

## **GMS 6474 | Medical Cardiovascular and Muscle Physiology**

Class Number: 11325

### **Instructor Information**

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Augustine Vinson

### **Course Details**

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**Catalog Description:** Teaches the functions of muscle and the cardiovascular system of human body at a level required for clinical medicine and basic research in medical physiology. Covers normal physiology, as well as selected diseases. Concepts are taught using a combination of lectures, online workshop, and online problem sets.

**Pre- and Co-Requisites:** Prereq: Requires a BA or BS and a strong science foundation with at least 5 full semester courses related to Biology, chemistry and/or physics. A minimum undergraduate GPA = 2.0 is required for admission.

**Credit Hours:** 3

**Course Fees:** \$0.00

### **Additional Course Description**

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Medical Cardiovascular and Muscle Physiology (GMS6474) teaches the functions of muscle and the cardiovascular system of human body at a level required for clinical medicine and basic research in medical physiology. The course covers normal physiology, as well as selected diseases. Concepts are taught using a combination of lectures, functional genomics research assignments, online problem sets, and discussion prompts. The problem sets and discussions are designed to test students' knowledge of the lectures and keep the student on a comfortable pace with the large amount of content. The research assignments are designed to help the student understand the integration of cardiovascular physiology with genetics, genomics, molecular biology, and cellular physiology as a basis for a better understanding of human disease. Most recorded lectures lasts between 20 and 30 min.

### **Recommended Materials**

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#### **Cardiovascular Physiology**

**ISBN:** 9781260026116

**Authors:** David E. Mohrman; Lois Jane Heller

**Publisher:** McGraw-Hill

**Publication Date:** 2018

**Edition:** 9th

#### **BERNE & LEVY PHYSIOLOGY, UPDATED EDITION**

**ISBN:** 9780323393942

**Authors:** BRUCE M. KOEPPEN & BRUCE A. STANTON

**Publisher:** ELSEVIER

**Edition:** 7TH

## Course Goals and Objectives

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The goal of this course is for students to develop an understanding of the integrated functions of the cardiovascular and muscle systems in the human body; as well as “problem solving” and “critical thinking” skills in evaluating clinical situations. This course will provide: 1) a foundation understanding of the basic functions of the muscle and the human cardiovascular system; 2) integration of individual facts for the purposes of understand how organ systems work independently and interdependently in the body; 3) examples of clinical situations in which integration of muscle and cardiovascular knowledge is used to diagnose and treat patients.

## Expectations and Student Learning Outcomes

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Upon completion of this course, students will be able to:

1. Describe the structure and functions of skeletal, cardiac muscle, and smooth muscle during contraction and relaxation. Apply this knowledge to scenarios of exercise and disease. This will be assessed by weekly problems set with multiple choice and short answer questions, and discussion prompts.
2. Describe the normal function and regulation of the cardiovascular system, and explain the many adaptations that occur in response to exercise, the environment, or disease. This will be assessed by weekly problems set with multiple choice and short answer questions, and discussion prompts.
3. Apply the knowledge of these systems, while explaining how they act in an integrated manner to regulate overall body functions. This will be assessed by weekly problems set with multiple choice and short answer questions, discussion prompts, research assignments, and a cumulative multiple choice examination.
4. Summarize how failure of these normal physiologic functions and integrations are associated with some diseases. This will be assessed by research assignments.

## Methods of Evaluation

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Topics are grouped into modules with lectures, discussion prompts, and problem sets. Students will be evaluated with eleven (11) open-book problem sets and two (2) closed-book exams. Problem sets and exams assess foundational course concepts. Two (2) self-guided research assignments will be used to evaluate scientific writing and will help students integrate course concepts.

## Grading Scale

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Letter grade and percentage

Letter	Percentage Value
A	93 - 100%
A -	90 - 92%
B +	87 - 89%
B	83 - 86%
B -	80 - 82%
C +	77 - 79%
C	73 - 76%

Letter	Percentage Value
C -	70 - 72%
D +	67 - 69%
D	63 - 66%
D -	60 - 62%
E	59% and below

## Course Schedule

Table outlining course schedule; includes weekly topics, assignments, and due dates.

Week	Topic	Assignments
Week 1	Muscle Structure / Function	Problem Set 1
Week 2	Intro to Cardiovascular Physiology	Problem Set 2
Week 3	Cardiac Ion Channels & Electrocardiogram	Problem Sets 3 & 4
Week 4	The Working Heart	Problem Set 5
Week 5	Midterm Exam & Research	Midterm Exam
Week 6	Hemodynamics	Problem Set 6 & Research Assignment I
Week 7	Special Circulation	Problem Set 7
Week 8	Neural Control Mechanisms	Problem Set 8
Week 9	Vascular Control Mechanisms	Problem Set 9
Week 10	Integration	Problem Set 10
Week 11	Special Circumstances	Problem Set 11
Week 12	Research	Research Assignment II
Week 13	Final Exam	Final Exam

## Schedule of Assignments

Due Dates	Assignments	Type of Assignment	Points
5/17/26	Problem Set 1		
5/24/26	Problem Set 2		
5/31/26	Problem Sets 3 & 4		
6/7/26	Problem Set 5		
6/21/26	Midterm Exam	Exam	
7/3/26	Research Assignment 1	Paper	
6/22/26	Problem Set 6		
6/28/26	Problem Set 7		

Due Dates	Assignments	Type of Assignment	Points
7/5/26	Problem Set 8		
7/12/26	Problem Set 9		
7/19/26	Problem Set 10		
7/26/26	Problem Set 11		
8/1/26	Research Assignment 2	Paper	
8/6/26	Final Exam	Exam	

## University Policies and Resources

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Information about grading policies, support for students with disabilities, course evaluations, the Honor Code, and other course policies and campus resources can be found on the [Syllabus Policies page](#).

## Attendance Policy

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### Excused and Unexcused Absences

Students may only participate in classes if they are registered officially or approved to audit with evidence of having paid audit fees. The Office of the University Registrar provides official class rolls to instructors.

Students are responsible for satisfying all academic objectives as defined by the instructor. Absences count from the first-class meeting.

Acceptable reasons for absence from or failure to engage in class include illness; Title IX-related situations; serious accidents or emergencies affecting the student, their roommates, or their family; special curricular requirements (e.g., judging trips, field trips, professional conferences); military obligation; severe weather conditions that prevent class participation; religious holidays; participation in official university activities (e.g., music performances, athletic competition, debate); and court-imposed legal obligations (e.g., jury duty or subpoena). Other reasons (e.g., a job interview or club activity) may be deemed acceptable if approved by the instructor.

For all planned absences, a student in a situation that allows an excused absence from a class, or any required class activity must inform the instructor as early as possible prior to the class. For all unplanned absences because of accidents or emergency situations, students should contact their instructor as soon as conditions permit.

Students shall be permitted a reasonable amount of time to make up the material or activities covered during absence from class or inability to engage in class activities because of the reasons outlined above.

If a student does not participate in at least one of the first two class meetings of a course or laboratory in which they are registered, and they have not contacted the department to indicate their intent, the student can be dropped from the course. Students must not assume that they will be dropped, however. The department will notify students if they have been dropped from a course or laboratory.

The university recognizes the right of the instructor to make attendance mandatory and require documentation for absences (except for religious holidays), missed work, or inability to fully engage in class. After due warning, an instructor can prohibit further attendance and subsequently assign a failing grade for excessive absences.

## **Religious Holidays Guidelines**

At the University of Florida, students and faculty work together to allow students the opportunity to observe the holy days of their faith. A student should inform the faculty member of the religious observances of their faith that will conflict with class attendance, with tests or examinations, or with other class activities prior to the class or occurrence of that test or activity. The faculty member is then obligated to accommodate that particular student's religious observances. Because students represent a myriad of cultures and many faiths, the University of Florida is not able to assure that scheduled academic activities do not conflict with the holy days of all religious groups. Accordingly, individual students should make their need for an excused absence known in advance of the scheduled activities.

The Florida Board of Education and state law govern university policy regarding observance of religious holidays.

### **Guidelines**

- Students, upon prior notification to their instructors, shall be excused from class or other scheduled academic activity to observe a religious holy day of their faith.
- Students shall be permitted a reasonable amount of time to make up the material or activities covered in their absence.
- Students shall not be penalized due to absence from class or other scheduled academic activity because of religious observances.

If a faculty member is informed of or is aware that a significant number of students are likely to be absent from class because of a religious observance, the faculty member should not schedule a major exam or other academic event at that time.

A student who is to be excused from class for a religious observance is not required to provide a second party certification of the reason for the absence. Furthermore, a student who believes that they have been unreasonably denied an education benefit due to religious beliefs or practices may seek redress through the student grievance procedure.

## **Absence due to Illness**

A student who is absent from class or any required class-related activity because of illness should contact their instructor, if feasible, as early as possible prior to the missed class or activity.

Students shall be permitted a reasonable amount of time to make up the material or activities covered during an excused absence.

Students should contact their college by the deadline to drop a course for medical reasons. Students can petition the Dean of Students Office to drop a course for medical reasons. The university's policy regarding medical excuse from classes is maintained by the Student Health Care Center.

## **Twelve-Day Rule**

Students who participate in university-sponsored athletic or scholarly activities are permitted to be absent 12 scholastic days per semester without penalty. A scholastic day is any day on which regular class work is scheduled as defined in

the approved university calendar.[More Info](#)

The student or student's advisor must notify the instructor as early as possible prior to the anticipated absence to allow ample time for accommodations. Instructors must be flexible and not penalize students when re-scheduling during-term and final exams, class assignments, and other required activities and must follow the UF Attendance Policy herein and UF Examination Policies. As noted in the UF Examination Policies, during-term exams should be re-scheduled no later than before the end of the semester, while final exams no later than 90 days after the originally scheduled exam time. However, instructors are encouraged to re-schedule final and during-term exams, assignments, and other activities as soon as possible after the last day of the absence and must not penalize the student in any way.[More Info](#)

A group's schedule that requires absence of more than 12 scholastic days should be adjusted so that no student is absent from campus more than 12 scholastic days. Students who previously have been warned in writing by their instructor about the impact of absences on their individual class performance should not incur additional absences, even if they have not been absent 12 scholastic days. The student is responsible to maintain satisfactory academic performance and attendance.

## Course Policies and Resources

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### EXAMS & ProctorU

The midterm and final exams consists of multiple-choice questions covering lecture material. It will be monitored by ProctorU, a UF-approved proctoring service allowing remote exams while ensuring academic integrity. Exams must be scheduled and started no later than 8:00 PM EST on the respective due date.

#### Important Notes:

- You will need a government issued photo ID, high-speed Internet connection, a webcam (internal or external), Windows 10 or later, Mac OS 11.0 or later, All recent compatible versions of ChromeOS.
- Exams must be scheduled at least 72 hours prior to the due date. As a result, issues that arise on the day of the exam—such as delayed ProctorU account setup, limited time slot availability, or technical problems with Internet or computer access—will not be considered valid excuses for missing the exam deadline.

#### Exam Preparation Steps:

1. Create your ProctorU account [Links to an external site.\(https://go.proctoru.com/session/new\)](https://go.proctoru.com/session/new)
2. Review Equipment Requirements & Test your computer [Links to an external site.\(https://support.proctoru.com/hc/en-us/articles/24692181239309-Equipment-Requirements](https://support.proctoru.com/hc/en-us/articles/24692181239309-Equipment-Requirements)  
[Links to an external site.\)](https://support.proctoru.com/hc/en-us/articles/24692181239309-Equipment-Requirements)
3. Schedule your exam [Links to an external site.\(https://support.proctoru.com/hc/en-us/articles/25852622025741-How-to-Schedule-Reschedule-or-Cancel-an-Exam\)](https://support.proctoru.com/hc/en-us/articles/25852622025741-How-to-Schedule-Reschedule-or-Cancel-an-Exam)
4. Read the ProctorU Test Taker Library for more information and resources about what to expect for your text taking experience. [Links to an external site.\(https://support.proctoru.com/hc/en-us/categories/115001818507-Test-Taker-Library\)](https://support.proctoru.com/hc/en-us/categories/115001818507-Test-Taker-Library)

### RESEARCH ASSIGNMENTS

#### Using, Citing, and Formatting References:

As you go through the course, you will consult with many different types of sources to obtain supporting data or information for any points or arguments you make in your assignments. You are required to cite your sources when you

do the following:

1. Refer to facts or quantitative data
2. Paraphrase another author's view point, idea, or theory
3. Quote an author directly
4. For all references/citations, please provide either the Digital Object Identifier (DOI) or the PubMed Identifier (PMID) for said references/citations.

Your sources may include your online lecture notes from within Canvas, academic or scholarly journals, print or online newspapers, magazines, books, videos, apps, blogs, podcasts online discussion forums such as Reddit's AMA, or personal communication with an expert or other person. When citing references, in each case you are required to do six things:

1. Include the source of the information you are presenting
2. Cite the source within body of your discussion, essay or other text (this is known as in-text citation)
3. Paraphrase where necessary (see note on paraphrasing below)
4. Put language taken word-for-word from another source in quotation marks or block quotes
5. List your references at the bottom of your discussion, essay or other text
6. Format the references (both the in-text citation and the reference list) according to the required style convention.

To properly cite and format a reference, find as many details about the source as possible and carefully consider the following (Paiz et al., 2015):

**In-text citation:** Sources must be cited within the body of the text for any information or data presented in support of arguments or examples given. In-text citations go at the end of a sentence. They generally include the author's last name, followed by a comma, and the year of publication, all enclosed in parentheses, e.g. (Goldman, 2012), but there is some variation depending on the type of source and the number of authors.

**Paraphrasing:** If you are referencing ideas or information from another work and you feel the need to cite or quote the author in each and every line of your body of text, stop! Instead, you should paraphrase the work and include an in-text citation the first time the work is mentioned. Paraphrasing means synthesizing an author's original statements and then saying them in your own words (Purdue Online Writing Lab [OWL], 2014). Visit the Purdue OWL for tips on effective paraphrasing.

**Quoting:** If you do have the need to take some language word-for-word from another source, put it in quotation marks or block quotes.

**Reference list:** This should be ordered alphabetically by the last name of the first person listed on the paper or other source material (APA, 2009).

**Formatting:** For instructions and detailed examples of how to format in-text citations and reference lists for a variety of source types, consult the Purdue OWL APA style guide. You may also contact the UF reference librarian for assistance (see the library resources section in your course syllabus).

## **CONDUCT GUIDELINES**

### **Academic Honesty**

Online classes are subject to the same requirements of academic honesty as all on-campus classes. Please review and be familiar with the Student Conduct Code and Student Honor Code, which can be found at <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code>. 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 Student Honor Code specifies a number of behaviors that violate the code, and the possible sanctions. Furthermore, you are obliged to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult the instructor or course coordinator.

## **Plagiarism**

Plagiarism is presenting another person's work as your own. Cheating and plagiarizing are against the University of Florida Student Conduct Code. Submissions in this course are checked via Turnitin (<http://www.turnitin.com>), a service that compares documents with each other as well as with pages on the Internet and with other assignments previously submitted by other students. If portions of your document were directly copied and pasted from another student's assignment (past or present) or from the Internet, that constitutes plagiarism. Any form of plagiarism will be investigated as set out by the University of Florida Student Conduct Code. From your citations and references, the reader of your paper should be able to tell the source of all your outside information. It may be acceptable to place a few comments in quotes with a citation, but it is never acceptable to copy and paste a long string of text from a source, even if it is cited and even if you change a few words. Anything from another source that is not in quotations must be paraphrased. Also, please note that UF policies require that you create original work for each course. Thus, students are not permitted to submit papers they prepared previously outside of this class, such as for high school or other UF courses.

## **Late and Make Up Work Policy**

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### **Assignments**

For assignments that require manual grading (e.g., research papers, projects), the following will apply:

- Unless you have an approved excused absence, a 10% deduction will be applied for each week the assignment is late.

### **Exams**

- Make-up exams will only be permitted with approval of an excused absence. Failure to take an exam without such approval will result in a score of zero.

## **Technology in the Classroom**

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For this graduate level course, GMS6474 Medical Cardiovascular and Muscle Physiology, it is imperative that all work submitted is your own. The use of AI tools, including but not limited to, generative language models, code generation tools, and automated essay writer, is strictly prohibited for all assignments. Any work found to have been produced with the aid of such AI tools will result in a zero for that assignment. This policy is in place to ensure the integrity of your learning experience and to respect the academic standards of this course. If you have any questions about this policy or need assistance with your work, please do not hesitate to reach out to your instructor.

## **Course Disclaimer**

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This course (including all materials, ideas, research or clinical observations written or electronically conveyed) is for educational purposes only. The course does not substitute for and does not provide clinical or treatment recommendations or endorsements for the treatment of any individual person's condition.