OREGON COAST COMMUNITY COLLEGE

SPARE – Instructional Programs

(Service and Program Annual Review and Evaluation)

Program Name: Math Department

Update/Review Year: 2021-2022

Student Learning Outcomes Assessment

1. List your program/discipline outcomes below, with the aggregated student achievement levels

   I complied all of the data for the math department for the 2021-2022 Academic Year. Only one class was not assessed and that was our math 95 class which is taught online by an out-of-state part-time instructor. Every other class was assessed and included in the data. We expected the data to be favorable overall because this data is based on students who passed the class. The 21 students did not pass their math class in the 21-22 Academic Year were not included in the Assessment by design. Please note, all assessment used an objective exam.

   PLO 1: Use appropriate mathematics to solve problems.

   There are 11 course outcomes that map to this program outcome. For the 21-22 year, 94 students were assessed for this outcome, resulting in 94% receiving a competent or proficient. The data is summarized below:

LEVEL	Emerging	Developing	Competent	Proficient
TOTAL	1	5	38	50

   PLO 2: Recognize which mathematics concepts are applicable to a scenario, apply appropriate mathematics and technology in its analysis, and then accurately interpret, validate, and communicate the results.

   There are 24 course outcomes that map to this program outcome. For the 21-22 year, 191 students were assessed for this outcome, resulting in 89% receiving a competent or proficient. The data is summarized below:

LEVEL	Emerging	Developing	Competent	Proficient
TOTAL	1	5	38	50

It is to be expected that the second program outcome would be lower performing simply because students traditionally struggle with interpreting results and applying the math concepts to real-world scenarios.

2. In the last year, how has assessment of course level SLOs led to improvements in student learning and achievement?

   Based on individual faculty feedback on Course Outcomes Assessment:
   Looking through the assessment forms, I focused in on the last two reflection questions on the form. They are:

   - When you think about teaching this course the next time, what might you change in the way you assess your outcomes? In the way you might present your material?
   - Have you made changes this term based on prior assessments? If so, what impact have these changes made on student achievement?

   Responses for the first question focused primarily on improvements in the teaching approach. One instructor intends to change the OER homework to include more discussion about implication of the results since it is difficult to test on that without the students practicing it first.

   The second question lacked meaningful responses. One instructor mentioned the inclusion of more exam questions to better measure the outcomes. One instructor mentioned making changes that allowed the students more time to spend on application problems. But other than these two comments, little was done. One reason was that some of the courses were being assessed for the first time. Another reason is we haven't emphasized using assessment to make changes, we have been focused on just performing assessment.

   Based on Department discussion of Course Outcomes Assessment:
   We reserved time last year at our March Math Maniacs Meeting to discuss outcomes assessment from Fall 2021. At that discussion, we discovered two issues that we wanted to address for our outcomes. First Math 111 needed a revision to the fourth outcome which we took the time to rewrite as a group and submit it for curriculum approval. The second one pertained to having a plan for assessing a particularly specific outcome for Math 211 when the course is ran again in Fall of 2022. However, some faculty aren't utilizing outcomes assessment as an opportunity to make improvements in the course. That needs to be addressed going forward. Additionally, we really didn't use the time to discuss over-arching changes because our meeting was based on the outcomes assessment for one quarter (which was 7 classes).

3. In the last year, how has assessment of program-level SLOs led to improvements in student achievement and completion?

   This is our first year looking at the program-level outcomes, so we have made no changes thus far. However, in the upcoming 22-23 Academic Year, we will analyze the data as a department and decide if see any patterns that we can correct going forward.

4. (New) In the last year, how has the assessment of SLOs contributed to addressing equity gaps and improving student success rates in your program?

   This is difficult to measure at this point. We have not looked at the data from this perspective. Going forward, we will request the data for analysis and see if any gaps have improved. However, we did receive the Strong Start grant, which had us look at the equity gaps in math. That data showed the 5-year pass rate between 2015-2020 was 89.4% and based on the data from the outcomes (which didn't include math 95) our pass rate in similar at 89.0%. With the pandemic, those numbers are good, but our class sizes have reduced tremendously. This next academic year we will implementing additional corequisite courses that hopefully will help close the equity gaps we have.

5. What challenges remain to make course and program level Student Learning Outcome Assessment more effective for your program?

   First, we need to make sure everyone going forward participates in outcome assessment. Second, we need regular data to analyze. As a college, it would be preferable if that was given to departments who do a program review every year. Third, we have just begun real analysis of assessment, which hopefully will lead to more meaningful changes to help improve our rates and retention.

Update on Program/Discipline Goals and Objectives:

1. Provide an update below on your program/discipline's progress toward achievement of short-term objectives you established in your most recent review/annual update. Are there challenges that have been encountered in accomplishing your objectives?

   Improve retention
   Based on the data discussed in this review, it seems necessary to go forward with trying to improve the numbers for retention. Here are the action items:
   1. Maintain two full-time math faculty. The leadership in the college felt in 2016 it was important for the success of the math pathway to have two full-time faculty dedicated to improving our numbers. This will directly help with retention in the pathway when students are able to continue throughout the math sequence with the instructor they find success with. But with so many part-time faculty, we cannot guarantee the same instructor will be able to follow a cohort of students through the sequence.
   2. Obtain data regarding withdraw rates in our math classes. More likely the data will show that we are losing students in our STEM pathway.

3. We will need to research ways of improving the math pathways and analyze if our new implementation of corequisite classes have improved our success rates and helped close equity gaps.
4. Decide on what possibilities work best for our program and work to create that curriculum.

The Math Center
One resource we lost during the pandemic was our in-person tutoring.
1. Recruit tutors, including exploring the alternative of faculty tutoring.
2. Collect data on students who use the Math Center.

2. (New) As you look toward the next year, identify two or more short-term objectives below that will continue to promote progress toward the institution's mission of achieving equitable outcomes for students at the College? Where are the largest equity gaps in your program/discipline? Which groups are most impacted? Where in the educational pathway are the largest gaps (enrollment, retention/drop rates, success, transfer)?

   As mentioned before, we need data. It is difficult to obtain that data since we have no dedicated individual at OCCC in charge of research and have to reach out to another school's research department. It would be so helpful going forward to have data automatically requested and given to departments who perform program reviews.

3. As you look to the next year, identify two or more short-term objectives below that will continue to promote progress toward your program/discipline's achievement of your long-term goals.

   We have a long-term goal on Dual Credit expansion. We do not have any dual credit classes with Newport High School. We still are interested in working on this going forward. Jennifer Fleming has several connection to the school since her daughter is actively attending there. She will be working to use her position as co-coordinator for dual credit to help work towards establishing a program there.

Requests for Resources

1. For any specific aspect of a goal or objective listed above that would require additional financial resources, complete the form below. If you are aware of a potential funding source other than college general funds, identify the potential source below.

Type of Resource	Requested Amount	Potential Funding Source
Personnel	Hire a second full-time math faculty - $43,000-$50,000	General Fund

Personnel	Tutor Hours – 10-20 hours/week at tutor rate	Title III or General Fund

2. *Describe the purpose of the resource request*.

   Hiring a second full-time math faculty to improve retention along the math pathway as first decided by college leadership in 2016. Funding more hours in our Math Canter if we have the data to show it improves student success rates and retention.

3. *How does this request further college fulfillment of the college mission and its Core Theme objectives?*

   Improving retention in our math pathways has direct connection to improved retention for OCCC. We need to continue to push for students to complete their math requirements in their first year in order to for those students to achieve certificates/degrees/transfer.