

PHRM 3400/6400 Human Physiology

Syllabus

Room: 120 College of Pharmacy
Time: Tuesday and Thursday: 9:30 to 10:45 a.m.
Friday: 10:10 to 11:00 a.m.

Course Coordinator: Brian S. Cummings, Ph.D.
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Office Hours: Mondays and Wednesdays 3-5:00 p.m. or by Appointment

Additional Instructors:

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The purpose of this course is to train you in human physiology. Physiology is the scientific investigation of the process or function of living things. The major goals of physiology are to understand and predict the response of the body to stimuli and understand how the body maintains conditions within a narrow range of values in constantly changing environments. Physiology can be studied at many different levels including cell physiology, organ physiology and systems physiology. In this class you will be exposed to all of these level starting at the cellular level and eventually moving up to the system level. PHRM 3400 covers approximately half of the material for human physiology with PHRM 3410 (Spring Semester) covering the other half.

Physiology and anatomy are closely related subjects. Anatomy is the scientific discipline that investigates body structures. Often to fully appreciate the physiology of a given system it is necessary to first examine its anatomy. Because of this, much work has gone into ensuring that the topics presented in PHRM 3100 (Anatomy) coincide with those being presented in physiology. Because PHRM 3100 instructs and tests you in human body structure, studies in PHRM 3400 place more emphasis on function than structures. However, a true understanding and appreciation of physiology can only occur if structure and function are concurrently learned. Further, in order to understand the mechanisms involved in human diseases (Pathophysiology/PHRM3470) it is first necessary to understand how the human body functions under normal circumstances (i.e. Human Physiology). Thus, an understanding of human physiology and anatomy is a must for any person working in pharmacology, whether they are a pharmacist, bench scientist, Pharm.D., PH.D. or M.D.

It is imperative that we know the site and function that a given drug or pharmacotherapy affects. This is not only important in the design and testing of novel drugs in the laboratory or clinic, but is also important in explaining to patients how and why a given drug works. Remember that one of the major goals of physiology is to predict the response of the body to stimuli. If the word “drugs” is substituted for “stimuli” than the importance of studying human physiology should hopefully become clear to those studying pharmacological agents.

Methods of Evaluation:

4-Exams (Including Final) each worth 25% of your grade (100 points each).

1-Typed 4-10 page paper, over a to be announced topic, worth 10% of your grade due **November 20th (40 points) (see below).**

Paper:

A 4-10 page (doubled spaced) report is due **on November 20th** describing the basic physiology of a topic covered in class as well as an explanation of the affect of commonly used pharmaceuticals/drugs on this system. The topic to be covered will be determined by the class after the 2nd exam. This report will be worth 40 points of your final exam score, and can be turned in any time prior to the final exam date. The report must be independently written (this is not a group project), properly referenced, and not directly taken from previously published work, including textbooks, journal articles, reviews or web sites. Examples of such articles will be handed out and posted on the website.

Note: Failure to turn in a final paper will result in an “I” for the class.

Exams:

The exams may consist of multiple choice, multiple-multiple choice (keyed questions), short answers, numerical questions, and essay question. You are expected to know the proper names and spelling of proteins, enzymes, substrates, reactions and structures presented in class or the textbooks.

Exam Dates:

Exam 1 Thursday September 6

Exam 2 Tuesday September 25

Exam 3 Tuesday October 16

Final Exam Monday November 5

Graduate Student Evaluation:

Graduate students and all other non-Pharm.D. Students not enrolled in PHRM 3100 (Anatomy) will be required to attend a Physiology Journal Club that meets once a week at a time to be determined based on schedules. The purpose of this Journal Club is to train students how to critically read, review and present current scientific literature studying issues in physiology. Students will be required write three critiques of papers presented to the class, as well as present 1 paper. This course will consist of 20% of the final grade with the written critiques; paper presentation and class participation (attendance) all counting as 1/3 of this score. Pharm.D. Students are more than welcome to attend this journal club, but will earn no extra credit or other

points toward their final grade by doing so. However, Pharm.D. Student wishing to “Honor” in PHRM3400 must attend. Journal club is worth a total of 100 points.

PHRM 3100 (Anatomy):

All students enrolled in PHRM 3100 will take anatomy quizzes prior to each examination date (See the PHRM3100 Anatomy Syllabus). Graduate Students and other non-Pharm.D. Students are more than welcome to sign up to take the anatomy portion of PHRM 3100, but will not receive any extra credit or other points toward their final grade.

Grading:

Each exam will be worth 100 points. Pharm.D. Students will need a total of 313 points to guarantee a grade of “C” in the course. Graduate Students and all other non-Pharm.D. Students enrolled in the Journal Club will require a total of 384 points to be guaranteed a grade of “C” in the course. In addition, all Graduate Students and all other non-Pharm.D. Students must achieve at least a 70% in both exam and Journal Club portions of the class to be guaranteed a grade of “C” in the class.

Class Attendance and Absences:

Students are expected to attend classes regularly. Students who miss an excessive number of classes will be dismissed from the class at the instructor’s discretion. If an exam or Journal Club is missed due to an illness or other emergency, the instructor should be informed immediately by either phone, E-mail, or through the Dean’s office prior to the time of the test or Journal Club. The student will be given a make up exam as soon as possible after the student returns to the class. Unexcused absences from exams or Journal Clubs will result in a zero (0) from the instructor. Students attending Journal Club should remember that participation/attendance makes up 1/3 of the grade.

Extra points are not awarded for attendance. However, attendance will be monitored electronically. Further, attendance will be a major factor when dealing with borderline grades (i.e. those within 1% of a higher grade).

Honors Policy:

All academic work must meet the standards contained in "A Culture of Honesty." Students are responsible for informing themselves about those standards before performing any academic work. The link to more detailed information about academic honesty can be found at: <http://www.uga.edu/ovpi/honesty/acadhon.htm>

Students are expected to abide by the Honors Code at all times. No students may give or receive help from another student during an examination or quiz (even those for extra credit). Students who witness others giving or receiving aid during examinations or quizzes are obliged to report such occurrences to the instructor.

Texts:

Anatomy and Physiology, 7th Edition by Seeley, Stephen and Tate
Neuroscience, 3rd Edition by Purves et al.,

The course syllabus is a general plan for the course. Deviations may occur but will be announced to class by the instructor if necessary.

Basic System and Cell Physiology

<u>Date</u>	<u>Lecture Topic</u>	<u>Reading Assignment</u>	<u>Instructor</u>
Aug. 16	Introduction and Cell Physiology	Chapter 1 Seeley	Cummings
	Cellular Biochemistry	Chapter 2 Seeley	Cummings
	Cell Physiology	Chapter 3 Seeley	Bruckner
Aug. 17	Cellular Physiology (10:10-12:05)	Chapter 3 Seeley	Bruckner
Aug. 20	Cellular Physiology (11:15-12:05)	Chapter 3 Seeley	Bruckner
Aug. 20	Mitosis and Meiosis	Chapter 3 Seeley	Cummings
Aug. 21	Molecular/Cell Signaling	Chapter 7 Purves	Cummings

Muscle Physiology

<u>Date</u>	<u>Lecture Topic</u>	<u>Reading Assignment</u>	<u>Instructor</u>
Aug. 23	Muscle Physiology	Chapter 9 Seeley	Cummings
Aug. 24	Muscle Physiology	Chapter 9 Seeley	Cummings

Skin

<u>Date</u>	<u>Lecture Topic</u>	<u>Reading Assignment</u>	<u>Instructor</u>
Aug. 28	Integumentary System (Skin)	Chapter 5 Seeley	Bruckner
Aug. 30	Organization of the Nervous System	Chapter 11 Seeley	Cummings

Basic Neurophysiology

<u>Date</u>	<u>Lecture Topic</u>	<u>Reading Assignment</u>	<u>Instructor</u>
Aug. 31	Neurophysiology	Chapter 11 Seeley	Cummings
Sep. 4	Neurophysiology/Review	Chapter 11 Seeley	Cummings

September 6 Exam 1-9:30-10:45 a.m. Room 120 Covering Aug. 16 to Aug. 30 not including Neurophysiology

Neurophysiology

<u>Date</u>	<u>Lecture Topic</u>	<u>Reading Assignment</u>	<u>Instructor</u>
Sep. 7	Blood Brain Barrier and CSF	Chapter 13 Seeley	Cummings
Sep. 11	Spinal Cord and Reflexes	Chapter 12 Seeley	Cummings
Sep. 13	Organization of the ANS	Chapter 16 Seeley	Cummings
Sep. 14	Function of the ANS	Chapter 16 Seeley	Cummings
Sep. 18	Somatic Sensory Pathways	Chapter 8 Purves	Cummings
Sep. 20	Pain	Chapter 9 Purves	Cummings
Sep. 21	Motor Function of Spinal Cord	Chapter 16 Purves	Cummings
	Motor Function of Cerebral Cortex	Chapter 16 Purves	Cummings

September 25 Exam 2-9:30 a.m. Room 120 Covering Sep. 5 to Sep. 21 Cummings

