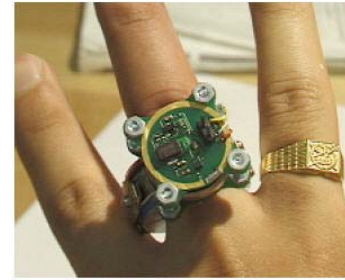


# COSC6397-10308 Computational Physiology

## Body Sensor Networks

URL: [To be announced](#)  
Spring 2007



### Overview

The Computational Physiology course was established in spring 2006, as an interdisciplinary graduate level course with changing themes. In its first version the course addressed issues of computational modeling for physiological organs and systems. In its current version, the course addresses the new and exciting theme of wireless wearable and implantable sensors and discusses the latest technological developments and clinical applications of body-sensor networks.

*"The last decade has seen a rapid surge of interest in new sensing and monitoring devices for healthcare and the use of wearable/wireless devices for clinical applications. One key development in this area is implantable in vivo monitoring and intervention devices. Several promising prototypes are emerging for managing patients with debilitating neurological disorders and for monitoring of patients with chronic cardiac diseases. Despite the technological developments of sensing and monitoring devices, issues related to system integration, sensor miniaturization, low-power sensor interface circuitry design, wireless telemetric links and signal processing have still to be investigated. Moreover, issues related to Quality of Service, security, multi-sensory data fusion, and decision support are active research topics."*

### Intended Audience

The course is intended for graduate level students in a wide range of disciplines, including computer science, electrical engineering, biomedical engineering, and biology.

### Syllabus

Biosensor Design and Interfacing  
Protein Engineering for Biosensors  
Wireless Communication  
Network Topologies  
Energy Scavenging

Ultra-Low Power Bio-Inspired Processing  
Multi-Sensor Fusion  
Context-Aware Sensing  
Autonomic Sensing  
Micro-System Design

### Prerequisites

Graduate standing

### Workload

2 Homeworks x 10% each = 20%  
1 Project 70%  
Class Participation 10%

## Readings

- 1) *Body Sensor Networks* by G.Z. Yang, Springer, 2006 (**Required**)
- 2) Papers (**To be distributed**)

## Lectures:

Friday 1:00 p.m. – 4:00 p.m. at 204-SEC

## Instructor

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URL:

**Office Hours:** Friday 4:00 – 5:00 p.m. at 209-PGH

## Teaching Assistant

TBD

**Office Hours:** To be announced