

UNIVERSITY OF FLORIDA
Department of Applied Physiology and Kinesiology

APK 2105C: APPLIED HUMAN PHYSIOLOGY W/ LAB – SPRING 2019

Instructor: Diba Mani, Ph.D.
E-Mail: dmani@ufl.edu (course communication preferred via CANVAS)
Office: FLG 131
Office Hours: Posted in CANVAS and by appointment

Lecture: MWF 10:40-11:30 AM (Period 4) in WEIM 1064

| Class No. | Section | Lab Day and Time (Period) | Location |
|-----------|---------|--------------------------------------|----------|
| 10753 | 0247 | Monday 8:30-10:25 AM (Periods 2-3) | FLG 107E |
| 10754 | 0250 | Thursday 9:35-11:30 AM (Periods 3-4) | FLG 107E |
| 10755 | 0275 | Tuesday 7:25-9:20 AM (Periods 1-2) | FLG 107E |
| 10762 | 2052 | Friday 7:25-9:20 AM (Periods 1-2) | FLG 107E |
| 10766 | 2057 | Thursday 7:25-9:20 AM (Periods 1-2) | FLG 107E |
| 10704 | 4710 | Wednesday 1:55-3:50 PM (Periods 7-8) | FLG 107E |
| 10706 | 4807 | Friday 8:30-10:25 AM (Periods 2-3) | FLG 107D |
| 10707 | 4838 | Monday 8:30-10:25 AM (Periods 2-3) | FLG 107D |
| 10708 | 4844 | Tuesday 12:50-2:45 PM (Periods 6-7) | FLG 107E |
| 10709 | 4868 | Tuesday 9:35-11:30 AM (Periods 3-4) | FLG 107D |

Course Format:

Students are expected to attend live lectures three times each week (MWF Period 4) in WEIM 1064 and live lab once each week (2 period-block as per section enrollment). Students should read required textbook pages, print out or download PDF lecture slides, and complete the appropriate PhysioEx lab module before coming to lecture or lab.

Location: All lectures and examinations take place in WEIM 1064 during Period 4 (10:40-11:30 AM) on Mondays, Wednesday, and Fridays. Homework and lab activities are completed independently outside the classroom. The final exam (non-cumulative “Exam 4”) will take place on Thursday, May 2nd 10:00 AM-12:00 PM (noon).

Communication:

Students are responsible for checking announcements and course postings online (E-Learning (CANVAS: <https://lss.at.ufl.edu/>)). Grade discrepancies must be discussed with the instructor as they appear, but no later than the last day of class. When e-mailing the instructor, please clarify the course in the subject line (i.e. APK 2105C, Physiology). Preference for communication is via CANVAS messaging.

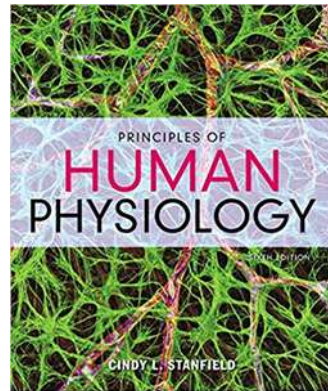
Course Description:

This physiology course will introduce students to the functions of the human body at the cellular, tissue, organ, systemic, and organismal levels with heavy emphasis on mechanisms of action.

Prerequisites: None.

Required Material:

Stanfield, Cindy L. *Principles of Human Physiology* 6th edition. Mobile, AL: Pearson, 2017.



Mastering A&P online program access. Students may “opt-in” to acquire access via link in CANVAS for a reduced price and pay for these materials through their UF student account, which gives access to an e-version of the textbook and access to Mastering A&P. To do this, log into your CANVAS account and navigate to the APK 2105C course homepage. On the left-hand side of the window, select “My Lab and Mastering”, and then follow the prompts accordingly. Students who do not choose this option will be able to purchase an access code through the UF Bookstore. Both options provide access to the same online materials. There will also be a discounted, loose-leaf version print version of the textbook available at the UF Bookstore for students who would like a physical text for the course.

Attendance: Try your best to attend all lectures. Although attendance is not required, it will no doubt promote your success in this course. Reviewing the textbook is absolutely imperative for performing well in this course, as lectures will not be all-inclusive of content in the textbook. Any sections not being tested on will be noted on E-Learning.

Lecture video links are for use only by students currently registered for the WEB section of APK2105C. Watching the video lectures should NOT be substituted for attending live lectures as content and emphases in the live lectures may deviate from pre-recorded lectures. Saving, sharing or posting of these lecture videos anywhere is strictly prohibited and will be processed as an Honor Code violation.

Attendance will be taken in lab, so attend the section for which you are enrolled. If you have to miss your lab for any reason, please make arrangements with your TA to attend another lab section that week. You must also fill out a lab make-up form (found in CANVAS) and have the TA of the lab section you attended instead of your own sign it, and then return it to your TA. More than one un-made-up lab will result in a partial letter grade penalty. For example, if you earned a B+ in the course, but missed two labs that were not made-up by attending another section, you would receive a B in the course. Participation points cannot be made-up unless the absence to lab was excused. The following are not excuses for missing lab: work, volunteer position, vacation.

Personal Conduct Policy:

Students are expected to exhibit behaviors that reflect highly upon themselves and the University of Florida:

- **Read and refer to the syllabus for all course policies, exam dates and deadlines**
- Arrive to lecture and lab on time (*before* the class is set to begin)
- Show respect for the authority of the course instructor, graduate TAs and undergraduate TAs through politeness and use of proper titles
- Use professional, courteous standards for all emails and discussions:
 - Descriptive subject line
 - Address the reader using proper title and name spelling
 - Body of the email should be concise but have sufficient detail
 - Give a respectful salutation (e.g., thank you, sincerely, respectfully)
- Refrain from texting or social media during class/lab instruction time
- Avoid personal conversations during class and lab instruction time
- Adherence to the UF Student Honor Code: <https://sccr.dso.ufl.edu/process/student-conduct-code/>
 - Honor code violations of any kind will not be tolerated and sanctions will be determined by the course instructor for first-time violators
 - Any use, access, or handling of technology during an exam will result in a zero on the exam **and** potential failure of the course
 - All allegations, regardless of the severity, will be reported to the Dean of Students Office for University-level documentation and processing
 - **Any and all lecture video links are for the specific use by students that are currently registered for the WEB section of APK2105C.**

Grading: Final grade based on scores for exams, lab quizzes/assignments, PhysioEx lab modules, lab participation, homework, and the syllabus quiz. Grading is in alignment with University of Florida policies: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>. Grade distribution in this course:

| Evaluation Components | Points Possible (out of 605) | % of Total Grade |
|------------------------------|----------------------------------|-------------------|
| Lecture Exams (4) | 50 pts X 4 exams = 200 pts | 200 / 605 = 33.1% |
| Lab Quiz/Lab Assessment (10) | 10 pts X 10 quizzes = 100 pts | 100 / 605 = 16.5% |
| Lab Modules (PhysioEx) (7) | 10 pts X 7 modules = 70 pts | 70 / 605 = 11.6% |
| Lab Participation (13) | 5 pts X 13 labs = 65 pts | 65 / 605 = 10.7% |
| Homework (4) | 40 pts X 4 assignments = 160 pts | 160 / 605 = 26.4% |
| Syllabus Quiz (1) | 10 pts X 1 quiz = 10 pts | 10 / 605 = 1.7% |

1. Syllabus Quiz: The syllabus quiz will consist of 10 questions, 1 point per question. Students will be given an unlimited number of attempts on the quiz and to access all course material, students must receive a score of 10 points. It is recommended that students complete the quiz as soon as possible in order to unlock the course material. The quiz will be available before the first day of classes.
2. Exams: Each exam will consist of 40 questions, 1.25 points per question. Questions will be multiple choice and true/false format. Students are not permitted access to any kind of materials or notes during these exams. Exam questions are generated by the course instructor and the majority of focus should be given to the lecture notes when studying. Students will be allowed 50 minutes to complete the exam.
3. Homework: Each of the four homework assignments is due according to the dates specified in the course schedule (11:59 PM the evening prior to the day of each exam, except Homework 4, which will be due on last day of class). Homework assignments will be **open for several weeks prior to their due date**. It will be the student's responsibility to know the due dates and to complete the homework assignment in a timely manner. **Requests for homework assignment due date extensions will be denied**. It is highly recommended that students complete their homework assignment earlier rather than waiting last minute (i.e. the night it is due). Any submission errors on technological issues will not be considered last-minute. Homework assignments can be accessed via CANVAS. Homework problems are multiple choice, true/false, fill in the blank, and some matching. These questions are specific to the textbook, so that should be your primary resource for answering those questions. These assignments are **NOT** intended to be used as the primary study tool for preparing for the exams. The function of the homework assignments is to (a) get students more familiar with the textbook, and (b) to get students eased into answering physiology questions. Most of these questions are very straight forward and are less challenging than the lecture exams.

Scores will be updated from Mastering A&P to the CANVAS gradebook. Please give 24 hours for updating prior to reaching out to the instructor.

- You may open/close an assignment as many times as you wish until it is due.
 - For the fill in the blank questions, spelling and proper tense/plurality of the word counts. For example, if a question asked for the name of the **cells** which carry oxygen, the correct response would be **erythrocytes** (plural).
 - For multiple choice and fill-in-the-blank questions, you are penalized 50% if you miss on the first attempt and 100% if you miss on the second attempt. For true/false questions, you are penalized 100% if you miss on the first attempt.
 - You are penalized a small fraction for opening a hint if one is available.
 - ***Late submissions of homework will not be accepted.*** However, if you complete some of the questions, but fail to complete all questions prior to the deadline, those completed will be automatically submitted at the due date/time and added to the gradebook.
4. Lab Modules: Each lab module is a PhysioEx lab that can be accessed through Mastering A&P through CANVAS. **PhysioEx Labs will close Friday at 11:59 PM the week a PhysioEx lab is due. While the deadline for each PhysioEx Lab is on a Friday, it will be imperative for you to complete the lab module prior to your lab for that particular week since your lab participation will be based on your ability to discuss the procedure and result of a PhysioEx lab** (i.e. even though it is due on a Friday but you have lab on Tuesday, you need to complete the PhysioEx before your lab on Tuesday).

You have 6 hours to complete each lab module and accompanying questions; however, these should not take longer than 2 hours each; you should complete a given week's PhysioEx before attending lab. If you miss the submission deadline, you will not be allowed to complete the lab for credit. Once you open the lab, you can close it and return to complete it, but the timer will not stop. So, please plan to complete the lab module and questions within 6 hours to avoid being timed out (it will not be reset).

Scores will be updated from Mastering A&P to the CANVAS gradebook. Please give 24 hours for updating prior to reaching out to the instructor.

5. Lab Quizzes: Each lab quiz/assessment is worth 10 points: 6 points will consist of multiple choice, true/false, fill in the blank, matching, and/or labeling questions; 4 points from short answer question(s). Lab quizzes will cover material learned in the PhysioEx lab modules and/or lab experiments. The following rubric will be employed to assess responses to short answer questions only.

Students who fail to reach the satisfactory level of achievement according to this rubric will be asked to submit a one-page written report on a related physiological topic for re-assessment, due at the next lab meeting. Students who do not submit a re-assessment following an unsatisfactory rating will earn a zero on the lab assessment that week.

| Unsatisfactory (U) Does Not Meet Minimum Expectations (0-1.5 pt) | Satisfactory (S) Meets Minimum Expectations (1.6-3.0 pts) | Excellent (E) Exceeds Expectations (3.1-4 pts) |
|--|---|---|
| Incomplete sentences Excessive grammatical errors, including spelling (≥ 3) Parts of the question were unanswered Answers demonstrates lack of understanding | Complete sentences Few grammatical errors, including spelling (< 3) All components of the question were answered Answer demonstrates basic understanding Mostly correct use of scientific/medical terminology | Complete sentences Little to no grammatical errors, including spelling (≤ 1) All components of the question were answered Answer demonstrates a more comprehensive understanding Correct use of scientific/medical terminology |

6. Lab Participation: The following rubric will be employed to assess lab participation. TAs are responsible for assigning participation points. Students are encouraged to strive for full participation and enthusiasm in all labs so that the maximal amount of points are CLEARLY earned.

| 1 point | 3 points | 5 points |
|--------------------|---|---|
| Physically present | Physically present On time to lab Actively engaged in discussion/ grp. activity Participates in labs, but with some reluctance Does not appear to have prepared for class ahead of time | Physically present On time to lab Actively engaged in discussion/grp. activity Participates in labs with enthusiasm Contributes to the learning environment through: positive attitude, thoughtful questions, respectful behavior, coming to class prepared |

All grades will be posted into the CANVAS gradebook. Please give time for your scores from Mastering A&P to upload into CANVAS (up to 24 hrs). Any discrepancies with points displayed in gradebook should be pointed out to the instructor before the last day of class. Minus grades are not assigned for this course. A minimum grade of C is required for all General Education courses,

such as this one. **There is no curve for this course and final grades will not be rounded up.** For example, if your final grade is a 79.94%, you will receive a C+; not a B (or B-). See the UF undergraduate catalog web page for information regarding current UF grading policies: www.registrar.ufl.edu/catalog/policies/regulationgrades. Any requests for additional extra credit or special exceptions to these grading policies will be interpreted as an honor code violation (i.e., asking for preferential treatment) and will be handled accordingly.

| Letter Grade | Point Range | % Total Points | GPA |
|--------------|---------------|----------------|------|
| A | 544.5-605.0 | 90.00-100% | 4.0 |
| B+ | 526.35-544.49 | 87.00-89.99% | 3.33 |
| B | 484.00-526.34 | 80.00-86.99% | 3.0 |
| C+ | 465.85-483.99 | 77.00-79.99% | 2.33 |
| C | 423.5-465.84 | 70.00-76.99% | 2.0 |
| D+ | 405.35-423.49 | 67.00-69.99% | 1.33 |
| D | 363.00-405.34 | 60.00-66.99% | 1.0 |
| F | 0-362.99 | 0-59.99% | 0 |

Honor Code: All University of Florida students are responsible for knowing and adhering to the University academic integrity policy. Students found to be in violation of the academic integrity policy will be reported and may be subject to sanctions.

It is a violation of the honor code (<https://sccr.dso.ufl.edu/process/student-conduct-code/>) to obtain copies of assignments, exams, or quizzes for this course from individuals or vendors who distribute such material. It is also a violation to save copies of the lecture or materials to share with others not enrolled in the current semester.

Accommodations:

If you have a disability that needs to be accommodated, you must register with the Dean of Students Office – Disability Resource Center (DRC), who will determine the necessary accommodations based on your documented disabilities. Documentation will ideally be presented to the instructor within the first week of class for optimal consideration.

Other accommodations (i.e. academic, religious observances) may be considered if presented within the first week of class. Notes beyond those distributed by the instructor may be acquired from a colleague. Quizzes may not be made up, and absence will result in a 0. However, the three lowest quiz scores will be dropped to automatically adjust for any needs that may come up during the term (further need *must* be discussed with the instructor within the first week of class).

Exam Make-Up:

Make-up exams will be given at the discretion of the instructor. To schedule a make-up exam, please fill out the make-up exam request form posted in CANVAS and submit it to your course instructor within as soon as possible for

the best possible accommodations. Documentation will be required. Unexcused missed exams will result in a zero on the exam (this includes contacting the instructor after the exam if you are ill). You are absolutely not permitted a make-up exam for work, volunteer positions, or personal travel/vacations, so please make your travel arrangements accordingly. Requirements for class attendance and make-up exams, assignments, and other work are consistent with the university policies that can be found at <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>. If you have a serious emergency or life event, please contact the Dean of Students Office (www.dso.ufl.edu) and they will contact your instructor so that you do not have to directly provide documentation of the emergency/death in order to get a make-up exam.

Evaluations: Students are expected to provide feedback on the quality of instruction in this course. These are conducted online at <https://evaluations.ufl.edu>, and are typically open during the last 2-3 weeks of the semester.

Technology: The use of cell phones (and the like) is strictly prohibited during lectures and exams. Any cell phone or other electronic device used during an exam will be considered a violation of the student honor code (i.e. cheating) and will result in severe penalties. Laptop computers are welcome in class. You may be asked to bring an electronic device for quizzes and the exam. If you are unable to bring a laptop to class, some paper copies will be available. For those taking quizzes or the exam on paper, please bring a writing utensil and UFID card, and realize your scores may be published later than those testing on electronic devices.

Objectives: The learning goal for the course is to enable you to integrate knowledge (discuss, explain, and defend subject matter) relevant to neuromuscular physiology. Specifically, on the structure and function of the nervous and muscular systems. Beyond this, the ability to demonstrate proficiency in presenting and explaining relevant concepts in a professional manner is vital.

Counseling: The contact site for university counseling services and mental health services: <https://counseling.ufl.edu/>. The University Police Department can be reached via 392-1111 or 9-1-1 for emergencies.

General Education Course Objectives:

Biological science courses provide instruction in the basic concepts, theories and terms of the scientific method in the context of the life sciences. Courses focus on major scientific developments and their impacts on society, science and the environment, and the relevant processes that govern biological systems. Students will formulate empirically-testable hypotheses derived from the study of living things, apply logical reasoning skills through scientific criticism and argument, and apply techniques of discovery and critical thinking to evaluate outcomes of experiments.

Course Goals:

The following table describes the UF General Education student learning outcomes (SLOs) and the specific course goals for APK 2105c. The intent is that students should be able to achieve these goals by the end of the term.

| SLO | Course Goals | Assessment Method |
|---|--|--|
| Content: Demonstrate competence in the terminology, concepts, methodologies and theories used within the discipline. | Describe the basic structures as well as the basic and more complex functions of the cell, the endocrine, nervous, muscular, cardiovascular, respiratory, and renal systems Name and give examples of key physiological themes and basic regulatory mechanisms for sustaining life/health (e.g. homeostasis, negative and positive feedback) Explain how major systems of the body are integrated and how these interactions influence homeostasis | Weekly lab quizzes Lecture exams Online homework Online lab modules |
| Communication: Communicate knowledge, ideas, and reasoning clearly and effectively in written or oral forms appropriate to the discipline. | Use correct anatomical, physiological, scientific, and medical terminology to describe and explain physiological phenomena, experiments used to study such phenomena, and how disease or injury impacts those processes | Weekly lab quizzes |
| Critical Thinking: Analyze information carefully and logically from multiple perspectives, using discipline-specific methods, and develop reasoned solutions to problems. | Predict how perturbations (e.g., disease, experimental manipulations) will alter physiological function and identify the mechanisms of action involved Generate and interpret various graphical representations and results of physiology data | Weekly lab quizzes Lecture exams Online lab modules |

Tentative Course Schedule:

Changes to this schedule will be posted in CANVAS as an announcement, including any lecture cancellations.

Again, PhysioEx lab modules are due Friday at 11:59 PM the week a PhysioEx lab is scheduled. Homework assignments are due shortly prior to an exam.

| | Dates | Lecture (Textbook Chapter) | Lab Activities/Assessments |
|----------------|-----------------------|---|---|
| Week 1 | January 7-11 | Syllabus Intro to Physiology Cell Structure & Function | None |
| Week 2 | January 14-18 | Cell Structure & Function Cell Metabolism | Lab 1 – Intro to Lab/Graphs/Reports (2hrs) |
| Week 3 | January 21-25 | Cell Metabolism Monday, January 21 st – holiday: no lecture or labs (Monday sections attend a different section Tuesday – Friday) | Lab 2 – Transport Mechanisms Quiz 1 <i>Complete PhysioEx 1 on your own prior to your lab</i> |
| Week 4 | January 28-February 1 | Exam 1: Chapters 1, 2, 3 – Wednesday, January 30th HW 1 due Tuesday, January 29 th at 11:59 PM Cell Membrane Transport | Lab 3 – Enzyme Kinetics (2hrs) Quiz 2 |
| Week 5 | February 4-8 | Chemical Messengers Endocrine System | Lab 4 – Endocrine Physiology Quiz 3 <i>Complete PhysioEx 4 on your own prior to your lab</i> |
| Week 6 | February 11-15 | Endocrine System Neural Signaling | Lab 5 – Metabolism (2hrs) Quiz 4 |
| Week 7 | February 18-22 | Neural Signaling Neural Integration | Lab 6 – Neurophysiology <i>Complete PhysioEx 2 on your own prior to your lab</i> |
| Week 8 | February 25-March 1 | Neural Integration Exam 2: Chapters 4, 5, 6, 7, 8 – Wednesday, February 27th HW 2 due Tuesday, February 27 th at 11:59 PM Muscle Physiology | Lab 7 –Muscle Physiology Quiz 5 <i>Complete PhysioEx 3 on your own prior to your lab</i> |
| Week 9 | March 4-8 | All Week: Spring Break – no lecture or labs | None |
| Week 10 | March 11-15 | Muscle Physiology Cardiac Function | Lab 8 – Neuromuscular (2hrs) Quiz 6 |

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|----------------|-------------|---|--|
| Week 11 | March 18-22 | Cardiac Function Vessels & Pressure | Lab 9 – Cardiovascular Physiology (2hrs) |
| Week 12 | March 25-29 | Vessels and Pressure Pulmonary Ventilation Exam 3: Chapters 12, 13, 14 – Monday, April 1st HW 3 due Sunday, March 31 st at 11:59 PM | Lab 10 – Cardiovascular Function Quiz 7 <i>Complete PhysioEx 5 on your own prior to your lab</i> |
| Week 13 | April 1-5 | Pulmonary Ventilation Gas Exchange | Lab 11 – Pulmonary Function (2hrs) Quiz 8 |
| Week 14 | April 8-12 | Gas Exchange Renal Function | Lab 12 – Renal Physiology Quiz 9 <i>Complete PhysioEx 9 on your own prior to your lab</i> |
| Week 15 | April 15-19 | Renal Function Fluid/Electrolyte Balance | Lab 13 – Acid-Base Physiology Quiz 10 <i>Complete PhysioEx 10 on your own prior to your lab</i> |
| Week 16 | April 22-24 | Fluid/Electrolyte Balance HW 4 due Wednesday, April 24 th at 11:59 PM | No Labs (Reading Days: Thursday and Friday) |
| | | Exam 4: Chapters 16, 17, 18, 19 Thursday, May 2nd: 10:00 AM-12:00 PM (noon) | |