BMED 4803-GLE: Global Health Engineering

Instructor: Rudy Gleason
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2305 IBB, 385-7218
TTh 11:00-12:30 or by appointment.

Credit: 3-0-3

Prerequisite(s): None

Catalog Description
This course will provide an introduction to the grand challenges in global health; e.g., combating HIV/AIDS, malaria, tuberculosis, and other disease, reducing child and maternal mortality, and eradicating extreme poverty, hunger and malnutrition. We will explore the role of engineers in addressing these grand challenges. In addition to traditional lectures, students will work in small teams to write and present a scientific grant proposal aimed at addressing a 'real world' challenge in global health these resource-limited environments

Objectives
The objective of this course is to provide students with an introduction to the grand challenges in global health and the role of engineers in addressing these challenges.

Outcomes
At the end of the course the students should be able to:

1. Understand the underlying pathology of the major diseases in global health and the challenges in preventing and treating these health issues in the developing world.
2. Gain an introduction to epidemiology and the metrics and uses of health data.
3. Work in teams of 3-4 students to formulate a novel bioengineering strategy to address a major research or technology gap in for a major global health issue, with emphasis on strategies that will be successful for resource-limited environments.
4. Critically evaluate research proposals and research papers.

Required Text
Biomedical Engineering for Global Health, Rebecca Richards-Kortum. Cambridge University Press, 2010.

Reference Textbooks:
Case Studies in Global Health: Millions Saved, Ruth Levine. Jones and Bartlett Publishers, 2007

Grading:
15% Mid-term Exam ***(10/3/13)***
15% Final Exam ***(12/10/13 at 8:00-10:50 am)***
50% Grant Proposal (Four Milestones, including written and oral presentations)
* Milestone 1 Report (5%): ***Due 8/29***
* Milestone 2 Report & Presentation (10%): ***Due 9/17 (written), 9/24 (oral)***
* Milestone 3 Report & Presentation (15%): ***Due 10/22 (written), 10/29 (oral)***
* Milestone 4 Report (20%): ***Due 11/21***

10% Homework and Grant & Paper Reviews
10% Attendance and Class Participation

Exams: Exams are in class and closed book/closed notes.
No makeup exams (except for documented medical or family emergencies).

Homework: Assignments are due at the beginning of class. **Late assignments will not be accepted.** You may discuss HW with other students, but you must hand in your own work.

Attendance: Class participation is critical to the success of this class. I will take attendance and it will be part of your grade. In addition, class participation contributes to overall grade.