Academic Affairs

VIA-CI PROJECT: VIRTUAL INSTRUMENTATION ACCESS AT CSUCI

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The VIA-CI Project

In Fall 2005, CSU Channel Islands was the recipient of a $950,000 grant from the Amgen Foundation to enhance the technological preparation of science students by providing regional community colleges and universities (Educational Partners) with virtual access to state-of-the-art instrumentation for the visualization and characterization of chemical and biological species. Following are the Educational Partners who have collaborated with CSU Channel Islands on the VIA-CI Project: California Lutheran University, College of the Canyons, Moorpark College, Oxnard College, Pepperdine University, Pierce College, Ventura College, and Westmont College.

The Virtual Instrumentation Access at Channel Islands (VIA-CI) Project addresses the problem that local community colleges and many local private colleges/ universities could not afford the high cost of purchasing advanced instrumentation including X-Ray Crystallography (X-Ray), Nuclear Magnetic Resonance Spectroscopy (NMR), Gas Chromatography-Mass Spectrometry GC-MS), and Computer-Aided Molecular Visualization (CAMV). These four pieces of instrumentation are used extensively by biologists, chemists, and biochemists hired into regional technology, pharmaceutical, and biotechnology companies and other high-technology industries. Through the VIA-CI project, CSU Channel Islands now provides students at the regional community colleges and local private colleges/ universities with on-site and remote access to these state-of-the-art instruments.

This is an example of the innovative approaches taken at CSU Channel Islands to enhance not only resources available to students at our own campus but also to students at our local Educational Partners.

What is VIA-CI?

The goal of VIA-CA is to enhance the academic and technological preparation of the students at CSUCI and the students at regional community colleges and universities (Educational Partners) with virtual access to state-of-the-art instrumentation available via the Internet.

With VIA-CI, the students at the partner institution have access to state-of-the-art instrumentation for the structure characterization of chemical and biological species. Having access to these instruments, students at the regional community colleges, at local private colleges/ universities, and at CSUCI will be uniquely qualified for research work at a company or graduate work in the chemical and biological sciences.

How does VIA-CI Work?

Educational Partners can remotely access and operate the instruments located on the CSUCI campus via a secure internet connection.

Once they have connected to the VIA-CI server using Stunnel software and Microsoft Remote Desktop, faculty and students at the Educational Partner's campus can access both of the instruments and the video cameras located in the CSUCI instrument labs. Students at the Educational Partner's campus will be able to run the instruments and experience the same hands-on-instrument operation as students on the CSUCI campus. Streaming video allows students to see the instrument actually running their samples in real-time.

VIA-CI at Work

The VIA-CI Project provides Educational Partners with access to the following instrumentation:

- Gas Chromatography-Mass Spectrometry (GCMS)
- Nuclear Magnetic Resonance Spectrometry (NMR)
- X-ray Diffraction

Together, these techniques allow one to determine the structures of chemical and biological species. Once a structure has been determined, 3D computer-aided molecular visualization can be used to view the structure of the molecule.

Who are the Educational Partners on VIA-CI?

Westmont College

Ventura College

Oxnard College

Moorpark College

Cal Lutheran University

Pierce College

Pepperdine University

College of the Canyons

• There are the growing demands on colleges and universities to produce science graduates capable of utilizing sophisticated instrumentation for more productive research. Through the Virtual Instrumentation Access at CSU Channel Islands (VIA-CI) Project, thousands of college students around the region, including those traditionally under-represented in the sciences, will have an opportunity for enhanced science education which will make them better prepared for employment at local pharmaceutical, technology, and biotechnology companies.