Biol 310:
Physiological Modeling

Prepare for the new MCAT[2015] and pharmacy school

Learn how the molecules of life actually work! In ***Physiological Modeling*** you'll learn how molecules actually behave in physiological systems ranging from single molecules to the entire body.

What students are saying…

"This was the most applicable class to the real world that I have taken so far and I learned a lot about how these ideas are applied in real medicine."

"I look at physiological systems in a much simpler way now that I have a better understanding of the two box system."

"I understand much more of what Biophysics really is, and how so many physiological processes can be represented with a little bit of physics and math."

"I really liked how this class was taught. It was very student oriented and about learning a lot on your own. There was a lot of work but I learned a lot as a result."

"The class activities helped me to visualize what was happening and helped me understand the material better."

The central topic in BIOL 310 is **Transport Processes**. This topic rated 4.40 in a recent MCAT survey (second only to **Nucleic Acids** (4.47)). **BIOL 310** addresses many of the other competencies identified for the new **MCAT[2015]**.

When/Where: Spring 2015. MWF 1:30-2:20 (tentative)
Prerequisites: 200-level BIOL course
Instructor: Dr. Pete Nelson, BK 326, pHnelson@ben.edu, http://circle4.com/biophysics

Enroll now and be part of the future!

http://circle4.com/biophysics/Biol310.html

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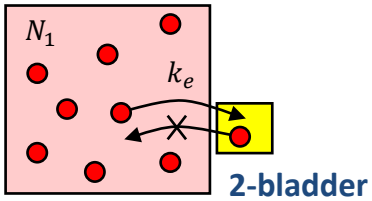
Physiological Modeling

Prepare for the new MCAT^{2015} and pharmacy school

Learn how the molecules of life actually work! In ***Physiological Modeling*** you'll learn how molecules actually behave in physiological systems ranging from single molecules to the entire body. For example, we'll develop a simple (pharmacokinetic) model of how penicillin is eliminated from the body.

Marble game model of drug elimination



Once we've developed the drug elimination model, we'll compare its predictions with published data for healthy volunteers and intensive care patients on heart-lung machines to interpret the clinical data. Content in this module is part of the inaugural collection of teaching materials at the Association of American Medical Colleges' (AAMC) **MedEdPORTAL for Undergraduate Science**.

There are numerous other topics that we can investigate with a similar approach including:

- distribution of O_2, CO_2 and glucose
- osmosis and homeostasis of erythrocytes
- fluid dynamics and blood flow
- kinetics of motors, carriers, and RNA
- membrane transport and drug delivery
- diffusion of neurotransmitters
- ion channel permeation and gating
- ion channels and the action potential

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