

## **Sabbatical Leave Proposal**

### **A. Applicant**

Name: Bic Ha DoVan

Department: Mathematics

Type of Leave: Research / Independent Study

Leave Dates: Fall 2018

### **B. Purpose of Leave**

The purpose of my sabbatical leave is to bring relevance to the course study of students in mathematics classes by developing a resource document with projects and supplemental materials for any faculty to use. To update my technology skills in order to enhance my teaching of these classes. I will use independent study and research to accomplish these goals.

### **C. Leave Objectives**

- 1) Bring relevance to the coursework for math students by producing a resource document of at least 4 projects and/or supplemental materials for instructors and students in Math 10 (Liberal Arts Math) and Math 15 (Statistics). Both of these courses are transfer level courses intended for students who are not math or engineering majors.
- 2) Increase my technology skills by learning advanced Excel and the programming language MatLab or Mathematica, to enhance my teaching and incorporate their usage for the benefit of students in the curriculum.

### **D. Narrative**

Students who take math courses usually do so because it is a General Education requirement and do not see its relevance, beauty or utility. Students often lament, "When will I ever use this in real life?" I want to answer their question and show students that math permeates throughout their lives. It doesn't end when you leave a classroom.

With the implementation of Common Core in our educational system, a holistic approach to teaching has been stressed. Greater emphasis is made on using a project-based curriculum and using applications. I will provide a resource for instructors so that they may show their students the math they learn is interesting, informative, applicable, and useful in their lives.

### **Objective 1.**

I will research and use independent study to create a resource document that will include at least four projects and/or ancillary materials for instructors and students in Math 10 (Liberal Arts Math) and Math 15 (Statistics) to be used in their classes as lessons or to supplement the lesson.

- The ancillary materials will contain tools that incorporate data and research methods for statistical analysis such as sampling techniques, summary statistics, confidence intervals, and hypothesis testing. It will provide ideas and resources including links or websites for research projects that may encompass disciplines such as biology, environmental studies, finance, medicine, psychology, and sociology.
- One component of Math 10 is learning the practical knowledge of mortgages and annuities as an application of exponential functions. One of the resource documents will provide tools for a student project so that students can discover their usefulness.
- One of the four projects will have a theme about our National Parks and be used to introduce statistics and make the subject more interesting and familiar. Examples that may be used include: the number of bison through a timeline, the prediction times of geysers, the number of visitors to the National Parks, the heights of the tallest peaks of the National Parks and more.
- I will visit at least one National Park and research others to accomplish this objective.
- I will attend at least one math conference to discuss and network with other math colleagues throughout the state and the nation about their ideas on teaching statistics and math for liberal arts students. The math conferences may include The Council on Mathematics, California Community (CMC3), The American Mathematical Association of Two-Year Colleges (AMATYC), or other math conference opportunities.

### **Objective 2.**

To increase my technology skills.

- I will further my knowledge of Excel by learning Advanced Excel to enhance my teaching and demonstrate its capabilities to my students. Excel, as a statistical tool is superbly suited for finding summary statistics, plot data and graphs, find equations and solutions. I will learn these skills and incorporate their usage for my students in Math 15.

- I will learn MatLab or Mathematica so that I am able to use the program to write handouts, quizzes or exams that produce professional and clear mathematical notation and graphs. It will also help with writing the resource document in Objective 1 of my sabbatical. It will increase my understanding of how computer programs are written and their function.

## **E. Evaluation Summary**

1. *How will the objectives of this sabbatical leave enhance my work performance at the college?*

I will return with fresh ideas from my research and independent study. My teaching will be enhanced by using current data and providing examples to my Math 15 students that are relevant and interesting. I will use more technology in the classroom and in writing handouts, quizzes and exams.

2. *How will the objectives of this sabbatical leave benefit students in my discipline?*

The students will benefit because they will be more engaged in their math classes when they are provided with relevant and interesting examples and have hands-on activities. They will be able view math as a practical tool, and see it for its beauty and usefulness.

3. *How will the objectives of this sabbatical leave benefit my department?*

I will provide a resource document available to any faculty, especially our adjunct faculty so that they may use it in their classroom as part of the curriculum or to supplement it.

4. *How will the objectives of this sabbatical leave advance the college's mission as put forth in the District's Strategic Plan?*

SRJC's Strategic Plan includes "preparing students for transfer . . ." and to "support student success and enrich student lives".

My project will provide faculty with a resource document for research projects and lesson plans in Math 10 and Math 15. Both of these courses are transfer level courses intended for students who are not math or engineering majors. The use of relevant data, hands-on activities and interesting topics will prepare students for transfer, support their success and enrich their lives.

## **F. Abstract for Board Proposal Summary**

Bic Ha DoVan will develop a resource document of at least 4 projects and/or ancillary materials for instructors and students in Math 10 (Liberal Arts Math) and Math 15 (Statistics). Her project will assist other math faculty and enhance student learning using project based curriculum. She will conduct research and

attend at least one math conference to accomplish this goal. She will increase her technology skills by learning Advanced Excel and MatLab or Mathematica.