

Physiology 514: Introduction to Cardiac Physiology
Spring 2014
Tuesday and Friday
8:00 - 9:30 am
E504 (Physiology Conference Room)

Course Director: Julian Stelzer
E522, 368-8636, jes199

Recommended Texts: Medical Physiology, Boron & Boulpaep
Physiology, Berne & Levy
Cardiovascular Physiology Concepts, Richard E. Klabunde

Participating Faculty	Location	Email
Julian Stelzer – Course Director	Physiology & Biophysics	jes199@case.edu
Jessica Berthiaume	Physiology & Biophysics	jmb141@case.edu
Isabelle Deschenes	MetroHealth	ideschenes@metrohealth.org
George Dubyak	Physiology & Biophysics	gxd3@case.edu
Saptarsi Haldar	Medicine/Cardiovascular Medicine	smh53@case.edu
Anne Hamik	Medicine/Cardiovascular Medicine	anne.hamik@case.edu
Brian Hoit	Medicine/Cardiovascular Medicine	bdh6@case.edu
Ken Laurita	MetroHealth	klaurita@metrohealth.org
Zhiyong Lin	Medicine/Cardiovascular Medicine	zhiyong.lin@case.edu
Aaron Proweller	Medicine/Cardiovascular Medicine	axp263@case.edu
Xin Qi	Physiology & Biophysics	xxq38@case.edu
Diana Ramirez	Medicine/Cardiovascular Medicine	dlr36@case.edu
Andrea Romani	Physiology & Biophysics	amr5@case.edu
Can Shi	Medicine/Cardiovascular Medicine	can.shi@case.edu

Course Description and General Organization

This advanced-level course will focus on major areas of cardiovascular physiology, under both normal and pathological conditions. In general, one topic will be covered per session; occasionally a topic will be allotted two sessions for appropriate coverage. Each session will consist of:

- 1) 45 min presentation/discussion of basic concepts and focus questions based on a review paper or on textbook readings
- 2) 45 minute presentation/critique of 1 (possibly 2) original research papers

There are no formal lectures. Each session will predominantly involve student-led presentations/discussions of the focus questions or original research papers pre-assigned for that session. The exact formats for student-led presentations may vary between different faculty instructors but a common evaluation/ grading metric will be used for all sessions.

A midterm exam will cover the material presented in the initial 7 weeks while a final exam will cover the material presented in the final 7 weeks.

<i>Date</i>	<i>Topic</i>	<i>Faculty</i>	
Tuesday	14-Jan	Basic Cardiovascular Physiology	Hoit
Friday	17-Jan	Cardiomyocytes; Basic Units of the Heart	Berthiaume
Tuesday	21-Jan	Vascular Development and Angiogenesis	Ramirez
Friday	24-Jan	Hypertension	Garvin
Tuesday	28-Jan	Cardiac Transcriptional Programs	Berthiaume
Friday	31-Jan	Regulation of Vascular Function	Hamik
Tuesday	4-Feb	Neurohumoral Regulation & Signaling	Dubyak
Friday	7-Feb	Gene Regulation of the CV System	Proweller
Tuesday	11-Feb	Autonomic Function in Heart Failure	Dunlap
Friday	14-Feb	Energetics, Metabolism and Ventricular Function	Berthiaume
Tuesday	18-Feb	Metabolic Remodeling in CVD	Berthiaume
Friday	21-Feb	Vascular Injury/Inflammation	Lin
Tuesday	25-Feb	Mitochondria & Oxidative Stress	Qi
Friday	28-Feb	Ischemia/Reperfusion/Preconditioning	Qi
Tuesday	3-Mar	Study Day	
Friday	7-Mar	Midterm Examination	
Tuesday	11-Mar	Immune System and CV Disease	Shi
Friday	14-Mar	Heart Failure	Haldar
Tuesday	18-Mar	Heart Failure	Romani
Friday	21-Mar	Cardiac Hypertrophy	Romani
Tuesday	25-Mar	Cardiac Hypertrophy	Romani
Friday	28-Mar	Diabetic Cardiomyopathy	Romani
Tuesday	1-Apr	Regulation of Contractility	Stelzer
Friday	4-Apr	Cardiac Isoforms and Mutations	Stelzer
Tuesday	8-Apr	Hypertrophic Cardiomyopathy	Stelzer
Friday	11-Apr	Calcium regulation in electrophysiology	Laurita
Tuesday	15-Apr	Electrophysiology	Deschenes
Friday	18-Apr	Electrophysiology	Deschenes
Tuesday	22-Apr	Stem Cell and Regeneration	Laurita
Friday	25-Apr	Study Day	
Tuesday	29-Apr	Final Examination	

Evaluation and Grading

Examinations:

Each exam will consist of 1 essay type question/class session, which represents approximately 13-14 questions. You will answer only 10 questions per exam. Each exam will account for 30% of the total grade.

Class Participation:

Each student will receive a cumulative weekly evaluation grade (0-3; see below) for his/her preparation and presentations in the Tuesday and Friday discussions. The cumulative scores for class participation will account for 40% of the total grade.

Class Preparation and Presentation Scoring Guidelines:

3 = Very strong understanding of material; outstanding preparation; voluntarily generates relevant questions or comments during discussions.

2 = Generally correct answers; has clearly read material in detail; acceptable contribution to discussions.

1 = Inaccurate or incomplete answers; somewhat familiar with study material; participation in open discussion is limited.

0 = Unprepared or unable to contribute to discussion in a way that indicates familiarity or comprehension of study material. Unexcused absence.

Policy on Excused Absences:

If a student misses a session for a valid reason (illness, family emergency, attendance at a scientific meeting) the course director must be informed in advance of the class (if attending a meeting or other such conflict) or by noon on the day of the absence (if due to illness or family emergency) to be granted an excused absence.

Final Grading:

Midterm exam:	30% total grade
Final exam:	30% total grade
Cumulative Class Participation:	40% total grade