

# SUSTAIN: Students Using Spatial Technology And Integrating Nature Final Report

## Introduction

During the spring 2014 academic semester we collaboratively redesigned two general education courses in our Geography & Environment major: GEOG 421 Future Environments and GEOG 203 Geographic Measurement. Our proposed project was to improve our students' opportunities to learn about sustainability through high-impact activities. It also aimed to spark interest in geospatial information technology, a rapidly-growing STEM field. To this end, we have successfully met our goals and are prepared to teach these new revised courses in the fall of 2015.

## Work Completed

We successfully completed a design and implementation plan for four new assignments in each course. We began the process by identifying learning objectives and goals in each course, then we developed four assignments based on the way students, faculty, and staff, use our campus on a daily basis. The four new assignments integrate knowledge and skills from the two different classes, in order to solve a complex problem. The assignments were created around requiring students to collect both quantitative and qualitative data, but also work closely with our facilities planning department, utilizing their vast experience on campus. This goal fits very well within our current collaborations with facilities staff. Currently, several of our undergraduate and graduate students in Geography & Environment are hired by facilities management because of their skills in GIS and environmental planning and management. Building on this relationship, and through our four class assignments, our two classes will: 1). Take a tour of our facilities management building and learn about their efforts to green our campus, including demonstrating their numerous campus projects, 2). Help students fit their assignments into, and expand, the work of facilities management, 3). Invite members of the facilities planning and management team to our class presentations on the completed exercises. We believe that this student to student, student to faculty, and student to staff collaborative experience will prepare our students to be critical thinkers and applied scholars. It will be an opportunity for them to apply their classroom knowledge to solve real problems on the ground.

The four assignments are:

**Project 1: SF State Walks**, which aims to set up stops where students can meet and walk together to and from the BART station. An exercise on using geographical information systems to explore the feasibility of walking between subway stations and the campus have been rewritten.

**Project 2: Real food challenge**, which aims to help SFSU campus to have at least 20% real food by year 2020. As a baseline study, we have designed an exercise to help students design a questionnaire to collect information on existing campus food so that the gap to the 20% goal can be calculated.

**Project 3: Lawn be Gone**, which aims to remove the water-consuming lawns and replace it with sustainable gardens. An exercise has been written on how to use field survey to map campus plants and identify the lawns on campus that can be transformed to sustainable urban gardens.

**Project 4: Water “shed”**, which aims to educate students on SFSU’s water budget, and determine how much water is used for basic daily activities. An exercise has been developed on using

geographical information systems and global positioning system to map the existing hydration stations and bottled water sources on campus and identify sites where more refilling stations are needed.

We expect to offer the paired courses in fall 2015 when Dr. Chitewere, the principal investigator, is back from Sabbatical. We are currently working on the logistics of teaching the two classes on the same days and pairing up students for assignments. We plan to complete the planning this semester.

**Budget and Timeline**

Two course releases (\$6,000 each) were granted for Spring 2014 semester for each faculty partner. The PI and Co-PI met on a weekly basis to develop the assignments.