ME 4803-GLE: Engineering & International Development

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 international development; e.g., clean water & sanitation, food security & agricultural innovations, combating major global health issues (HIV/AIDS, malaria, tuberculosis, and other disease, reducing child and maternal mortality), sustainable energy for resource limited environments, 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 international development in these resource-limited environments.

Objectives
The objective of this course is to provide students with an introduction to the grand challenges in international development 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 issues & pathologies of the major challenges in international development and the current state of the art in successful (and unsuccessful) strategies at addressing these issues.
2. Design experiments to test the effectiveness of innovative ideas to address issue in international development.
3. Work in teams of 3-4 students to formulate a novel engineering strategy to address a major gap in international development, with emphasis on strategies that will be successful for resource-limited environments.
4. Critically evaluate research proposals and research papers in international development.

Required Text
None

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: Week 2
   * Milestone 2 Report & Presentation (10%): Wk 5 (written), Wk 6 (oral)
   * Milestone 3 Report & Presentation (15%): Wk 10 (written), Wk 11 (oral)
   * Milestone 4 Report (20%): Wk 14
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.