

# VEM5115 Introduction to Veterinary Histology and Embryology

SEMESTER: FALL 2021

CREDIT HOURS: 1 CREDIT HOUR

GRADING SYSTEM: A-E GRADING

PHASE: I

## Course Coordinator

Name: Ian K. Hawkins, DVM, DACVP

Phone: 352-294-8300

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Office Location and Hours: V3-159; by appointment.

## Course Description

VEM 5115 introduces the first-year veterinary student to the topics of cellular biology, histologic structure and function, and embryologic development. Essentials of the composition and activities of cells lead to an introduction of the basic tissue types, e.g. connective tissue, muscular (contractile) tissue, nervous (excitatory) tissue, epithelial tissue. This in turn provides the background for an understanding of the cell and tissue interactions that are formative of key events in embryologic development, and provides the background for systems-based anatomic study.

## Student Learning Outcomes

After successful completion of this course, students will be able to:

1. Differentiate among the microscopic anatomic structure of different cells and tissues that comprise the organs of the vertebrate body.
2. Explain the functions of different cells and tissues and their roles in normal physiologic mechanisms.
3. Explain how the functional anatomy of organs is affected by histological and cellular structure.
4. Recognize histochemical techniques that highlight cellular or tissue components or features.
5. Explain how tissues are preserved for histologic processing and sectioning.
6. Describe the structure and function of basic tissue types.
7. Describe the structure and function of mammalian integument.
8. Identify key events in the early development of non-mammalian and mammalian embryos.
9. Define terminology used to describe the events in embryologic development.
10. Identify cellular and molecular mechanisms involved in signaling and induction.
11. Explain how the basic body plan forms.
12. Describe the arrangement of extraembryonic membranes.
13. Describe the macroscopic and microscopic variations in placentation.
14. Describe the mechanisms by which certain developmental abnormalities occur.

## Course Schedule

This weekly schedule contains topics, assignments, and exams. Please refer to Canvas for updates and announcements to any changes to this schedule.

Class meetings (lectures) will be held in Lecture Hall A. The laboratories will be held either in the computer lab or virtually via Zoom Conferences in Canvas; this will be indicated on the schedule below. For laboratories held in the computer lab, the class will be divided for two lab sessions (Group A and Group B). For virtual labs/lectures via Zoom, the College of Veterinary Medicine asks that students, when possible, have cameras turned on for courses in the professional curriculum, which facilitates participation and professional communication. Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

<i>Date and Time</i>	<i>Topic/Module/Unit</i>	<i>Faculty</i>	<i>SLO # Above</i>	<i>Instructional Hours</i>
Aug-23-21 8:30a-9:20a	Lec 1/ Histology/ The Cell Lecture Hall A/Real-Time Delivery	Hawkins	1,2,3	1.0
Aug-23-21 9:30a-10:20a	Lec 2/ Histology/ Connective Tissue Lecture Hall A /Real-Time Delivery	Ossiboff	1-3,6	1.0
Aug-24-21 Group A: 8:30a-10:20a Group B: 10:30a-12:20p	Lab 1/ Histology/ The Cell and Microscope Computer Lab/Real-Time Delivery	Ossiboff, Miller, Hawkins	1,4,5	2.0
Aug-25-21 9:30a-10:20a	Lec 3/ Histology/ Muscle Lecture Hall A /Real-Time Delivery	Hawkins	1-3,6	1.0
Aug-26-21 Group A: 8:30a-10:20a Group B: 10:30a-12:20p	Lab 2/ Histology/ Connective Tissue Computer Lab/Real-Time Delivery	Ossiboff, Miller, Hawkins	1-4,6	2.0
Aug-30-21 9:30a-10:20a	Lec 4/ Histology/ Nervous Tissue Lecture Hall A /Real-Time Delivery	Hawkins	1-3,6	1.0
Aug-31-21 Group A: 8:30a-10:20a Group B: 10:30a-12:20p	Lab 3/ Histology/ Muscle and Nervous Tissue Computer Lab/Real-Time Delivery	Hawkins, Miller	1-4,6	2.0

<i>Date and Time</i>	<i>Topic/Module/Unit</i>	<i>Faculty</i>	<i>SLO # Above</i>	<i>Instructional Hours</i>
Sep-01-21 9:30a-10:20p	Lec 5/ Histology/ Epithelia and Integument Lecture Hall A /Real-Time Delivery	Miller	1-3,6,7	1.0
Sep-02-21 Group A: 8:30a-10:20a Group B: 10:30a-12:20p	Lab 4/ Histology/ Epithelia and Integument Computer Lab/Real-Time Delivery	Miller, Hawkins	1-4,6,7	2.0
Sep-08-21 8:30a-9:20a	Lec 6/ Embryology/ Early Development Lecture Hall A /Real-Time Delivery	Roberts	8,9,10	1.0
Sep-08-21 9:30a-12:20p	Lab 5/ Embryology/ Bastulation, Gastrulation, Neurulation, Body Plan, Clinical Correlates Virtual Laboratory/Real-Time Delivery	Roberts, Miller, Hawkins	8- 11,14	3.0
Sep-09-21 8:30a-9:20a	Lec 7/ Embryology/ Basic Body Plan and Extraembryonic Membranes Lecture Hall A /Real-Time Delivery	Roberts	11,12	1.0
Sep-10-21 8:30a-9:20a	Lec 8/ Embryology/ Implantation, Placentation, Organogenesis Lecture Hall A /Real-Time Delivery	Roberts	13	1.0
Sep-10-21 9:30a-12:20p	Lab 6/ Embryology/ Placentation, Organ Development, Clinical Correlates Virtual Laboratory/Real-Time Delivery	Roberts, Miller, Hawkins	13,14	3.0
Sep-13-21 9:30a-10:20a	Review Session: Histology and Embryology Lecture Hall A/Real-Time Delivery	Hawkins	1-14	1.0
Sep-15-21 8:30a-10:20a	Final Examination On-Line Format	Hawkins	1-14	2.5
		Total		23

## Required Textbooks and/or Course Materials

None

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Young B, O'Dowd G, Woodford P. *Wheater's Functional Histology: A Text and Colour Atlas*, 6<sup>th</sup> Edition, Elsevier, 2014. ISBN-13: 978-0702047473

Bacha WJ, and Bacha LM. *Color Atlas of Veterinary Histology*, 3<sup>rd</sup> Edition, Wiley-Blackwell, 2012. ISBN-13: 978-0470958513

Banks WJ. *Applied Veterinary Histology*, 3<sup>rd</sup> Edition, Mosby, 1993. ISBN-13: 978-0801666100

McGeady TA, Quinn PJ, Fitzpatrick ES, Ryan MT, Kilroy D, Lonergan P. *Veterinary Embryology*, 2<sup>nd</sup> Edition, Wiley-Blackwell, 2017. ISBN-13: 978-1118940617

Noden DM, and de Lahunta A. *The Embryology of Domestic Animals: Developmental Mechanisms and Malformations*. Williams & Wilkins, 1985.

Haley SR, and Kempf SC. *Digital Lab Manual for Vertebrate Development/ Embryology*, 1<sup>st</sup> Edition, 2018. Amazon Kindle, Kindle Edition.

## Methods of Evaluation

Grades will be calculated based on the following:

Item	Weight
Final Exam	100 % (140 points)
Total	100 % (140 points)

One examination will be given at the end of the course. The final examination will be weighted as 10 points per lecture and laboratory session, yielding a total of 140 points for the course. Students will be shown photomicrographs of organs and tissues described in lecture and examined in laboratory, and students will be expected to identify cells, tissues, and/or features of both. The exam will be delivered in Canvas via Examssoft.

## Grading Scheme

Course grades will be assigned based on the following grading scheme. This grading scale is **final**.

Letter	Scale
A	100.00 – 94.00
A-	93.99 – 90.00
B+	89.99 – 87.00
B	86.99 – 84.00
B-	83.99 – 80.00
C+	79.99 – 77.00
C	76.99 – 74.00
C-	73.99 – 70.00
D+	69.99 – 67.00
D	66.99 – 64.00
D-	63.99 – 61.00
E	60.99 – 0

## Curriculum Policies

DVM curriculum policies are consistently held and reinforced across all DVM courses. Please visit the DVM webpage and review the curriculum policies listed within the [Online Student Handbook](#).

## Students with Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting [www.disability.ufl.edu/students/get-started](http://www.disability.ufl.edu/students/get-started). It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester. **Students in UF Health Sciences programs should be mindful that unique course accommodations may not be**

**applicable in a clinical, fieldwork or practicum setting. Thus, planning a semester in advance with the DRC Health Sciences Learning Specialist, Lisa Diekow [ldiekow@ufsa.ufl.edu](mailto:ldiekow@ufsa.ufl.edu) , is highly encouraged.**

The DRC is located on the main UF campus. ASA (Office for Academic and Student Affairs) works closely with the DRC to ensure student accommodations are met in the classroom and during exams. Melissa Pett in ASA assists in coordinating exams and meeting recommended disability-related requirements for students with accommodations ([melissacox@ufl.edu](mailto:melissacox@ufl.edu)).

## Course and Instructor Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available on the [GatorEvals Webpage](#). Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via the [Online Platform](#). Summaries of course evaluation results are available to students at the [GatorEvals Public Results Webpage](#).

# Appendix A: Faculty Lecturers

Name: Dr. Michael Dark (instructor for histology laboratories).

Email: [darkmich@ufl.edu](mailto:darkmich@ufl.edu)

Office Location & hours: VS-2B, by appointment only.

Name: Dr. Ian Hawkins

Email: [iankhawkins@ufl.edu](mailto:iankhawkins@ufl.edu)

Office Location & hours: V3-159, by appointment only.

Name: Dr. Bryce Miller

Email: [miller.bryce@ufl.edu](mailto:miller.bryce@ufl.edu)

Office Location & hours: V3-166, by appointment only.

Name: Dr. Robert Ossiboff

Email: [rossiboff@ufl.edu](mailto:rossiboff@ufl.edu)

Office Location & hours: V3-144, by appointment only.

Name: Dr. John Roberts

Email: [john.roberts1@ufl.edu](mailto:john.roberts1@ufl.edu)

Office Location & hours: V3-148, by appointment only.

# Appendix B: Other Information

None