DEPARTMENT OF BIOMEDICAL ENGINEERING
INSTRUCTIONAL INCUBATOR
UNIVERSITY OF MICHIGAN

BME Course Summary

Introduction

1. Course Information

Course Name	Quantitative Physiology
Institution	Duke
Course Number	BME 244L
# credits	
Meeting times	W 4:40-7:40, Tu 3:05-6:05, Th 3:05-6:05
Is this a required course?	Yes
Pre-requisites	EGR103L, BIO 201L & (MATH 212 or MATH 216 or MATH 353)
Target audience (e.g. 1st, 2nd year):	2nd year
Textbook	Guyton and Hall Textbook of Medical Physiology, 12th edition
Course Website (if it exists)	

2. Course Description

In the space below, "paste" the description of the course. This can be the actual description listed in the syllabus from the course.

An examination of the importance of transport processes, mechanics, energetics, and electrical activity in human physiology. Topics will cover cellular physiology, the cardiovascular system, nervous system, muscle physiology, and renal physiology. Selected labs to complement lectures and class discussion.

3. Course Learning Objectives

In the space below, "paste" the course learning objectives if explicitly stated.

1. Introduction to function of key tissues and organ systems

2. Understand unifying principles governing function and regulation of the human body
3. Describe basis of pathology for selected cases
4. Introduce and apply key concepts of statistical analysis of physiological measurements
5. Understand basic function of physiological monitoring and testing
6. Develop models for physiological function and monitoring

4. Fundamental Tools and Skills

In the space below, describe the fundamental tools and skills that are addressed in the class. For example, labvview, arduino's, the design process etc.

Statistics, Excel, Matlab

5. Exercises or Experiential Projects of Interest

Exercise/Project	Project Overview	Learning Activities and Assessments	Required Resources for Project Completion
1	measure the subject's blood pressure and pulse wave velocity under resting conditions	• Students will determine if exercise level affects the pulse wave velocity	EEG electrodes, IWX/214 unit, stethoscope
2	measure some key properties of skeletal muscle: the force-velocity relationship and muscle fiber recruitment using the frog gastrocnemius muscle	• Students will isolate the femur, gastrocnemius ("calf") muscle, and Achilles tendon of a frog to stimulate	Grass stimulator

6. Additional thoughts

If you have any other thoughts about this course, but have not been able to reflect it elsewhere in the document, please feel free to do so here.