

**VALENCIA COMMUNITY COLLEGE
Annual Division Action Plan (DAP) to Assess Student Learning Outcomes**

This form provides a documentation template for annual Division Action Plans (DAPs) designed to assess student learning outcomes. Initial information and projections describe the **PLANNING PHASE** of the process. At the conclusion of the project/activity time frame initial information and projections will be updated by completing an **EVALUATION PHASE** including modifications, outputs and outcomes. Both planning and evaluation information will be organized according to parallel criteria including: (1) a formal goal statement, (2) outcome measures, (3) collaboration with stakeholders, (4) evaluation methods and (5) use of results for improvement of learning.* The overall process will effectively review and document specific measures of educational effectiveness.

*These criteria are also employed by the Instructional Affairs Committee (IAC) to review proposals requesting funds for learning assessment-enhancement projects.

DIVISION: Science - West

DEPARTMENT/UNIT (as appropriate): Science/Biology

DEAN: Dr. Ron Keiper

EXTENSION: 1324

MAIL CODE: 4-3

DATE: January 9, 2006

TITLE OF PLAN: Chemistry Remediation for the Underprepared Microbiology Student

SUPPORTED BY COLLEGE FUNDS (If applicable, please provide approved amount): \$

CRITERIA	PLANNING PHASE Initial Information and Projections	EVALUATION PHASE Modifications, Outputs, Outcomes
1. Goal -principal purpose and objectives of plan	The primary objective of the plan is to improve student learning of basic chemical concepts by introducing foundation principles through active and cooperative learning, formative assessment and purposeful mentoring.	Since a major section of the Microbiology course deals with DNA and its control of cellular processes, the primary objective was altered to improve student understanding of this particular aspect of cellular chemistry.
2. Outcome Measures -how plan will be reviewed and measured	Microbiology faculty have designed an auto-tutorial program with formative and summative assessments for use by microbiology students during the first 4 weeks of the course.	A learning unit on DNA was developed that utilized formative and summative assessment tools and collaborative learning strategies.
3. Collaboration with Stakeholders -individuals and groups involved in the planning and implementation	Microbiology faculty East and West campus were involved in designing the assessment plan. The assessment will be administered to students in 11 Microbiology sections on West campus during fall 2005 and spring 2006.	Microbiology on West Campus implemented the DNA learning unit during the fall and spring terms of the 2005/06 academic year in 7 sections each semester.

<p>4. Evaluation Methods – how the plan was implemented</p>	<p>A survey will be administered to the students on the first day of class to gather information about their science background. The data will be used to form heterogeneous groups for the group review session in week 3. On the second day of class students will take a pretest to assess their knowledge of basic chemistry concepts and receive a problem-solving packet that can be completed in two weeks in conjunction with a CD from their textbook. The students, in groups of 4, will discuss their responses then submit their reports for grading. The graded reports will be returned and the instructor will conduct a review session to answer any questions. Then a post-test formative assessment will be administered to determine what topics may need additional explanation. Finally a summative assessment covering biological chemistry will be administered as part of the first exam. A grading rubric will allow for uniformity of grading</p>	<p>Initially students took a “pretest” to learn how much they knew about DNA structure and function. Then students have a lecture on this topic. After the students were exposed to the basic information, they then had an additional class where they work collaboratively a set of questions where they had to apply information. Next the students were given a post test on the topic. Finally, to test their long term retention of the information, students had to answer two specific questions about the process of translation on the test on the unit on Genetics.</p>
<p>5. Use of Results-how plan will/has impacted learning and improvement of the educational program</p>	<p>Faculty will examine the assessment results to determine if there was a correlation between student preparedness and success in the unit on biological chemistry and if the educational plan resulted in improved student learning(by comparing summative test results from before and from after the chemistry remediation plan was implemented).</p>	<p>Students performed much better on the post-test, after engaging in the collaborative session, than they did on the pre-test. Even more gratifying, in both semester the students demonstrated that once they understood the basic concepts, even weeks later on the unit test, they performed significantly higher on the two translation-specific test questions. As a result West Campus Microbiology faculty plan to implement the use of the collaborative learning activity in every Microbiology section of fall 2006.</p>