**Georgia Institute of Technology**

**Wallace H. Coulter Department of Biomedical Engineering**

*New Course Syllabus*

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| Course Title: **Clinical Literacy and Experience** | Instructor: Jeremy Ackerman, MD, PhD |
| Course Number: **BMED 6502** | Credit Hours: 3 |
| Co-requisites: BMED 6501 |  |

#### Course Description: Development engineers must effectively interface and communicate with medical professionals and have experienced in clinical working environments. This includes knowledge of hospital protocols, interacting with clinicians, surgeons, nurses and medical technical staff. Course content will focus on: hospital & surgical protocols, physician, surgeon, nursing and technical support functions, medical terminology, ethnology research on how to observe and gather information in the clinical setting and HIPPA requirements for protection of patient confidentiality and information. It is also essential to effectively build professional trust in order to define user requirements, verify engineering design requirements, and obtain user feedback for design validation.

**Catalogue Description:** Instruction in interfacing with medical healthcare professionals, medical terminology, on–site clinical observations, need finding, case analysis, design solutions for improved methods, products and procedures.

**Course Objectives:**

* Proficiency in medical terminology to effectively communicating with healthcare practitioners.
* Observation in medical-clinical environments for identification of problems and opportunities.
* Analysis, adaptive problem solving skills and creativity in synthesizing solutions to clinical needs.

**Course Format:**

Instructional methods include: lectures and seminars period of 2 hours each week and a three (3) hour lab period for clinical observation and team project work throughout the 16-week semester. Course readings will be assigned from medical literature and contemporary healthcare case information. Grading will be from a combination of a mid-term, final exam and presentation of team projects conducted during the semester.

**Grading:**

* Class participation (20%)
* Assignments and project (30%)
* Class presentations (20%)
* Exams (30%)

**Class Materials:**

Required Books/Reference Materials:

* *Tabor’s Cyclopedic Medical Dictionary,* F.D. Davis Company

Recommended Reference Materials:

* To Be added…

**Course Topics, Lectures & Class Presentations, Clinical Observations**

1. Introduction Of Engineering Students To Medical and Clinical Environments
   1. Workplace communication, addressing audiences, collaboration
   2. Project planning, organization and gathering support
   3. Organizing information
   4. Communicating progress
   5. Sales pitch
2. Hosiltal and Surgical Procedures and Protocols
   1. Compliance with the HIPAA Privacy Rule
   2. Hospital Institutiional Review Board (IRB) Processes
   3. Safety in the clinical setting
   4. Sterile Techniques for patient interaction and surgical enviornments
3. Interfacing with Medical Professionals
   1. Medical terminology analysis for effective communications (prefix – root – suffix)
   2. Physicians and clinicians – education background and personas
   3. Surgeons – education background and personas
   4. Nurses – education background and personas
   5. Medical Technologies and Technicians – education background and personas
   6. Protocols and skills for with interacting with medical professionals
4. Clinical Immersions Experiences
   1. Grady Memorial Emergency Care Center
   2. Emory surgery department, catheterization lab, other
   3. Medical clinic environments
5. Observation and Gathering Data in the Clinical Setting
   1. Documentation techniques
   2. Analysis of observations and data
6. Teaching Labs (Emory Simulation and Training Center)
   1. Simulators for resident training and proficiency evaluation
   2. Exercises with patient simulators
7. Group Projects – Teams of 4-6 students
   1. Identifying a “problem/opportunity” by observation in environment
   2. “Case of the week” presentaions
   3. Analysis of situation and literature review
   4. Developing parameters and engineering metrics of the problem/opportunity
   5. Generation of alternatives and proposed solution(s)

*Attach here - Course “boilerplate” guidance*