 Quantitative Cardiovascular Physiology
and Clinical Applications for Engineers

August 1-3, 2016

**Day 1**

8:30 am: Welcome, introductions, course objectives, and goals for day 1 – Thomas Heldt
9:00 am: Functional cardiovascular anatomy and the cardiac cycle – Thomas Heldt
9:30 am: Break – Transition to laboratory
9:45 am: Anatomy laboratory – Course staff
12:00 pm: Working lunch
12:45 pm: The heart as a pump – Thomas Heldt
1:45 pm: The peripheral circulation – Thomas Heldt
2:45 pm: Break
3:00 pm: The intact circulation – Thomas Heldt
4:00 pm: Break
4:15 pm: Vital-sign monitoring in Emergency Care – Dr. Andrew Reisner (Massachusetts General Hospital)
5:30 pm: Adjourn

**Day 2**

8:00 am: Breakfast
8:30 am: Welcome back, review of day 1, goals for day 2 – Thomas Heldt
9:00 am: Cellular electrophysiology – Thomas Heldt
10:00 am: Break
10:15 am: Physical basis of cardiac electrophysiology – Thomas Heldt
12:00 pm: Working lunch
12:45 pm: Clinical electrocardiography – Thomas Heldt
1:30 pm: Break
1:45 pm: ECG case studies (small groups) – Course staff
2:45 pm: Break
3:00 pm: Life-saving medical devices, arrhythmias, mapping, and ablation – Dr. Usha Tedrow (Brigham & Women’s Hospital)
4:15 pm: Break
4:30 pm: ECG Jeopardy – Course staff
5:30 pm: Adjourn

**Day 3**

8:00 am: Breakfast
8:30 am: Welcome back, review of day 2, goals for day 3 – Thomas Heldt
9:00 am: Homeostasis and physiological control – Thomas Heldt
9:30 am: Local cardiovascular control – Thomas Heldt
10:30 am: Break
10:45 am: Autonomic nervous system – Thomas Heldt
12:15 pm: Working lunch
1:00 pm: Extrinsic control – Thomas Heldt
1:30 pm: Problem solving session
3:15 pm: Break
3:30 pm: Life Support in Critical Care – Dr. Aaron Aguirre (Massachusetts General Hospital)
4:30 pm: Break
4:45 pm: Discussion of problem set
5:15 pm: Wrap-up
5:30 pm: Adjourn

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