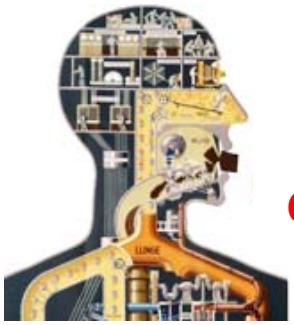

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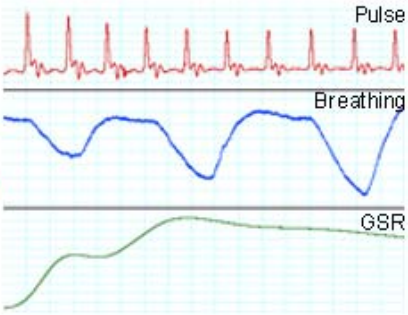
Computational Physiology



Overview

The course aims to introduce students to the analysis and modeling of physiological systems and the measurement of physiological variables. Although, the content is rigorous, the pace is slow to give the opportunity to students to absorb the material and fill any knowledge gaps. Emphasis is given on project work and implementation of models using Matlab. The course is meant to bridge a gap that appears to exist between medicine and computation and inspire students to interdisciplinary research.

Syllabus

Cardiac Rhythmicity
The Circulatory System
Respiration
Muscle
Bioheat Modeling
The Retina and Vision
Physiology of Stress

Prerequisites

Graduate standing

Workload

3 Homeworks x 10% each = 30%
1 Project 60%
Class Participation 10%

Readings

1. Mathematical Physiology by James Keener and James Sneyd, Springer (Required)
2. Handbook of Stress Medicine: An Organ System Approach by John R. Hubbard and Edward A. Workman (Recommended)
3. Anatomy and Physiology by Rod R. Seeley et al., McGraw Hill (Recommended)
4. Papers (To be distributed)

Lectures

Friday 1:00–4:00pm at SEC 206

Instructors

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