

Ventura College Sabbatical Leave Report

ChemV21L Introduction to Organic Chemistry and Biochemistry Lab OER Project for Fall 2022

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Chemistry Department

Instructor's Sabbatical Leave Status

Full-Time Hire Date: January 2015

Previous Leaves: 0

Sabbatical Leave Taken: Fall 2022

I. Summary of the Project

The proposed project was to produce a free OER lab manual for ChemV21 Lab Introduction to Organic Chemistry and Biochemistry Lab. The lab manual was successfully used in Spring 2023 and one round of revisions has been done to send the lab manual for print at the bookstore for purchase at a low cost for Fall 2023. The digital files are also shared with students via Canvas so they can print them from home too if they do not wish to buy the low cost printed version at the bookstore.

This manual can be accessed from One Drive and Canvas:

[Sp2023 ChemV21 Lab Manual.pdf](#)

[Canvas Humanizing Stem Course for ChemV21L](#)

[Canvas Shared Instructor Course for ChemV21L](#)

II. Components fo the Project:

A. Curriculum Development: Lab content and activities were adapted and written to

Be used by California Community Colleges for Introduction to Organic Chemistry Laboratory (C-ID, Chem 102 or Chem102L). The following course objectives for [C-ID Chem102](#) L were used during the construction of this manual.

1. Draw and name structures containing common mono-functional organic molecules and differentiate functional groups when they appear in an organic structure, relate the physical and chemical properties of compounds containing these groups with the structure of each functional classification;
2. Distinguish roles of four major classes of bio-molecules in living cells,

3. Compare and contrast the processes of DNA replication and transcription, RNA translation, and common types of mutations; and
4. Demonstrate knowledge of major biochemical components in metabolism.

B. Lab Activities: A free ChemV21L Introduction to Organic Chemistry and Biochemistry Lab Manual for California Community Colleges has been prepared to share as an open educational resource (OER). Images and content were prepared when possible or adopted from Open Stax and other OER sources to use free open license source materials. This allows us to send the lab manual to the printers/bookstore for low cost printing. Activities and labs were redesigned to increase student engagement and improve comprehension and critical thinking skills for dental hygiene, pre-health, vet tech, radiation tech, nutrition and other pathways of students needing this course.

C. Student Access: A ChemV21L Introduction to Organic Chemistry and Biochemistry Lab Manual for California Community Colleges is free in the Instructor Canvas Course, in the shared department One Drive folder and is available for use in the department by faculty and students. The content was evaluated in the Fall 2022 Humanizing STEM cohort to check the content and Canvas design to be inclusive, and meets our student's diverse needs.

D. Department Access: The lab manual has been shared via [OneDrive](#) with local faculty and can be accessed on Canvas in the [Instructor Lab Shell](#).

III. IMPACTS OF THE PROJECT:

A. Impacts of the project to Students

Most students need a physical science lab requirement to graduate and the expansion to hybrid and in person labs provides students the flexibility to schedule their time on campus to one day for this lecture and lab. That improved the attendance of the lab and the success of lab for students that required financial assistance. This Spring 2023 all students passed that were able to stay in the course and the overall class average score was 89%. The dashboard data link is below to show the trend of pre and post pandemic:

<https://tableau.vcccd.edu/t/Public/views/2016SuccessRateDashboard/FallSuccessRateDashboard>

B. Impacts of the project to Faculty and Chemistry Department

The free lab manual, and the free lab kits provided overall student success and retention. Having an in house lab manual that can be printed and shared with the department to be the same and consistent with all of our other lab courses was a much needed improvement.

C. Impacts of the project to VCCCD and Ventura College

The publisher's lab manual we used previously ranged in price from \$150 to \$200, making this a cost students had to overcome. By providing students with a no-cost lab manual, and free lab kits, students appear more likely to register, and remain enrolled, in the ChemV21 lab. I do not have as much data to project how this will impact the district but in general it should provide students at any of the three colleges to enroll and minimize the concerns with the cost of a lab manual.

IV. FUTURE OF THE PROJECT:

ChemV21L Introduction to Organic Chemistry and Biochemistry Lab Manual for California Community Colleges will continue to be updated to include more images of the actual lab setups, provide new case studies, improve on the content and activities to ensure the students are successful at meeting the SLOs for this lab.