PROJECT OUTLINE AND FINAL REPORT
Summer Clinical Immersion Program

Objective of Assignment
This outline and subsequent report will give you a chance to deepen your knowledge in the area of a capstone design project that interests you. This assignment will get you into the literature, patents, and further clinical immersion where you can see for yourself the results of your future biomedical innovations. The outline and report will also serve as a springboard for your future capstone design project activities during the academic year.

Overview of Assignment
Perform additional clinical shadowing and project needs assessment. Survey the literature and patents on your specific project. Describe the current state-of-the-art and suggest areas that require further research. Then briefly describe plans of how you would investigate and carry out your specific project.

Project Assignments

Name	Project
Blalock, Clifton	Stress Detector – ORNL
Brisby, Jakob	Face and Eye Recognition – ORNL (*with William & Derek*)
Cockrill, Sharae	Infant Stimulus for Apnea – GSM (*with Bryan*)
Elich, Kyle	Dental Wear Simulator – GSM
Evans, Adam	Skin Simulator – GSM (*with Mia*)
McClintic, William	Face and Eye Recognition – ORNL (*with Jakob & Derek*)
Medina, Bryan	Infant Stimulus for Apnea – GSM (*with Sharae*)
Mickens, Timothy	Endotracheal Tube Microparticle Delivery – GSM (*with Hannah*)
Mitchell, Mia	Skin Simulator – GSM (*with Adam*)
Morawala, Chandana	Universal Personal Transfer – MABE
Myers, Hannah	Endotracheal Tube Microparticle Delivery – GSM (*with Timothy*)
Richard, Kristen	Neuroheadset Analyzer – GSM
Shambo, Derek	Face and Eye Recognition – ORNL (*with Jakob & William*)

Project Outline
Outline of your report is due on Monday, July 30th. Format of the outline is described below.

Format of the Outline

The written outline should include the following three sections:

1. INTRODUCTION & BACKGROUND
   Briefly describe your topic and why it is important.

2. PREVIOUS WORK
   List several sources (e.g., clinical shadowing, literature, patents, etc.) that relate to your topic. For each paper try to state:
   a. Goal(s) of the previous paper
   b. How it relates to your topic
   c. Major conclusions
   d. Major shortcomings
   e. The next step in this research

3. REFERENCES
   List at least ten references that relate to your topic. This list should conform to the style of a journal you are referencing.

This is just an outline, so it can be rough. However, make sure that you are on the right track and finding references that relate to your topic.

Project Report

Your report is due on Monday, August 20th. Format of the report is described below.

Format of the Report

The paper (excluding reference and figures) ***should not exceed ten, double-spaced pages.*** The paper is short, and needs to be extremely well written. A first draft should be written well in advance of the due date so that you have a chance to refine the final product. The paper should be written in the following form.

1. TITLE PAGE

2. ABSTRACT (about 150 words)
   This is the most important section of any report and should summarize the key points of your paper.

3. INTRODUCTION & BACKGROUND (~1-2 pages)
   Briefly describe what you will be presenting and why it is important. Relate the anatomical, biological, clinical, or business framework of your topic.

4. PREVIOUS WORK (~4-6 pages)
   Present a review of previous work on this topic. Do not simply review a number of individual papers, but try to synthesize what has been done. This section should be in a form such that the current state-of-the-art is easily appreciated. State the shortcomings in our current knowledge, and in a final paragraph or two state your project area that requires further research.

5. PROPOSED RESEARCH (~2-4 pages)

State concisely and specifically your particular problem that you propose to address in the project. Be sure to cover the project's functions and requirements that must be met with the final biomedical innovation. In broad terms, describe how you will investigate this problem with experiments, computer simulations, etc. Point out the difficulties that you may expect to encounter in this research. State what you believe will be the significance of your proposed research. Provide a realistic timetable for the completion of the work.

6. REFERENCES

   Your paper should be referenced using primarily journal articles. References and reference citations should conform to the style of a journal you are referencing. The following sources may be useful:

Index Medicus	*J. of Orthopaedic Research*	*IEEE Trans. on Biomedical Eng.*
PubMed	*Science Citation Index*	*Clinical Orthopaedics and Related Research*
Google Scholar	*Medical Eng. & Physics*	*J. of Bone and Joint Surgery*
J. of Physiology	*J. of Biomechanical Eng*	*J. of Biomedical Material Research*
J. of Biomechanics	*Biological Cybernetics*	…… and many others

Project Oral Presentation

This assignment is intended to let other students know about your project and give you experience articulating your ideas to a group. The due date will be determined based on audience availability, but will take place near the start of the Fall semester.

Format of Oral Presentation

Each student or team will give a formal, 15-minute, oral presentation on their project. The presentation should state the problem you are investigating and what you have found. The intention is to let the audience know about your topic and enlighten us with your findings. Feel free to be creative.