

# Template for Summary Report to CETL on Faculty Development Grant Projects

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## **Your name and discipline?**

Susan E. Safford, Biology

Bo Sun, Computer Science

## **What was the focus of your Faculty Development grant project?**

- Wrote tutorials and questions on molarity application to biological problems for a mobile app
- Developed a prototype of the mobile app using objective C

## **Why was that project important to you: what led you to propose it?**

Biology students have to use a lot of math, and frequently it is difficult for them to link mathematical concepts, such as ratios, learned in a math class, to problem-solving in a discipline, like calculating amounts of solvents to be weighed out for different molarity solutions. Biology majors are introduced to the concept and application of molarity in their freshmen year and it is one of the more difficult aspects of the course for many of them. Also, the math professors are interested in having discipline-specific application problems available for students in their math classes. I believed that the development of a mobile app would provide students and math, biology, and chemistry professors with large numbers of application problems. Other features of the app would permit professors to customize the questions and collect response data to tailor the course or homework problems to student needs.

## **Where will the project go from here?**

We (Dr. Sun and Dr. Safford) have received a LEAPS grant to continue this project this academic year. We are recruiting students to assist in this project. An upper level biology student has been selected to assist Dr. Safford in problem development and to recruit a focus group of students to test the app. For this stage of the project, we will use a Moodle platform. Dr. Sun has recruited two Computer Science students to assist in app development, including writing code for additional steps in the app. Also, Dr. Sun and I are working on an HBCU-UP Targeted Infusion proposal to further develop this app, more thoroughly evaluate it, and to add additional types of problems.

## **How has this project informed your teaching:**

- **What did you learn that has made a difference in your teaching?**

I (Dr. Safford) haven't taught since we received this grant, but it has made me think much more in depth about the main message I want students to get from this math application, and how to succinctly explain it and break it up into small increments for computer language coding that make sense mathematically and biologically.

- **What is the “takeaway” for other instructors?**

Teaching math in the discipline can be difficult and requires professors to think through the most important concepts and applications of the math. If necessary, enlist the help of a math professor to be sure that the math component is explained consistently with the methods used in math class, and to put most of the focus on solving the problem from a discipline-specific (biology in this case) viewpoint.