

Program Student Learning Outcomes Assessment for Instructional Programs at Fullerton College			
Intended Outcomes	Means of Assessment & Criteria for Success	Summary of Data Collected	Use of Results
<p>1. Upon successful completion of courses leading to the Mathematics Associate in Science Degree, the student will be able to analyze a mathematical function.</p>	<p>PSLO #1 was assessed through CSLOs:</p> <p>*MATH 150AF SLO #3 (analyze a function for continuity, relative extrema, intervals of increasing/decreasing, concavity, and/or points of inflection) - one question answered correctly was deemed to meet the outcome.</p> <p>*MATH 250AF SLO #1 (analyze a vector-valued function and produce the associated vector-valued or scalar functions that describe the motion which it defines) - correctly computing three out of four functions was deemed to meet the outcome.</p> <p>All sections of each course were assessed, whether taught by full-time or part-time faculty. Faculty of each course wrote questions to assess each CSLO. These common questions were incorporated into each teacher's final exam. Each teacher assessed their own students' work, and submitted a reporting form summarizing their data (number of students assessed, number that met the outcome). The data was aggregated and reported to program faculty for analysis and discussion.</p>	<p>79% of 140 MATH 150AF students met SLO #3, and 90.2% of 41 MATH 250AF students met SLO #1. A weighted average of 81.5% of students met this PSLO (.79(140) + .902(41) = .815)</p>	<p>Faculty met to discuss the results of assessment. Some discussion centered on the alignment of PSLOs with CSLOs, and if other or additional CSLOs might be appropriate to use in program student learning outcome assessment in the future. Other discussion pertained to teaching methodologies, with teachers sharing ideas about presenting topics related to analyzing functions.</p> <p>Faculty also discussed potential curricular changes. An extra hour (increased from 4 to 5) in calculus classes would be very helpful to give teachers the necessary time for the intense content of these courses. The extra hour could be in class, lab, or SI (Supplemental Instruction). Another intervention would be providing access to ALEKS or a similar system to students for just-in-time remediation of algebra and trigonometry skills that are important for success in calculus. These systems charge fees on a per-user basis, so money is needed to purchase access codes for students that could benefit from this</p>

			intervention.
<p>2. Upon successful completion of courses leading to the Mathematics Associate in Science Degree, the student will be able to determine and use an appropriate method to solve a mathematical problem.</p>	<p>PSLO #2 was assessed through CSLOs:</p> <p>*MATH 150AF SLO #2 (analyze a function to determine an appropriate method of differentiation, and apply the method to determine the derivative) - one question answered correctly was deemed to meet the outcome.</p> <p>*MATH 150BF SLO #2 (analyze an integral to determine an appropriate method of integration and apply that method to determine the antiderivative) – correctly identifying an appropriate method and solving two out of three integrals was deemed to meet the outcome.</p> <p>*MATH 250AF SLO #3 (construct and evaluate double integrals in both rectangular and polar coordinates in order to solve applied problems involving area, mass, volume, and other physical phenomena) – students were asked to construct a rectangular integral, a polar integral, and to compute the result. Correctly performing two of those three tasks was deemed to meet the outcome.</p> <p>All sections of each course were assessed, whether taught by full-time or part-time faculty. Faculty of each course wrote questions to assess each CSLO. These common questions were incorporated into each teacher’s final exam. Each</p>	<p>91% of 140 MATH 150AF students met SLO #2, 81.7% of 49 MATH 150BF students met SLO #2, and 97.6% of 41 MATH 250AF students met SLO #3. A weighted average of 90.2% of students met this PSLO (.91(140) + .817(49) + .976(41) = .902)</p>	<p>Faculty met to discuss the results of assessment. Some discussion centered on the alignment of PSLOs with CSLOs, and if other or additional CSLOs might be appropriate to use in program student learning outcome assessment in the future. Other discussion pertained to creating and sharing assignments to help students master problem solving. Teachers considered the pros and cons of providing review worksheets for students. Review worksheets have been written and provided for instructors to use.</p> <p>Also, the need for increased out-of-class support for math students was discussed. The Math Lab is now available to calculus students, but the current space and level of staffing does not meet demand. The lab is often crowded with lines of students waiting for assistance. The Math Lab needs money for increased staffing, and needs more space or additional rooms (perhaps regaining permanent Math/CS Division use of 611L) for expansion.</p>

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