CBMM 5350Q – Molecular Medicine of the Heart
Fall 2023: 09/05/23 – 12/12/23
Tuesdays, 9:30 AM – 12:30 PM

Class: In-person and remote

Course Description:
The course is geared for students in the GSBS graduate programs. It will address the mechanisms of heart function and dysfunction in an integrated approach including morphology, physiology, biochemistry, molecular biology, pharmacology and the basics of cardiovascular disease. In addition, few lectures will be given by invited guest speakers from other medical schools who are prominent clinician-scientist and who practice clinical cardiology and perform basic science research.

The following topics will be covered:
-Structure of the heart, coronary flow and oxygen supply
- Physiology and electrophysiology
- Excitation-contraction coupling
- Calcium handling and Metabolism
- Cardiac signaling
- Gene and protein response to stress in the normal heart
- Hypertrophic response: the athlete's heart versus the hypertensive heart
- Maladaptation to disease: ischemic injury and infarction
- End-stage of disease: heart failure
- Guest lectures covering the topic on the speaker's research interest

Active learning:
In each class, the students will take a quiz about the material covered in the previous lecture. These quizzes are corrected by the instructor and given back to the students the following week. These mandatory quizzes are extremely helpful to stimulate the students to frequent revisions of the material and to pinpoint possible areas of weakness.

Grading Policy:
The evaluation will be based on the quiz (20%) and written answers to questions -both mid-term (40%) and final (40%)- related to the lectures.
Note: Make-up exams will not be given without a letter from a physician or proof of a family emergency.

Recommended Text:
Class notes will be emailed to the students one week before each lecture. In addition, students are recommended to read the following books:
Physiology of the heart (fifth edition) by Arnold M. Katz & The Heart: Physiology from Cell to Circulation by Lionel H.Opie.

Faculty Contact(s): Dr. Gopal Babu, Associate Professor, CBMM, NJMS, G661
Email: babugo@njms.rutgers.edu
Telephone: 973-972-5376