

Course Syllabus

PCB3713C Cellular & Systems Physiology, Fall 2025

Syllabus Policy

You are solely responsible for reading and following the instructions, guidelines, and schedules in this syllabus, and for checking the e-Learning site at least weekly for announcements regarding any changes. Not having read the information in this syllabus or the announcements will not constitute an excuse for missing an assignment or deadline.

Course Description

How cells, organs, and higher-level systems are integrated and coordinated in the functions of humans and other animals. Emphasis will be placed on the use of model organisms, mathematical models, and the physical sciences to understand the mechanistic basis of normal physiology and dysfunction. 4 credits.

Prerequisites

One semester of general biology (BSC 2010) *and* two semesters of general chemistry (CHM 2046 or CHM 2047 or CHM 2051 or CHM 2096) *and* two semesters of general physics with calculus (PHY 2049 or PHY 2061), all with a minimum grade of C.

Corequisite

None

Course Schedule

- Tuesdays, periods 5-6 (11:45 AM – 1:40 PM) in WEIL-273
- Thursdays, period 5 (11:45 AM – 12:35 PM) in WEIL-279
- Thursdays, period 6 (12:50 PM – 1:40 PM) in WEIL-408

Instructor

- David Julian, Ph.D. (Physiology)
Associate Professor, Departments of Biology and Physiology & Aging
Contact: via Canvas Inbox

Undergraduate TAs

- Antoni Halka
- Jacob Walker

- Sanandan Ojha

Student Hour

Student hours (office hours) are Wednesdays, 3rd period (9:35-10:25 AM) in Bartram Hall 123.

Course Fee

There is no course fee.

Course Objectives

At the end of the course, students should be able to:

- Explain the physiological mechanisms of humans and representative model organisms by applying basic principles of physics, chemistry, and engineering.
- Describe the fundamental mechanisms underlying the normal function of cells, tissues, organs, and organ systems in humans and representative model organisms.
- Explain the basic mechanisms of homeostasis by integrating the functions of cells, tissues, organs, and organ systems.
- Effectively solve basic problems in physiology, working independently and in groups.
- Apply knowledge of functional mechanisms and their regulation to explain the pathophysiology underlying common diseases.
- Generate hypotheses about physiological processes, design experiments to test these hypotheses using dynamic models of physiological systems, and then analyze, interpret, and report experimental results.

Course Materials, Software, and Licenses

Course Lessons

All essential course content is provided in ~60 lessons. Each lesson is organized into slides with narration (as a prerecorded video by the instructor available on the Canvas site). All slides for each lesson are available as PDFs.

Each class "lecture" session has 1-3 assigned lessons. Prior to each class session, you will be expected to have reviewed the assigned lessons. The lessons will continue to be available for self-paced review throughout the semester.

The lessons generally follow the content in the course textbook and use figures from the textbook. However, a significant amount of textbook content is skipped. Most of the text in the lessons is "essential" content for this course, but some of the text is "helpful" content that may provide additional background, context, or an example of an application. The "helpful" text is denoted with grey, italic font. (Note that this text may be considered essential in another course.)

Course Textbook

The primary reference textbook for the course content is *Boron & Boulpaep Concise Medical Physiology*

(published 2021, ISBN: 9780323655309). This textbook is available as an eTextbook (\$64) or as a paperback to purchase (\$73) (e.g.: [purchase and rental option link \(https://www.amazon.com/Boron-Boulpaep-Concise-Medical-Physiology/dp/0323655300/\)](https://www.amazon.com/Boron-Boulpaep-Concise-Medical-Physiology/dp/0323655300/) (<https://www.amazon.com/Boron-Boulpaep-Concise-Medical-Physiology/dp/0323655300/>)). There is also a full (not "concise") version of this textbook (*Boron & Boulpaep Medical Physiology*) that contains the same information along with more advanced material. This full version is also suitable as a primary reference.

Introductory Videos

Most class sessions are associated with one or more recommended *Crash Course* videos. These are generally very good, concise introductions to the course content and should be viewed before reading the relevant textbook chapter. A transcript for each video is available in a Canvas Files folder.

Key Concepts and Learning Outcomes

A list of [key concepts \(https://ufl.instructure.com/courses/547628/files/98982841?wrap=1\)](https://ufl.instructure.com/courses/547628/files/98982841?wrap=1) and a [table of learning outcomes \(https://ufl.instructure.com/courses/547628/files/98982610?wrap=1\)](https://ufl.instructure.com/courses/547628/files/98982610?wrap=1) (<https://ufl.instructure.com/courses/547628/files/98982610/download>) are both available in Canvas Files. Each key concept is associated with a lesson topic. Each learning outcome is ranked by priority (1 = high priority, 4 = low priority) and is associated with a lesson number, topic number, topic, and lesson slide. You are highly recommended to utilize these when reviewing the course material and when checking your mastery of the course content.

Active Learning System

We will be using iClicker for class participation. You will be able to submit answers to in-class questions online using your computer (and via Apple or Android smartphones and tablets, but these will likely be irrelevant for class activities). To login, go to iclicker.com, sign in as a student, choose the option at the bottom to sign in using the campus portal, click on University of Florida, and then add this course.

Should you require assistance with iClicker at any time, you can contact their Support Team directly by email or the in-app support. Specific user information may be required by their technical support team when troubleshooting issues.

Other Content

All other required digital content will be accessible from the course eLearning site.

Activities and Assessments

In addition to instructor lesson videos and textbook reading, course activities will include in-class lessons, in-class problem-based learning ("active learning" questions), and asynchronous (out-of-class) problem-based learning.

Problem-based Learning

During the "lecture" sessions, you will participate in problem-based learning (PBL), during which you will be

asked to work with your classmates to answer questions and solve problems. You will use Canvas and the iClicker system to submit answers. You must be in attendance *in person* to participate in any in-class activity. Attempting to answer in-class (synchronous) PBL questions remotely may be interpreted as cheating.

Laboratory Sessions

There will be a one-period laboratory session each Thursday (except on the midterm exam day). These are "dry-lab" sessions in which you will typically use high-fidelity computer models of human physiology to conduct experiments, collect data, and interpret the results. You must be in attendance *in person* to participate in any laboratory activity. Attempting to answer laboratory questions remotely may be interpreted as cheating.

Exams

There will be a midterm exam and a final exam. These will consist of knowledge-check and problem-based questions with a variety of question types: short answer, multiple choice, fill-in-the-blank, ordering, and numeric (calculation). The midterm will cover all course material up to the exam date and will be administered during a normal lecture session (115 minutes in duration). It will be worth 100 points. The final exam will cover all course material from the entire term, but will focus primarily on the last half of the course. It will also be worth 100 points, but it will be administered during the final exam period (2 hours duration). Both exams will be closed-book, and you will not be allowed to use notes, but you may be expected to utilize the physiology simulation software to answer some of the questions.

Portions of each exam will be completed collaboratively. Your total score for each exam will be weighted as 80% from your individual exam score and 20% from your collaborative exam score.

You will complete each exam using a classroom computer (you may not use a personal computer). You will be given access to the on-screen scientific calculator within the Canvas quiz environment, and you will be provided a sheet of scratch paper that you must return at the end of the exam. You must bring your own pen or pencil if you plan to use the scratch paper.

Grading

Assessments

Assessment Type	Quantity	Points	Subtotal	Pct of Total
PBL Sessions	26	5-8	140	35%
Laboratory Sessions	12	5	60	15%
Midterm Exam (Indiv.)	1	80	80	20%
Midterm Exam (Collab.)	1	20	20	5%

Final Exam (Indiv.)	1	80	80	20%
Final Exam (Collab.)	1	20	20	5%
Total			400	100%

Grade Distribution

Point Range (%)	Letter Grade
93.33 or higher	A
90-93.32	A-
86.66-89.99	B+
83.33-86.65	B
80-83.32	B-
76.66-79.99	C+
73.33-76.65	C
70-73.32	C-
66.66-69.99	D+
63.33-66.65	D
60-63.32	D-
< 60	E

Grades will not be assigned by a curve, but the grade cutoffs may be adjusted downward. In other words, if your final point accumulation is 93.33%, then you are guaranteed to receive an A. This means there is no upper limit to the number of "A" grades that can be assigned.

A "C-" is not a qualifying grade for critical tracking courses at UF. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). A "C-" average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. More information on grades and grading policies is here: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx> (<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>)

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Extra Credit

There will be extra credit class assignments for up to 5% of the total points. No extra credit assignments will be provided for individual requests.

Time Commitment

The UF College of Liberal Arts and Sciences assumes that you will devote 3-4 hours per week per credit hour to each course during the regular fall and spring semesters. This course is 4 credits, so you should therefore expect to devote 12-16 hours per week to this course (for a total of 180-240 hours over the semester), of which only 4 hours per week will be spent in class. Therefore, you are responsible for budgeting more than 2/3 of the time you will spend on this course. If you find yourself spending more than 16 hours per week on average, discuss this with your course instructor to see if you can refine your work and study habits. If you find yourself spending less than 12 hours per week on average, you should recognize that you may have difficulty fully learning and comprehending the material in this time, which will probably be reflected in poor performance on the various activities and assessments, causing you to receive a lower overall course grade.

Activity	Minimum Time (Hours)
In-class lectures and PBL	39
Viewing lessons	50
Laboratory	12
Textbook reading	50
Reviewing notes	25
Midterm exam	2
Final exam	2

Total	180
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Communication

Updates and changes to the course schedule, this syllabus, and any other aspects of the class content and structure will be communicated to you via announcements on the course e-Learning site. You are responsible for checking this site regularly for announcements.

Communicating Electronically with the Instructor

Direct messages to Dr. Julian or the UGTAs should be via **Canvas email** (the Inbox tool). If you use any other email tool (such as UF email), it may be filtered as spam or otherwise not be seen.

Course Policies

Class Participation

Role will not be taken, but all class meetings will include points for in-class PBL and laboratory activities, for which you must be present *in person* to participate.

Absences and Make-up Work

- Requirements for class attendance and make-up exams, assignments, and other work are consistent with [university attendance policies \(https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/\)](https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/) (<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>).
- If you have an excused absence, course materials will be provided to you, and you will be given a reasonable amount of time to complete any make-up work. Refer to the above link for more information on the university's attendance policy.
- If you must miss an assignment or exam due to an otherwise allowable **scheduled** absence (for example, to participate in a sanctioned university function), you must notify the instructor as soon as the event is scheduled or during the first week of classes.
- If you miss an assignment or exam due to an allowable but unscheduled and unpredictable absence (e.g., illness), you must contact the instructor as soon as possible. In the case of illness unrelated to COVID-19, you must provide a signed note from your primary care provider indicating that you were unable to complete the assignment or take the exam on the day(s) in question.

Late Work

- Late work will not be accepted unless it is the direct result of an allowable but unscheduled and unpredictable absence (e.g., illness), as defined above, at the discretion of the instructor.

Academic Policies:

- Requirements for class attendance and make-up exams, assignments, and other work in the course are

consistent with university policies. [See UF Academic Regulations and Policies for more information regarding the University Attendance Policies.](https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/) [↗\(https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/\)](https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/)

- Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. [See the “Get Started With the DRC” webpage on the Disability Resource Center site](https://disability.ufl.edu/get-started/) [↗\(https://disability.ufl.edu/get-started/\)](https://disability.ufl.edu/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.
- Information on current UF grading policies for assigning grade points. This may be achieved by including [a link to the University grades and grading policies.](https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/) [↗\(https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/\)](https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/)
- The University's Honesty Policy regarding cheating, plagiarism, etc.:

UF students are bound by The Honor Pledge, which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. [See the UF Conduct Code website for more information](https://sccr.dso.ufl.edu/process/student-conduct-code/) [↗\(https://sccr.dso.ufl.edu/process/student-conduct-code/\)](https://sccr.dso.ufl.edu/process/student-conduct-code/) . If you have any questions or concerns, please consult with the instructor or TAs in this class.

- In-Class Recording:

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal education use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor. A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by an instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course.

A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class, or between a student and the faculty or guest lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Academic Resources:

- E-learning technical support: Contact the [UF Computing Help Desk](http://helpdesk.ufl.edu/) [↗](http://helpdesk.ufl.edu/) at [352-392-4357](tel:352-392-4357) [↗](https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/352-392-4357) or via e-mail at helpdesk@ufl.edu (<mailto:helpdesk@ufl.edu>) .
- **Career Connections Center:** [↗](https://career.ufl.edu/) Reitz Union Suite 1300, [352-392-1601](tel:352-392-1601) [↗](https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/352-392-1601). Career assistance and counseling services.
- **Library Support:** [↗](https://cms.uflib.ufl.edu/ask) Various ways to receive assistance with respect to using the libraries or finding resources. Call [866-281-6309](tel:866-281-6309) [↗](https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/866-281-6309) or email ask@ufl.libanswers.com (<mailto:ask@ufl.libanswers.com>) for more information.
- **Academic Resources:** [↗](https://academicresources.clas.ufl.edu/) 1317 Turlington Hall, Call [352-392-2010](tel:352-392-2010) [↗](https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/352-392-2010), or to make a private appointment: [352- 392-6420](tel:352-392-6420) [↗](https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/352-%20392-6420). Email contact: teaching-center@ufl.edu (<mailto:teaching-center@ufl.edu>). General study skills and tutoring.
- **Writing Studio:** [↗](https://writing.ufl.edu/writing-studio/) Daytime (9:30 am-3:30 pm): 2215 Turlington Hall, [352-846-1138](tel:352-846-1138) [↗](https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/352-846-1138) | Evening (5:00 pm-7:00 pm): 1545 W University Avenue (Library West, Rm. 339). Help with brainstorming, formatting, and writing papers.
- Academic Complaints: Office of the Ombuds; [Visit the Complaint Portal webpage for more information.](#) [↗](https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/ts%20with%20disabilities%20who%20experience%20learning%20barriers%20and%20would%20like%20to%20r)
- Enrollment Management Complaints (Registrar, Financial Aid, Admissions): [View the Student Complaint Procedure webpage for more information.](#) [↗](https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/ts%20with%20disabilities%20who%20experience%20learning%20barriers%20and%20would%20like%20to%20r)
- UF Student Success Initiative: Visit <https://studentsuccess.ufl.edu/> [↗](https://studentsuccess.ufl.edu/) for resources that support your success as a UF student.

Campus Health and Wellness Resources:


- UF Whole Gator Resources: Visit <https://one.ufl.edu/whole-gator/discover> [↗](https://one.ufl.edu/whole-gator/discover) for resources that are designed to help you thrive physically, mentally, and emotionally at UF.

Course Evaluation Process

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online. Students can complete evaluations in three ways:

1. The email they receive from GatorEvals
2. Their Canvas course menu under GatorEvals
3. The central portal at <https://my-ufl.bluera.com> [↗](https://my-ufl.bluera.com)

Guidance on how to provide constructive feedback is available at <https://gatorevals.ua.ufl.edu/students/> [↗](https://gatorevals.ua.ufl.edu/students/)

(<http://%20https://gatorevals.aa.ufl.edu/students/>). Students will be notified when the evaluation period opens. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>  (<https://gatorevals.aa.ufl.edu/public-results/>).

Procedure for Conflict Resolution

As per UF policy, any classroom issues, disagreements, or grade disputes should be discussed first between the instructor and the student. If the problem cannot be resolved, please contact the Undergraduate Coordinator or the Department Chair. Be prepared to provide documentation of the problem, as well as all graded materials for the semester. Issues that cannot be resolved departmentally will be referred to the University Ombuds Office (www.ombuds.ufl.edu (<http://www.ombuds.ufl.edu>) (<http://www.ombuds.ufl.edu>) ; 392-1308) or the Dean of Students Office (www.dso.ufl.edu (<http://www.dso.ufl.edu>) (<http://www.dso.ufl.edu>) ; 392-1261).

Course Schedule (subject to change)

Wk#		Date	Pre-Class Content "Topic (Chapter) [links]" <i>Crash Course A&P videos (recommended but not required)</i>	Laboratory
1	1	21-Aug	<ul style="list-style-type: none"> • Introduction to course structure • General principles and foundations (1) [slides, no video] • Homeostasis and Feedback [slides] • <i>Introduction to Anatomy & Physiology</i> (CC A&P #1) 	<ul style="list-style-type: none"> • Lab 1
2	2	26-Aug	<ul style="list-style-type: none"> • Cell structure (2) [slides video] • <i>Water</i> (CC Biol #2) • <i>Biological Molecules</i> (CC Biol #3) • <i>Animal Cells</i> (CC Biol #4) • <i>Membranes & Transport</i> (CC Biol #5) • <i>ATP & Respiration</i> (CC Biol #7) 	<ul style="list-style-type: none"> •
	3	28-Aug	<ul style="list-style-type: none"> • Signal transduction (3) [slides video] • Gene expression (4) [slides video] • Transport of solutes and water (5) [slides video] • <i>DNA Transcription & Translation</i> (CC Biol #11) 	<ul style="list-style-type: none"> • Lab 2
3	4	02-Sep	<ul style="list-style-type: none"> • Membrane potential (6) [slides video] • Action potentials (7) [slides video] • <i>The Nervous System, Part 1</i> (CC A&P #8) • <i>The Nervous System, Part 2 - Action Potential</i> (CC A&P #9) • <i>Clinical case study terminology</i> (slide) 	<ul style="list-style-type: none"> •
	5	04-Sep	<ul style="list-style-type: none"> • Synaptic transmission (8) [slides video] • Nervous system organization (10) [slides video] • <i>The Nervous System, Part 3 - Synapses</i> (CC A&P #10) 	<ul style="list-style-type: none"> • Lab 3
4	6	09-Sep	<ul style="list-style-type: none"> • Neurons (12) [slides video] • Neuronal synapses (13) [slides video] • <i>Central Nervous System</i> (CC A&P #11) 	<ul style="list-style-type: none"> •

	7	11-Sep	<ul style="list-style-type: none"> Autonomic nervous system (14) [slides video] Sensory transduction (15) [slides video] <i>Peripheral Nervous System</i> (CC A&P #12) <i>Autonomic Nervous System</i> (CC A&P #13) <i>Sympathetic Nervous System</i> (CC A&P #14) <i>Parasympathetic Nervous System</i> (CC A&P #15) <i>Taste & Smell</i> (CC A&P #16) <i>Hearing & Balance</i> (CC A&P #17) <i>Vision</i> (CC A&P #18) 	<ul style="list-style-type: none"> Lab 4
5	8	16-Sep	<ul style="list-style-type: none"> Muscle cells (9) [slides video] Central nervous system circuits (16) [slides video] <i>Muscles, Part 1 - Muscle Cells</i> (CC A&P #21) <i>Muscles, Part 2 - Organismal Level</i> (CC A&P #22) 	<ul style="list-style-type: none">
	9	18-Sep	<ul style="list-style-type: none"> Blood (18) [slides video] <i>Blood, Part 1 - True Blood</i> (CC A&P #29) <i>Blood, Part 2 - There Will Be Blood</i> (CC A&P #30) Oxygen and carbon dioxide transport (29) [slides video] 	<ul style="list-style-type: none"> Lab 5
6	10	23-Sep	<ul style="list-style-type: none"> Respiratory system organization (26) [slides video] Mechanics of ventilation (27) [slides video] <i>Respiratory System, Part 1</i> (CC A&P #31) <i>Respiratory System, Part 2</i> (CC A&P #32) 	<ul style="list-style-type: none">
	11	25-Sep	<ul style="list-style-type: none"> Gas exchange (30) [slides video] Lung ventilation and perfusion (31) [slides video] 	<ul style="list-style-type: none"> Lab 6
7	12	30-Sep	<ul style="list-style-type: none"> Respiratory acid-base regulation (28) [slides video] 	<ul style="list-style-type: none">
	13	02-Oct	<ul style="list-style-type: none"> Control of ventilation (32) [slides video] 	<ul style="list-style-type: none"> Lab 7
8	14	07-Oct	<ul style="list-style-type: none"> Midterm exam: 11:45 AM-1:40 PM, normal class location 	<ul style="list-style-type: none">
	15	09-Oct	<ul style="list-style-type: none"> Cardiovascular system organization (17) [slides video] Arteries and veins (19) [slides video] Microcirculation (20) [slides video] <i>Blood Vessels, Part 1 - Form and Function</i> (CC A&P #27) <i>Blood Vessels, Part 2</i> (CC A&P #28) <i>Lymphatic System</i> (CC A&P #44) 	<ul style="list-style-type: none"> Lab 8

9	16	14-Oct	<ul style="list-style-type: none"> Cardiac electrophysiology (21) [slides video] 	•
	17	16-Oct	<ul style="list-style-type: none"> The heart as a pump (22) [slides video] Regulation of MAP and cardiac output (23) [slides video] <i>The Heart, Part 1 - Under Pressure</i> (CC A&P #25) <i>The Heart, Part 2 - Heart Throbs</i> (CC A&P #26) 	• Lab 9
10	18	21-Oct	<ul style="list-style-type: none"> Integrated control of the cardiovascular system (25) [slides video] 	•
	19	23-Oct	<ul style="list-style-type: none"> Urinary system organization (33) [slides video] GFR and RBF (34) [slides video] <i>Urinary System, Part 1</i> (CC A&P #38) <i>Urinary System, Part 2</i> (CC A&P #39) 	• Lab 10
11	20	28-Oct	<ul style="list-style-type: none"> Renal sodium and chloride transport (35) [slides video] Renal potassium transport (37) [slides video] Renal urea and organic molecule transport (36) [slides video] 	•
	21	30-Oct	<ul style="list-style-type: none"> Urine concentration and dilution (38) [slides video] Renal acid and base transport (39) [slides video] Integration of salt and water balance (40) [slides video] 	• Lab 11
12	22	04-Nov	<ul style="list-style-type: none"> Endocrine system organization and control (47) [slides video] <i>Endocrine System, Part 1 - Glands & Hormones</i> (CC A&P #23) <i>Endocrine System, Part 2 - Hormone Cascades</i> (CC A&P #24) 	•
	23	06-Nov	<ul style="list-style-type: none"> Endocrine regulation of growth and body mass (48) [slides video] Thyroid gland (49) [slides video] 	• Lab 12
13		11-Nov	<ul style="list-style-type: none"> Holiday 	•
	24	13-Nov	<ul style="list-style-type: none"> Adrenal gland (50) [slides video] Endocrine pancreas (51) [slides video] Parathyroid glands and vitamin D (52) [slides video] <i>The Skeletal System, Part 1 - Bones</i> (CC A&P #19) <i>The Skeletal System, Part 2 - Joints</i> (CC A&P #20) 	• Lab 13
14	25	18-Nov	<ul style="list-style-type: none"> Gastrointestinal system organization (41) [slides video] Gastric function (42) [slides video] Pancreatic and salivary glands (43) [slides video] <i>Digestive System, Part 1</i> (CC A&P #33) <i>links to an external site</i>) <i>Digestive System, Part 2</i> (CC A&P #34) <i>Links to an externa</i> <i>Digestive System, Part 3</i> (CC A&P #35)) 	•

	26	20-Nov	<ul style="list-style-type: none"> Intestinal fluid and electrolyte movement (44) [slides video] Nutrient digestion and absorption (45) [slides video] Hepatobiliary function (46) [slides video] Sexual differentiation (53) [slides video] <i>Metabolism & Nutrition, Part 1 - Anabolism</i> (CC A&P #36) <i>n external site Metabolism & Nutrition, Part 2 - Catabolism</i> (CC A&P #37) 	<ul style="list-style-type: none"> Lab 14
		25-Nov	<ul style="list-style-type: none"> Holiday 	
		27-Nov	<ul style="list-style-type: none"> Holiday <i>ks to an external sit</i> 	<ul style="list-style-type: none">
15	27	02-Dec	<ul style="list-style-type: none"> Menstruation and ovulation (55) [slides video] Fertilization and pregnancy (56) [slides video] Immune system [slides] <i>Reproductive System, Part 1 - Female Reproductive System</i> (CC A&P #40) <i>Reproductive System, Part 2 - Male Reproductive System</i> (CC A&P #41) <i>Reproductive System, Part 3 - Sex & Fertilization</i> (CC A&P #42) <i>Reproductive System, Part 4 - Pregnancy & Development</i> (CC A&P #43) <i>Immune System, Part 1 - Innate Defenses</i> (CC A&P #45) <i>Immune System, Part 2 - Adaptive Defenses</i> (CC A&P #46) <i>Immune System, Part 3 - Cell Mediated Defense</i> (CC A&P #47) 	
	28	04-Dec	Reading Day (no class meeting)	
		12-Dec	Final Exam: 7:30 AM - 9:30 AM, WEIL-408	