ANDREW SIFFERLEN

Portfolio

Senior Biomedical Engineering Major

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OBJECTIVE

Full-time employment, continue to gain real world experience, and strengthen abilities to make a difference in the medical field.

EDUCATION

Worcester Polytechnic Institute, Worcester, MA
Bachelor's Degree of Science in Biomedical Engineering, Business Minor, GPA 4.0/4.0 — May 2023

Lincoln-Sudbury Regional High School, Sudbury, MA
High School Diploma, LS Scholar (All Semesters), GPA 3.88/4.0; Cum Laude — June 2019

Related Courses: Biomaterials Lab, Cellular Engineering Lab**,** Physiology and Engineering, Transport Analysis in Bioengineering, Biomedical Data Analysis, Cell and Molecular Bioengineering, Cell Biology, Solid Biomechanics Lab Techniques, Skeletal Biomechanics Lab, Materials Processing, Leadership Practice

SKILLS

Programs: (Proficient) MATLAB, ImageJ, Bluehill, Microsoft Word, Excel, PowerPoint
(Familiar) Python, ZEN, Minitab, XML LabVIEW, CES Edupack, Multisim, Maple, html

Laboratory: Aseptic Cell Culture, Wet lab (centrifuge, spectrophotometry), animal surgery, Analytical concepts (calibration curves, dilutions), analytical skills (micro pipetting, balances), pH buffering, Instron 5544, Force plate, Polhemus

EXPERIENCE

Systems Engineering Co-op, Lexagene, Beverly, MA — June - Present

- Designing, executing, and analyzing data from system and subsystem level experimentation related to complex IVD devices.
- Experiments including component reliability, material compatibility, alternative device process studies.
- Supporting the integration of biologics and instrumentation as a member of the Product Development Team.
- Maintaining multiple ongoing projects in a fast-paced start up environment.
- Consulting manufacturing upscale, handling lab maintenance, and assisting in DHR procedures.

PROJECTS

Major Qualifying Project (MQP), WPI — September 2022 – Present

- Collaborating on a team of four to enhance a bio-realistic section of the abdomen that fits inside existing laparoscopic and robotic surgical trainers.
- Working with clinical clients to evaluate the strengths and limitations of current models.
- Developing bio-realistic components that are easily repaired, replaced, and reused.
- Assessing and creating a scalable prototype that can be deployed as a commercial product.

Cellular Engineering Lab, WPI — January - March 2022

- Passaged, froze, thawed, and stained mammalian 3T3 cells through aseptic technique cell culture.
- Evaluated coating and adhesion materials biocompatibility and effects on cell proliferation on PDMS surface.
- Observed effects of differing Fetal Bovine Serum percentages in complete medium on cell proliferation.

Interactive Qualifying Project (IQP), Prague Czech Republic — October - December 2021

- Expanded opportunities available to students for the Prague Project Center.
- Conducted interviews with center directors and intermediary contacts.
- Produced and delivered a sales pitch PowerPoint Presentation to organization representatives.

Biomaterials Lab, WPI — August - October 2021

- Extruded Fibrin Microthreads through a syringe pump, capture microscopic pictures with ZEN, and measure diameters from a reference hemacytometer with ImageJ.
- Produced self-assembled DCPC lipid microtubules, load with BSA protein, analyze degradation and protein release as a drug delivery system.
- Measured absorbance of BCA assay with spectrophotometer and calculate concentration from serial dilution standard curve.

CAMPUS INVOLVEMENT

Varsity Track and Field: Captain (September 2022 – Present) — August 2019-Present
Heptathlon and Decathlon (All Academic National Athlete (2020))

Phi Kappa Theta: Vice President of Membership (November 2021 - Present) — September 2020-Present
Membership Development Chair (November 2020 – November 2021)

Alpha Eta Mu Beta Biomedical Engineering and Tau Beta Pi Engineering Honor Societies — December 2022-Present

*Currently enrolled for Spring 2023