Report on the Math 152 SLOs Evaluation at the End of the Spring Semester of 2012

List of Math 152 SLOs

The student will:

1. Solve problems involving the mathematical concepts of function and functional inverse.
2. Show increased skill in setting up and solving applications.
3. Solve mathematical problems using concepts that may be useful for learning statistics: logarithms, sigma notation, and the binomial theorem.
4. Solve mathematical problems in topics useful for trigonometry: functions and inverses and their graphs, quadratic equations, and conic sections.

Four Math Instructors: K. Chan, C. Honma, T. Luu, T. Munding participated in the evaluation of the first two SLOs which are listed below in their Math 152 classes using Final Exams at the end of the Spring 2012 semester at Ohlone:

**SLO 1:** Solve problems involving the Math concept of function and functional inverse.

**SLO 2:** Show increased skill in setting up and solving applications.

Two of us included the same questions on each SLO in their Finals: Toni Luu and Tania Munding.

Chieko Honma and Kwan Chan have included the same types of questions as ours but different in wording.

Total number of students tested on these SLOs was 111. Each instructor corrected Finals of their classes on their own, recorded the results in the provided uniform table. Then we combined the data and put it in the one table which is attached to this report. Data on the SLO 1 showed relatively good results. This time we were looking for the completely correct answers, not only for the correct procedure. This approach is controversial. After discussing the results we came to the conclusion that we need to consider the correct procedure made by a student when he attempted to solve the problem and give a partial credit to students who were on the right path.

The conclusion we made is:

In average **78.2%** of students did very good on SLO 1;

In average **66%** of students did well on SLO2.

Then we discussed these results during the fall flex days Algebra Workshop on August 23, 2012.

Fourteen math instructors had participated in that workshop and made the following suggestions for the continuation of evaluation SLOs in the future.

1. Consider having standardized questions for all of the participating instructors.
2. For question 5, clarify in what notation the answer to be written: Set-Builder, Interval, or Inequality notation.

3. Choose \( f ((a-3)^2) \) instead of \( f (a-3) \). Or make \( f(x) \) a more complicated function. For example \( f(x) = 2x^2 - 3 \).

4. Instead of a word problem on system of equations with 3 variables include the word problem with two variables only.

5. Discuss if instructors need to provide the review problems which include questions on each SLO for this course.

6. Give a partial credit for setting up the problem correctly even if the answer is incorrect due to the wrong calculations.

7. Improve teaching of applications of Log and Exponential functions.

We also reviewed the evaluation table and the comments made by the workshop participants at the department meeting on September 7th. We concluded that it’s not necessary to use standardized questions on the final when we are evaluating SLOs, it is enough to include the same number of problems on each SLO being evaluated but to use the same type of problems. We decided our goal is to improve the teaching of exponential and logarithmic functions by solving more word problems in class in order to get better results. As a conclusion our suggestion is for instructors to pay more attention to student learning outcomes.