IMPORTANT: This syllabus form should be submitted to OAA (gsbs_academic_affairs@uth.tmc.edu) a week before the start of each semester.

NOTE to STUDENTS: If you need any accommodations related to attending/enrolling in this course, please contact one of the Graduate School's 504 Coordinators, Cheryl Spitzenberger or Natalie Sirisaengtaksin. We ask that you notify GSBS in advance (preferably at least 3 days before the start of the semester) so we can make appropriate arrangements.

Term and Year: **Fall 2022** Course Number and Course Title: **GS12 1262: Cellular Basis Cardiac Function** Credit Hours: **2** Meeting Location: McGovern Medical School Building/Room#: **G 260A (LRC)** WebEx/Zoom Link:	Program Required Course: ☐ Yes ☑ No Approval Code: ☐ Yes ☐ No **(If yes,** the Course Director or the Course Designee will provide the approval code.) Audit Permitted: ☑ Yes ☐ No Classes Begin: **September 1, 2022** Classes End: **September 30, 2022** Final Exam Week: **September 26, 2022**

Class Meeting Schedule

Day	Time
Wednesday	**8 am – 11:00 am**
Friday	**8 am – 11:00 am**

Course Director
Name and Degree: **Heinrich Taegtmeyer, MD, DPhil**
Title: Professor of Medicine
Department: Internal Medicine, Cardiology
Institution: ☑ *UTH* ☐ *MDACC*
Email Address: Heinrich.Taegtmeyer@uth.tmc.edu
Contact Number: 713-500-6569

Course Co-Director/s: (if any)
Name and Degree: N/A
Title:
Department:
Institution: ☐ *UTH* ☐ *MDACC*
Email Address:
Contact Number:

NOTE: Office hours are available by request. Please email me to arrange a time to meet.

Instructor/s (Use additional page as needed)

1. **Heinrich Taegtemeyer, MD, DPhil**
   Name and Degree
   Institution: McGovern Medical School
   Email Address: heinrich.taegtmeyer@uth.tmc.edu
2. N/A
   Name and Degree
   Institution:
   Email Address :
3. N/A
   Name and Degree
   Institution:
   Email Address
4. N/A
   Name and Degree
   Institution:
   Email Address:

Course description:

- Foundations of Biomedical Research
- Laws of Nature
  - First Law of Thermodynamics
  - Ohm's Law
- Thesis, Antithesis, Hypothesis
  - Heraclitus
  - Enlightenment

Principles of Cardiac Structure and Function – From Cells to Organ

Textbook/Supplemental Reading Materials (if any)

- Heart Physiology – From Cell to Circulation; Lionel H. Opie

Course Objective/s:

Upon successful completion of this course, students will:

Learn Cardiovascular concepts and foundations of biomedical research

***Specific Learning Objectives*:**

1. Learn the Principles of Cardiac Structure and Function
2. Heart as an Energy Converter, Metabolic Cycles. Determinants of Cardiac Work

Student responsibilities and expectations:

1. Read as many research articles as possible.
2. Participate in and contribute to course discussions during lecture, review sessions.
3. Attend journal club review session.
4. Write a 2 one-page literature synopsis for the assigned research articles.
5. Prepare for and take a final examination based on the lecture and some reading materials.

Grading System: Letter Grade (A-F) ✔ **Pass/Fail**	
Student Assessment and Grading Criteria : (May include the following:)	
Homework (40 %)	Description: **Reading manuscripts, published papers**
Quiz (20 %)	Description: **During the lecture**
Presentation (10 %)	Description: P**resenting the homework assigned**
Midterm Exams (5 %)	Description: **Short review paper in a course related topic (e.g. cardiac structure and function)**
Final Exam (5 %)	Description: **Summarizing the takeaways from the course**
Workshop or Breakout-Session (%)	Description: **Site Visit: Memorial Hermann Heart and Vascular Institute (Nuclear Cardiology)**
Participation and/or Attendance (100%)	Description: **Highly interactive sessions**

CLASS SCHEDULE

Day/Date	Duration (Hr)	Lecture Topic	Lecturer/s
9/2/2022	1.5 hrs	Introduction to Cardiovascular Concepts	Heinrich Taegtmeyer, MD, DPhil
9/2/2022	1.5 hrs	Foundations of Biomedical Research	Heinrich Taegtmeyer, MD, DPhil
9/7/2022	1.5 hrs	Principles of Cardiac Structure and Function	Heinrich Taegtmeyer, MD, DPhil
9/7/2022	1.5 hrs	Heart as an Energy Converter, Metabolic Cycles, Deter	Heinrich Taegtmeyer, MD, DPhil
9/14/2022	2.0 hrs	Control of Circulation	Heinrich Taegtmeyer, MD, DPhil
9/16/2022	1.5 hrs	The Dynamics of Heart Cells and Organelles	Heinrich Taegtmeyer, MD, DPhil
9/20/2021	2.0 hrs	Cellular Electrophysiology and Calcium Metabolism	Heinrich Taegtmeyer, MD, DPhil
9/20/2022	1.5 hrs	Cellular Electrophysiology and the Conduction System	Heinrich Taegtmeyer, MD, DPhil
9/23/2022	1.5 hrs	Channels, Pumps, and Exchangers	Heinrich Taegtmeyer, MD, DPhil
9/23/2022	2.0 hrs	Site Visit: Memorial Hermann Heart &Vascular Center	Heinrich Taegtmeyer, MD, DPhil
9/28/2022	1.5 hrs	All about Ischemia and Reperfusion	Heinrich Taegtmeyer, MD, DPhil
9/28/2022	1.5 hrs	All about Heart Failure	Heinrich Taegtmeyer, MD, DPhil