



# Advanced Cardiac Physiology & Anatomy

## PHSL 5510 Lecture Schedule, 2020

Monday, January 6		
Welcome	Metzger	7:45 AM
Course Introduction/General Review of the Cardiovascular System	laizzo	8:00 AM
Cardiac Myocytes	Barnett	9:00 AM
The Conduction System of the Heart	laizzo	10:00 AM
12-Lead ECG (Demonstration)	Howard	11:00 AM
<i>LUNCH (provided)</i>		12-1 PM
<i>EKG Lab—Biopac Systems (MOOS 3-110)</i>	VHL graduate students	12:30 PM
Control of Coronary Blood Flow during Normal and Disease States	Katz	1:30 PM
Thoracic Surface Anatomy and Great Vessels	Weinhaus	2:30 PM
Gross Anatomy Lab 1: Thoracic Surface Anatomy, Subclavian Region and Great Vessels	Weinhaus/ laizzo/Iles	3:00 PM
Reception (Sponsored by the Institute for Engineering in Medicine, University of Minnesota)		6:15 PM
Keynote Presentation: “Resiliency: Excelling in a Tough Environment” TBA		7:00 PM
Tuesday, January 7		
Cardiac Development	Martinsen	8:00 AM
Mechanical Aspects of Cardiac Performance: Blood Pressure, Heart Tones, and Diagnoses	Hutchins	9:00 AM
Patient Continuum of Care Following Cardiac Interventions	Martin	10:00 AM
Cardiac Energy Metabolism	Iles	11:00 AM
<i>LUNCH (provided)</i>		12:00 PM
Use of Device-based Approaches to Treat Cardiovascular Diseases Associated with Increased Sympathetic Activity	Osborn	1:00 PM
Congenital Cardiac Disease	Maclver	2:00 PM
Surface Anatomy of Heart and Lungs	Weinhaus	3:00 PM
Gross Anatomy Lab 2: Lungs, Great Vessels and Coronary Vessels	Weinhaus/ laizzo/Iles	3:30 PM

Wednesday, January 8		
Introduction to Echocardiography	Sivanandam	8:00 AM
3D and 4D Cardiac Electrophysiologic Mapping	Laske	9:00 AM
Pacing and Defibrillation	Eggen	10:00 AM
Experimental Gene Therapeutics for Heart and Muscle	Metzger	11:00 AM
<i>LUNCH (provided)</i>		12-1 PM
Valve Anatomy and Transcatheter Valves/Minimally Invasive Valve Repair Procedures	Iles	1:00 PM
Minimally Invasive Cardiac Surgery: Technique Overview	Voeller	2:00 PM
Internal Anatomy of the Heart and Posterior Mediastinum	Weinhaus	3:00 PM
Gross Anatomy Lab 3: Internal Anatomy of the Heart and Posterior Mediastinum	Weinhaus/ laizzo/Iles	3:30 PM
Thursday, January 9		
Catheter Ablation of Cardiac Arrhythmias	Roukoz	8:00 AM
Intro to Anesthesia for Cardiac Surgery	Perry	9:00 AM
Monitoring in the ICU	Tignanelli	10:00 AM
Novel Visualization of Functional Human Cardiac Anatomy Employing Visible Heart® Methodologies	laizzo	11:00 AM
<i>LUNCH (provided)</i>		12-1 PM
Clinical Anatomy (anatomy review)	Weinhaus	1:00 PM
Gross Anatomy Lab 4: Clinical Anatomy (anatomy review)	Weinhaus/ Iles	1:30 PM
<i>Small Group Demos: In vitro swine, fresh cadaver (B172 Mayo)</i>	laizzo	1:30 PM
Friday, January 10		
Ventricular Assist Device Therapy	John	8:00 AM
Interventional Cardiology: Stents, Closure Devices, etc.	Raveendran	9:00 AM
Expanding the Donor Pool with Ex Vivo Perfusion	Huddleston	10:00 AM
The University of Minnesota: One of the Pioneering Institutions in the Field of Cardiovascular Surgery	laizzo	11:00 AM
<i>LUNCH (provided)</i>		12-1 PM
Large Mammalian Comparative Cardiac Anatomy	Hill	1:00 PM
Cardiac Anatomy Modeling, Virtual Reality, Virtual Prototyping and Atlas Website Tutorial	Mattson	2:00 PM
Gross Anatomy Lab: Finish Dissections and "Grand Rounds"	Weinhaus/ laizzo/Iles	3:00 PM

\*Lecture schedule subject to change

## Course Grading

- 0 Credits: Students registered for 0 credits DO NOT need to take a final exam or complete a research project, however we consider that attendance is mandatory.
- 2 Credits: University of Minnesota students registered for 2 credits are required to complete one take-home exam (Due: **Friday, March 6, 2020**). The score on that exam, along with individual participation in the labs and lectures, will be used to determine the final grade. This course can be taken for either a letter grade (A-F) or as pass/fail (S/N). A satisfactory (S) grade will be equivalent to a grade of C or better.
- 3 Credits: University of Minnesota students registered for 3 credits are required to complete the take-home exam (see above). In addition, students must satisfactorily complete a research project, which includes a summary report or research paper, and pay an additional fee for the credit. The grade on the project will contribute to 1/3 of the total grade. Students who do not complete their project by the due date for submitting grades will be given an incomplete until it is satisfactorily completed. This project is to be arranged by the student and performed under the guidance of any of the course faculty willing to do so.