

## **REU Site: Engineering research in a liberal arts and entrepreneurship context**

### **Development of Shelf-stable Vaccines**

**Mentor: Prof. Stephanie Curley**

#### **Developing Novel Platforms for Shelf-Stable Vaccines:**

The goal of this project is to study the stability of outer membrane vesicles incorporated into a thin film matrix. Outer membrane vesicles (OMVs) are spherical particles naturally produced by bacteria that can activate the immune system against infectious disease. While they have been used in injectable liquid formulations, the OMV structure is not particularly stable at room temperature or in solid forms. Our lab is interested in evaluating how to reduce the degradation of the OMVs when stored at room temperature, with our ultimate goal being to create a shelf-stable vaccine capable of being administered orally. The student will make different films containing OMVs, evaluate the stability of the OMVs at different temperatures and storage times by dissolving the films, and determine the effect of different film forming components on OMV stability. The student will gain skills in bacterial culture and aseptic technique, microscopy, and biological assays.

[Learn more about Prof. Stephanie Curley](#)