

BioE491: Creative Inquiry: Designing Medical Technology for the Developing World  
Course Description:

Developing countries face healthcare challenges every day, whether it is lack of supplies or a shortage of healthcare professionals. Medical devices and equipment that are considered standard in hospitals in the United States can be hard to find and very expensive in developing countries, such as Tanzania. Tanzania has recently made significant advances with the quality of their healthcare; however, the infant mortality rate is still ten times greater than that of the United States. This is due to the lack of technology available and untrained healthcare professionals to use these medical devices. The goal of this Creative Inquiry team is to design and develop medical instrumentation and monitors that are robust, user-friendly, and low-cost for developing countries. The students on this team will be expected to work on electronics and instrument design. The first project will focus on developing a neonatal temperature sensing and control system for the prevention of hyperthermia in premature babies for Tanzanian health centers. The next projects will focus on development and design of cheap pulse oximeter and electrocardiography systems to monitor the blood oxygen levels and heart rates in these babies. These types of projects not only have the ability to improve the lives of young infants and families, but they can also impact the medical field in developing nations worldwide.

**Creative Inquiry in Bioengineering**  
**Designing Medical Technology for the Developing World**  
**BIOE 451-010**

**Questionnaire**

- 1) Name:
- 2) Major:
- 3) Year at Clemson University (as of May 2011): 1st
- 4) Current Overall GPA:
- 5) What do you want to do when you graduate and why?
  
- 6) Why are you interested in joining this Creative Inquiry experience? How will this CI help achieve your long term career goals?
  
  
  
  
  
  
  
  
  
  
- 7) Have you taken any circuit classes? if so, which ones? If not, how familiar are you with electronics?
  
  
  
  
  
  
  
  
  
  
- 8) How do you rate yourself in time management?  
I think I am 3 (On time mostly)  
Explanation of the choice
  1. Well organized (Have a weekly calendars of things to do, always on time for class and meetings, prepare for class/exams in advance)
  2. Moderately organized (Have a to do list, always on time for class and meetings, try to give myself some time to get things done)
  3. On Time Mostly (Try to show up at class/meetings and get things done on time)
  4. Procrastinator (I wait until last minute to do things)
  5. Total mess (Always late and/or miss deadlines often)
  
- 9) Is there anything else we should know about you?