# 2014 Summer Undergraduate Research Fellowship Awards

Student Name: James Shannon
**(2014 Bruce LeVine Mellion '69 SURF Fellowship recipient)**

Project Title: Investigation, Purification, and Characterization of an Inhibitor for Breast Cancer
Faculty Sponsor: Paul Baures, Chemistry
Project Abstract:

Fatty Acid Synthase (FASN) is an enzyme that catalyzes the production of fatty acids in cancer cells, and is being researched in the treatment of breast cancer. It has been observed that this enzyme is elevated in cancers such as breast, colon, ovary, thyroid, and skin. Therefore, inhibition of this enzyme may halt the production of fatty acids in breast cancer cells, and cause them to die.

Extensive research has been done on this enzyme and concludes that its activity is elevated in various cancers. The cancer of interest here is breast cancer, where previous FASN inhibitors made in the Baures laboratory show high biological activity in inhibiting this enzyme and may provide a potential treatment for victims, according to the Molecular Library Small Molecule Repository for biological testing. However, only a relatively small number (40-50) of compounds have been made and tested.

This project, in collaboration with Dr. Kinlaw of Dartmouth-Hitchcock Medical Center, aims to build off of this initial result and prepare approximately 100 new compounds that Dr. Kinlaw has agreed to test against breast cancer cell lines in his laboratory. Our starting compound is prepared in three steps from a commercially available small molecule and two amino acid esters, as described in the aforementioned publication. The goal this summer is to prepare compounds with variation in the two amino acid esters in order to identify what is optimal for activity against breast cancer cell lines. The starting compound provides clues to the next series of compounds to prepare, purify, characterize, and send to Dr. Kinlaw for testing. The results then provide new clues for hypothesizing additional changes to the compound in the future.

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Student Name: Nicole Baker
**(2014 KSC SURF Fellowship recipient)**

Project Title: The Role of Images of Underweight Women in the Media on Self-Esteem, Body Satisfaction, and Eating Disorder Symptomology
Faculty Sponsor: Nashla Feres, Psychology
Project Abstract:

The main goal of the proposed study is to examine the impact of viewing images of underweight models on women's self-esteem, body satisfaction and eating disorder

symptomology. Only a handful of studies have implemented an experimental design to test these relationships, which the current study intends to do. Participants will be recruited through campus and local newspaper ads and randomly assigned to one of three image exposure conditions: underweight females, normal weight females or males. Participants will view and evaluate 20 images for 30 seconds each; complete questionnaires including Rosenberg's Self-Esteem Scale, The Body Image States Scale and Anorexia-Bulimia Inventory and have their height and weight measured. The current study will test three hypotheses-- **$H_1$**: Females in the underweight exposure condition will report significantly lower self-esteem and body satisfaction scores compared with the other conditions. **$H_2$:** Self-model BMI discrepancy values will be negatively correlated with self-esteem and body satisfaction scores. **$H_3$**: Participants with the highest levels of eating disorder symptomology will report the lowest levels of self-esteem and body satisfaction scores. A one-way MANOVA will be calculated to test the first hypothesis. For $H_2$, Pearson's *r* will be calculated to examine the relationship among the three variables. Depending on the variability of responses, the final hypothesis will either be tested by comparing groups (based on eating disorder symptomology) with a one-way MANOVA or continuously with Pearson's *r*. Both statistical power and effect size will be calculated for this study.

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Student Name: Norman Valley
**(2014 KSC SURF Fellowship recipient)**

Project Title: Linking Gamer Mentalities and the Satisfaction with Life Scale
Faculty Sponsors: Brian Green, Sociology
Project Abstract:

Over 90% of American teens play some kind of video game (Hung, 2011:81). Many studies attempt to link video gaming with increased violent behavior (Ferguson 2007). Other researchers focus on potential positive side effects of video game use, such as pro-social behavior (Greitemeyer and Osswald 2011). Sociologists instead focus on the identity of the gamer (Kalio et al. 2011). This interdisciplinary study will examine the link between subjective well-being and gamer typologies. This study will assess subjective well-being with the Satisfaction with Life Scale (Diener, Emmons, Larsen, and Griffin, 1985). Gamer typology will be assessed and categorized into one of nine video gamer types with a survey approach inspired by the Intensity/ Sociability/ Games model (Kalio, Ma¨yra¨, and Kaipainen, 2011). I hypothesize that those falling into the three most committed of the nine video gamer typologies will also present with the highest mean score on the satisfaction with life scale when compared to the general gamer population.

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