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Ventura College Sabbatical Leave Proposal Project for fall 2012

Instructor's Sabbatical Leave Status

Full-time Hire Date: August 2006
Part-time Hire Date: August 2005 (Moorpark College)
Previous Sabbaticals: 0

Background

Ventura College (VC) has an impressive Biology Program. The courses offered through the Biology Program at VC present students with a wide array of life science choices that meet the requirements for students transferring to four year institutions among other benefits. The General Biology course offered at VC serves as a general education requirement. Anatomy, Physiology, and Microbiology are pre-requisites for the VC Allied Health Program. Plant Biology is a requirement for the VC Agriculture Certificate. Biotechnology and Field Biology are specifically designed to prepare students for the job market. Most biology courses at VC include a mandatory laboratory section. These laboratory sections require a great deal of preparation. It is the responsibility of the biology faculty to determine the content of laboratory exercises and laboratory technicians assist with preparation of the laboratory sessions. This preparation includes collaboration with instructors for the purchasing of laboratory supplies, the preparation of solutions and the set up of required laboratory equipment and supplies for corresponding lab sessions.

VC is equipped with highly sophisticated and expensive equipment. For example, an autoclave for sterilizing media is utilized in various disciplines, primarily Microbiology. Laboratory classes also require a number of less sophisticated equipment. Human models are an invaluable teaching tool for Anatomy laboratories and animal specimens are useful for a number of biology courses (e.g. General Biology, Marine Biology, Organismal and Environmental Biology). Currently, VC only contains a minimal collection of Algae specimens. There is currently no collection of plant specimens. The lack of a functioning herbarium is somewhat concerning considering the number of biological disciplines that would benefit from such a collection (Plant Biology, General Biology, Field Biology and Organismal and Environmental Biology). Herbariums are common at teaching institutions. Museums tend to hold impressive plant collections (Muséum National d'Histoire Naturelle in Paris France has 8.9 million specimens). Four year universities may have herbarium collections that contain hundreds of thousands of plant specimens (Iowa State has 640,000 specimens). Two year institutions such as ours may have only hundreds to several thousand specimens. The addition of a herbarium at VC would only compliment the current inventory and serve as a great benefit to students, faculty and the academic community.

I plan to initiate a herbarium collection at VC which will provide real plant specimens available for student learning. Currently, the only plant specimen examples available to VC students take the form of photo examples and line drawings from laboratory manuals. Photos and line drawings, though beneficial, only provide students with a limited perspective. The addition of real plant specimens are intended to enhance the students' understanding of plants by offering an additional and more expansive view of these complex and very versatile organisms. It is my opinion that this project will not only improve student learning, but strengthen the Biology Department and VC as an academic institution.

Project Purpose

The purpose of this project is to initiate a herbarium collection with a plethora of plant types that can be utilized as a teaching tool in our laboratory. I would like to initiate the collection in Fall of 2012 in the hopes that faculty, students, and community members can add to the collection for years to come. I would personally intensely utilize the herbarium specimens in several classes of which I teach, including general biology, plant biology, and field biology.

Project Components

- Herbarium Cabinet
In the fall of 2010, VC was fortunate enough to obtain two herbarium cabinets donated from University of California Santa Barbara. These cabinets are generally priced between \$1000 - \$2000 each. The cabinets are currently in VC storage. Our laboratory technician (Sheena Billock) has stated that one of these cabinets may be brought into the biology building once the herbarium has been initiated. The other cabinet will be designated for the Agriculture/Environmental Science Program. I will designate an appropriate space in the biology building for the biology herbarium cabinet.
- Collecting the plants
I will begin collecting Southern California native plants in the spring and early summer of 2012. Those specimens will be pressed first before official documentation takes place. I will then request plant samples from the native garden at the Channel Islands Visitor's Center in Ventura. The plants from this garden are native to the Channel Islands and my intentions here are to select common native plants which students of Field Biology are likely to encounter during class visits to the islands. Additionally I will focus on native plants in local areas including those present on campus, specifically selecting individuals which capture plant characteristics, adaptations and morphology that are relevant to course content.
- Drying or pressing the plants
VC currently owns one large and one small plant press. I stated in last year's program review that students in Field Biology could have improved performance levels and passed the Student Learning Outcomes (SLOs) if they were provided with more 'hands on' experience with plant specimens. Specifically their performance concerning plant identification could be improved. This is an important skill for any field biologist.

I had also suggested the purchase of three additional large plant presses and materials for constructing a plant dryer, which would allow for the preparation of plant specimens collected in the field. This would provide students the opportunity to review collected specimens for their laboratory practical. This method is typical of courses which stress plant identification. This year, VC is guided by the same initiatives of last year's program review. I am hoping that these items will be ranked higher and that they will be purchased through program review funds. However, if they are not purchased through program review, the available plant presses will suffice. A plant dryer would improve efficacy. However, it is not mandatory for this project.

- Mounting the Plant Specimens

Plant specimens are individually mounted on herbarium mounting paper once they are dried. A label is later added to the mounting paper, which includes thorough information about the specimen including the location of collection, collector, etc. Specimens are often geo-tagged and the GPA coordinates are included on the label. The more information a plant specimen receives, the more valuable it is. Each specimen (once mounted) is then placed in individual folders and organized in the herbarium cabinet by genus, family, or an alternative taxonomic moniker.

- Ricker's Mounts

A large number of Ricker's Mounts (glass display cases) were purchased by the VC Biology department several years prior, with the intent to display various plants types used during laboratory sessions. These display mounts are ideal for displaying fruit, seeds, and other delicate attributes of plants that may require a protective glass cover. Specimens that are handled heavily by students may also require a similar method of protection. Though these mounts decrease the value of a specimen (as it is not the ideal method for displaying museum specimens), they remain a valuable teaching tool. I intend to utilize these mounts to display those plants which require the same level of protection.

Value to Ventura College and the District

- Starting a herbarium collection at VC would greatly benefit our college as well as our district. Though I don't foresee a herbarium collection with 8.9 million specimens at VC, I do foresee an extensive collection that can continue to grow providing us historical and research based information on the various plants throughout Ventura County. Though starting the collection will be time intensive, maintaining and adding to the collection will be relatively simple. Thus, it is my intention to devote my sabbatical to the initiation of this project and my goal is to produce enough plant specimens as to provide a worthwhile collection that we can maintain and continue to grow.

Our specimens can be utilized or borrowed for research purposes as is common among academic institutions. They will also be available for viewing by any interested party. Creating a plant museum as such at our school would provide numerous benefits to students, faculty, and community members.

Value to Ventura College Students

The herbarium collection will serve as a teaching tool to enhance student learning. Students will gain knowledge through the herbarium collection by utilizing plant specimens for multiple purposes including distinguishing between different plant species, identifying common plant structures and personally contributing to the herbarium from specimen collection.

Value to Ventura College the Instructor

Though I have collected plants for plant presses and have assisted in plant mounts on herbarium paper in the past, I've never been involved in initiating or maintaining a herbarium collection. However, I have some wonderful resources, including collection managers at several institutions, who can assist and guide me as I work on this project. I have already met with a collection manager at California State University, Northridge who has walked me through the specifics of developing and maintaining a herbarium collection. Thus, I am confident I can adequately meet my goals. I am most excited about starting this project and learning the steps it takes to build a herbarium collection from scratch. It will also allow me to become a more effective instructor in the classroom, as it will provide me with many of the necessary specimens I can use in teaching. I can make small modifications to some of our curriculum to include the use of plant specimens. Building a herbarium collection will increase the number of plant names I have learned throughout the years. It will also help me review and learn related information about a variety of species. I believe this project will be an invaluable learning experience for me both as a biologist and as an instructor.

Sincerely,

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