, 1st Edition

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

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

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

**Tentative Lecture and Laboratory Exam Schedule**

<table>
<thead>
<tr>
<th>Lecture Exam Date</th>
<th>Laboratory Exam Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1: 26 September</td>
<td>25 September</td>
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<tr>
<td>Unit 2: 31 October</td>
<td>30 October</td>
</tr>
<tr>
<td>Unit 3: 3 December (10:30-11:30)</td>
<td>27 November</td>
</tr>
</tbody>
</table>

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.
### Course Outline

#### ZOO 4756c
**COMPARATIVE VERTEBRATE HISTOLOGY**  
**FALL 2018**

<table>
<thead>
<tr>
<th>Lab</th>
<th>Topics</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>UNIT 1</strong></td>
</tr>
<tr>
<td>Aug 22</td>
<td>Introduction to Histology</td>
</tr>
<tr>
<td></td>
<td><strong>ML 1442</strong></td>
</tr>
<tr>
<td></td>
<td>• Salamandra, t.s. through thorax and forelegs of larva</td>
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<tr>
<td></td>
<td><em>Plus other slides showing appropriate features</em></td>
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<tr>
<td>Aug 28</td>
<td>Epithelial Tissue</td>
</tr>
<tr>
<td></td>
<td><strong>ML 1443</strong></td>
</tr>
<tr>
<td></td>
<td>• Squamous epithelium, isolated cells</td>
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<tr>
<td></td>
<td><strong>ML 1444</strong></td>
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<tr>
<td></td>
<td>• Ciliated epithelium of mammal</td>
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<tr>
<td></td>
<td>• Columnar epithelium of mammal</td>
</tr>
<tr>
<td></td>
<td>• Mammary gland of cow, t.s.</td>
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<tr>
<td></td>
<td>• Parotid gland of cat, t.s.</td>
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<tr>
<td></td>
<td><em>Plus other slides showing appropriate features</em></td>
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<tr>
<td>Sep  4</td>
<td>Connective Tissue</td>
</tr>
<tr>
<td></td>
<td><strong>ML 1443</strong></td>
</tr>
<tr>
<td></td>
<td>• Adipose tissue of mammal, fat stained</td>
</tr>
<tr>
<td></td>
<td>• Fibrous connective tissue, w.m. from pig mesentery</td>
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<tr>
<td></td>
<td><strong>ML 1444</strong></td>
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<tr>
<td></td>
<td>• Mucous tissue, t.s. of navel string</td>
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<tr>
<td></td>
<td>• Red bone marrow of cow, sec. or smear</td>
</tr>
<tr>
<td></td>
<td>• White fibrous tissue, l.s. of tendon of cow</td>
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<td></td>
<td><em>Plus other slides showing appropriate features</em></td>
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<tr>
<td>Sep  11</td>
<td>Special Connective Tissues</td>
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<tr>
<td></td>
<td><strong>ML 1442</strong></td>
</tr>
<tr>
<td></td>
<td>• Gallus, chicken, blood smear, with nucleate red corpuscles</td>
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<tr>
<td></td>
<td>• Rana, frog, blood smear, with nucleated corpuscles</td>
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<tr>
<td></td>
<td><strong>ML 1443</strong></td>
</tr>
<tr>
<td></td>
<td>• Blood smear, human</td>
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<tr>
<td></td>
<td>• Compact bone of cow, t.s.</td>
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<tr>
<td></td>
<td>• Hyaline cartilage of calf, t.s.</td>
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<tr>
<td></td>
<td><strong>ML 1444</strong></td>
</tr>
<tr>
<td></td>
<td>• Bone development, l.s. of fetal finger.</td>
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<tr>
<td></td>
<td>• Elastic cartilage, sec. stained for elastic fibers</td>
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<tr>
<td></td>
<td><em>Plus other slides showing appropriate features</em></td>
</tr>
<tr>
<td>Sep  18</td>
<td>Muscle Tissue</td>
</tr>
<tr>
<td></td>
<td><strong>ML 1443</strong></td>
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<tr>
<td></td>
<td>• Smooth muscles of cat, t.s. and l.s.</td>
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<tr>
<td></td>
<td>• Striated muscles of cat, l.s.</td>
</tr>
<tr>
<td></td>
<td>• Striated muscle of cat, t.s.</td>
</tr>
<tr>
<td></td>
<td><em>Plus other slides showing appropriate features</em></td>
</tr>
</tbody>
</table>
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.

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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).