

ECE 601: FOUNDATIONS OF BIOLOGY IN ENGINEERING

Fall 2023

Course Description and Aims

This biomedical engineering core course focuses on equipping students with the foundational knowledge in human biology through a problem-solving oriented treatment of biological phenomena at the human physiology level. The overarching aim of this course is to develop students' literacy in human biology and to show them how various physiological phenomena can be analytically explained and justified with numbers.

ECE 601 serves well as a bridging course for engineering science students with undergraduate-level math skills but have limited or no prior knowledge of human physiology. It also serves as an engineering bridging course for biology students who previously learned human physiology from a qualitative perspective but have limited or no prior exposure to quantitative analysis.

Course Learning Outcomes

By the end of this course students should be able to demonstrate a threshold level of mastery of the following learning outcomes:

1. Describe foundational biology principles at the human physiology level
2. Identify various factors that regulate physiological operations
3. Present human physiology concepts from a quantitative analysis perspective

Course Schedule



Instructor

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Course Prerequisites

For engineering science students: Background in undergraduate-level circuit analysis (ECE 140 and 240, or equivalent) will be helpful.

For biology students: Prior completion of one undergraduate physiology course (BIOL 273, or equivalent) will be helpful.

Grade Scheme

Discussions, Assignments, and Trivia	50%
Final Test	50%

Textbook

Costanzo. *Physiology*. 6th Ed. Elsevier, 2018.