Below are project descriptions for each of the 3 projects for the 2015 Summer Undergraduate Research Program (SURP) opportunities through the College of Public Health.

1. **Project Title:** What Help Might Women Need -- Survivors of Sex Trafficking?

   **Project Description:**
   The College of Public Health and the Women’s Center for Advancement (WCA) will collaborate to determine the needs of women who are survivors of sex trafficking. The purpose of the project is to gain a better understanding of the needs of survivors of sex trafficking so social service organizations can effectively align their programs to meet the needs of women as they move toward economic and social self-sufficiency.

   The Women’s Center for Advancement is a key organization in Omaha serving victims of sex trafficking, and provides counseling, advocacy and clothing and material goods. Lack of awareness of social service providers and key local stakeholders often makes them less effective in responding appropriately to potential victims that might seek services from their organizations. A recent article in the Omaha World Herald states: “It takes resources, of course, and the safety net of community services is thin — especially for those with complicated posts who are reluctant to seek help.” Victims might need an array of services from counseling, housing, furniture, jobs and access to healthcare. Nebraska ranked last in crime victim compensation based on a recent national report.

   The objectives of the study are to:
   a) document services utilized through WCA by the 30 women who were victims of trafficking in 2013; and 
   b) determine if victims of sex trafficking utilize more services, and at a higher frequency over a one-year period, compared to other similar WCA clients, matched on socio-demographic characteristics including age, years of education, race/ethnicity, etc.

   **Student Activities:**
   The student will need to be complete CITI certification and assist in: getting IRB approval for the study; obtaining the necessary de-identified data from WCA to address the two objectives of the study; formatting and analyzing the data; writing a short-report; and preparing a poster-presentation.

   **Contact Person:** Shireen S. Rajaram, Ph.D. Department of Health Promotion.

2. **Project Title:** Analyzing the Emergency Department Length of Stay for Different Patient Groups

   **Project Description:**
   The purpose of this project is developing a framework to assist Nebraska Medicine Hospital improve their resource utilization and quality of care at the Emergency Department (ED) setting. In specifics, the framework involves using various data sources from the hospital to analyze factors that affect the length of stay (LOS) at the ED and develop a predictive model that can predict the LOS for certain patient groups. Dr. Ozgur Araz, has developed a forecasting models for projecting the ED visits which can be used to assist hospital managers for adaptive operational decision making. In this project the goal is to identify the predictors of LOS and use the model outcomes for develop robust plans for effective resource utilization and better quality of care.

   **Student’s Role in the Project:**
   Role 1: Student will assist in performing basic statistical analysis of the data from the Nebraska Medicine Hospital, Emergency Department.
   Role 2: Student will help performing comparison of predictors from the literature and the developed model and write a report about this comparison.
Role3: Student will perform experiments with a model to generate results from a forecasting model.

**Develop an understanding of research**
During this research, student will have the opportunity to work closely with a faculty and his collaborators from other institutions who develop simulation models for operational healthcare decision making problems. In addition to developing computational and analytic skills, student will experience how statistical research outcomes can be used in healthcare delivery business.

*Contact Person:* Ozgur Araz, PhD., Health Promotion, Social & Behavioral Health

3. **Project Title:** Oral mucosal wound healing: A novel *ex-vivo* model system with direct clinical implications

**Overall Project Description:**
Recurrent aphthous stomatitis (RAS) is a painful oral ulcerative disease that affects 40% of the population. The etiology of this common disease is unknown. Although various autoimmune theories have been proposed through the years, there is little supportive evidence. We hypothesize that RAS is rather a primary wound healing defect, which is most evident during peak growth velocity. For the SURP pilot project, we hypothesize that primary oral epithelial cells isolated from individuals with a lifetime history of RAS have a wound healing impairment compared to individuals without RAS history. To test this hypothesis we propose the following specific aims:

1. Demonstrate the feasibility of culturing primary oral epithelial cells in an *ex-vivo* model system
2. Determine time-to-wound healing following a chemically or mechanically induced injury of cultured primary oral epithelial cells isolated from RAS negative and positive individuals

**Student’s activities on this project:**
1. Learn to grow primary oral epithelial cells in submerged cultures using commercially available media
2. Perform cell cytology staining and photography to characterize primary oral epithelial cells isolated from RAS negative and positive individuals
3. Optimize (chemical, toothpick punch, or scrape) and perform wound healing assays
4. Collect wound healing data over time using available computer software to measure the wound area
5. Participate in scientific discussions, data analysis and preparation of report

*Contact Person:* Lorena Baccaglini & Tricia LeVan, Department of Epidemiology