

Reedley College

Math Study Center

Program Review

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# Program Review Self-Study: Hybrid Programs

## I. General Information

* A. List the Service and Instructional Area(s)

The Math Study Center (MSC) is 100% HSI STEM grant funded and falls under the leadership of the Mathematics Department. The Reedley College MSC offers Math 272 (Math Assistance) and INTDS 300 (Academic Learning Center).

Although the main focus of the MSC is success in mathematics classes, the MSC serves the following classes: ACCTG 4A, ACCTG 4B, ACCTG 40, BA 39, BIOL 3, BIOL 5, BIOL 11A, BIOL 11B, BIOL 20, BIOL 31, CHEM 1A, CHEM 1B, CHEM 3A, CHEM 10, CHEM 28A, CHEM 28B, CHEM 29A, CSCI 40, CSCI 41, ENGR 2, ENGR 4, ENGR 6, ENGR 8, ENGR 10, ENGR 40, MATH 4A, MATH 4B, MATH 4C, MATH 5A, MATH 5B, MATH 6, MATH 7, MATH 10A, MATH 10B, MATH 11, MATH 11H, MATH 102, MATH 103, MATH 201, MATH 21, MATH 250, MATH 256, PHYS 2A, PHYS 2B, PHYS 4A, PHYS 4B, PHYS 4C, and STAT 7.

B. List California Community College Chancellor’s Office Taxonomy of Programs (TOP) Code (found on Blackboard—RC Program Review, Documents, Handbook and Supporting Documents)

17 – Mathematics

4902.00 Biological and Physical Sciences (and Mathematics)

C. General description of program(s) and/or service(s) offered. Include:

Introduction

The main mission of the Reedley College Math Study Center (MSC) is to encourage all students by providing exceptional tutorial services to enhance academic success in STEM courses. The MSC provides drop-in tutoring to Reedley College (and other SCCCD) students needing or desiring learning assistance in mathematics. The key objective of the center’s services is to help students acquire the knowledge and skills needed to be more successful in their mathematics class. The ultimate goal of the program is to motivate and encourage students to continue taking STEM courses. The MSC provides a friendly, open and encouraging learning environment with the goal of helping students become independent and confident learners as they become successful in their STEM courses.

The design of the MSC allows all students on campus to participate in receiving drop-in tutoring in mathematics. The furniture allows for easy access for handicapped students. Many of the peer tutors are bilingual. A mathematics faculty tutor is on duty at all times allowing students from beginning mathematics classes through the most advanced level to receive the help they need to become successful in their STEM classes. Peer tutors, paid and volunteer, are not only exceptional mathematics students but also proficient in engineering, computer science and physics. Online tutoring is provided through the college by Smarthinking. All students, campus based or online, have access. Links to Smarthinking are provided by the instructors on their syllabus or blackboard page as well as the INTDS 300 blackboard page.

The MSC maintains a library of current textbooks so that students and tutors have access to needed information. Many of the instructors provide the MSC with notes and/or worked homework binders to assist the students and tutors. Several calculators, graphing and scientific, are available to the students and tutors. There are tables that have white boards incorporated into them that provide space for small study groups and a common space to share work. Students have access to lap top computers so that they can do their mathematics homework in the center using MyMathLab. Software is provided for engineering and computer science students.

The MSC also provides proctoring for exams from full-time and adjunct mathematics faculty. The MSC is surrounded by mathematics faculty offices and a STEM counselor’s office. Adjunct faculty have access to a computer and office space within the center.

The services provided by the MSC are free to all students, with the exception of the Math 272, a half unit or full unit course that provides more individualized targeting of a student’s needs in order for them to be successful in their mathematics course. This course is intended for any student requiring help with mathematics in any discipline. The course will provide intensive assistance in mathematical concepts and procedures. Students will develop, improve, and refine mathematical skills through guided practice in a lab setting. All students are enrolled in the no cost, no credit, positive attendance course INTDS 300 section for the MSC.

Workshops in key areas of the current curriculum are provided several times a week. These are led by the MSC Coordinator or a mathematics faculty. Mathematics faculty and the coordinator communicate the needs of the students so that the workshops coincide with areas of difficulty in the current lessons. Attendance is taken at the workshops and provided to the faculty. Coordinator led workshops have been provided for the following topics: fractions, integers, solving equations, systems of two and three equations, radicals, equations of lines, graphing equations, exponents, quadratic equations, writing equations of lines, word problems, graphing quadratics, graphing functions, multiplying and dividing polynomials, factoring, rational expressions and equations, complex numbers, conic sections and logarithms. Faculty led workshops on Statistics, algebra review for calculus and uses of a graphing calculator for statistics and calculus have been offered. Mathematics faculty have led a video lecture series on topics including Infinity, Pi Day, the Maya and Math, the Chinese and Math, and the Greeks and Math.

Successful completion of mathematics coursework is a main focus of the HSI STEM grant which funds the MSC. The math study center provides students with:

• help with homework for all levels of mathematics courses

• help with online mathematics assignments

• review for tests in their mathematics courses

• workshops on specific topics in arithmetic and algebra.

Staffing

The MSC is staffed by two adjunct, part-time coordinators: Kathleen Landon and Rebecca Reimer whose main duty is the running of the Math Study Center. In that capacity, the MSC coordinator maintains the computers and makes sure the MSC is clean and orderly at the end of the day. In addition, the coordinator hosts classes for an introduction to the MSC, proctors exams for full-time and adjunct faculty, creates an encouraging, academic environment, and enforces rules and regulations. The coordinator creates and maintains faculty and peer tutor work schedules. The coordinator(s) is responsible for monitoring the budget.

The center is unique in that it is staffed by paid mathematics faculty tutors. Full-time or part-time faculty tutor a total of 18 hours each week in the MSC.

The heart of the MSC is the peer tutor. Approximately twelve peer tutors work each semester. The peer tutor must be a full time student, recommended by a mathematics instructor and either be in or have completed Math 5A with an A or B, with exceptions made for peer tutors with special subject specific skills such as statistics. The MSC coordinator will interview and hire new peer tutors, process paperwork for hiring of peer tutors, create daily peer tutor schedule, keeping it current as to the changing schedules of peer tutors, monitor absences and get substitutes as needed for peer tutors. The coordinator will monitor peer tutors and provide training for peer tutors (We will begin the College Reading and Learning Association’s International Tutor Training Program Certification – Level 1 (ITTPC) Spring 2015). The coordinator will evaluate the Student Peer Tutors by monitoring actual tutoring of students in the MSC by listening in on their conversations with students to check on their communication of mathematics skills, maintain time records for peer tutors, collect and turn in their timesheets.

In addition to peer tutors, STEM Ambassadors volunteer hours in the MSC. The MSC serves as the host facility for the FAST tutors when they are not in a classroom. The MSC Coordinator communicates with the FAST Coordinator and STEM Ambassador Coordinator to schedule the FAST tutors and STEM Ambassador volunteers and maintains work records for them. The MSC has benefited greatly from the addition of the FAST tutors. Several have been in a Math 11, Statistics, course that STEM majors may not have taken. These FAST tutors, along with the instructor on duty, provided necessary tutoring for statistics students.

An MSC student aide works alongside the MSC coordinator to help maintain records, run reports, and provided additional tutoring when needed. It is the MSC coordinator’s job to create a good working relationship with the tutors and an enjoyable working environment. If this is done properly, the students seeking help will be more comfortable and relaxed as they receive help.

The MSC coordinator is the teacher of record for INTDS 300, an open entry/exit, positive attendance course. The coordinator will provide enrollment reports weekly or biweekly to the administrative office. During the semester, the coordinator will provide the mathematics faculty with reports of students that are attending the MSC and their hours and create tables/charts of attendance by course, instructor, time of semester, etc. The coordinator will maintain a Blackboard site for INTDS 300.

The MSC coordinator is the teacher of record for MATH 272, an open entry/exit, ½ or 1 unit course. The duties involved in this role include providing the students and school with a course syllabus and meeting with the students individually to determine needs and progress of the student. The MSC Coordinator will provide the student with tutoring or studying skill information as needed. The MSC Coordinator will maintain a gradebook for MATH 272, including a minimum of six entries per student. The MSC Coordinator maintains communication with the enrolled student’s instructor and maintains a Blackboard site for MATH 272. The MSC Coordinator will maintain weekly or biweekly communication with the students through email and during tutoring time in the MSC.

*Future of the MSC*

Reedley College believes that the rate of student success needs to be improved. The College offers a range of support services to help students address academic difficulties. The Tutorial, Writing and Math Study Centers provide opportunities to help the students at the College increase their success. The success of these centers is evident in the higher success rates of students that utilize them. According to the College, students receiving tutoring average a success rate 12.3% higher than the average Reedley College student. For those students receiving at least fifteen hours of tutoring over the course of a semester, the success rate averages 25.4% higher than the average Reedley College student.

Positive Attendance is another opportunity to increase weekly student contact hours (WSCH) generation and efficiency at the College. This is done without increasing class size. The College would like to expand its use of this strategy. These students can be enrolled in a course that tracks positive attendance in the computer labs and tutorial centers on campus. The MSC participates in the reporting of positive attendance for both the INTDS 300 and Math 272 classes. In Spring 2014, 551 unduplicated students attended the MSC for a total of 7467 50-minute sessions.

At the present time, the MSC is fully funded by the HSI STEM grant. This grant will end September 30, 2016.

Beginning October, 2016, Reedley College will institutionalize the funding of the MSC in order to maintain the current level of service. A full-time coordinator position will need to be funded. In addition, funding for faculty tutors and peer tutors will be required. What makes our study center unique and successful is that we have a mathematics faculty member on duty every hour and amazing peer tutors. The mathematics faculty is currently paid on schedule C for each hour they work in the MSC for a total of 18 hours per week. At this time, the MSC is open 28 hours per week and we employ peer tutors for a total of 65 hours per week. The computers are on a replacement schedule but we will need a supply budget for white board pens, white board cleaner, paper towels, and general office supplies and equipment required to run the center and train our tutors effectively.

By Ed Code, any tutorial center that collects apportionment for positive attendance must have tutors that are trained. We will be working with CRLA to become an ITTPC Level 1 Certificated program. Tutorlingo is a certified tutor training program we will use. Our involvement in the College Reading and Learning Association (CRLA) and the International Tutor Training Program Certification (ITTPC) training process needs to be continued. The online tutoring program, Tutorlingo, will need to be renewed each year. Our intention is to share that cost with the Tutorial Center and Writing Center.

The approximate annual costs involved in continuing the MSC at the current level are:

 Full-time (or 2 part-time) coordinator: $ 40,000 plus benefits

 Faculty tutors (C schedule for 18 hrs/wk/sem): $ 27,500

 Peer tutors (65 hours/wk/sem at $10/hr): $ 23,400

 Student Aide (15 hrs/wk/sem at $10/hr): $ 5,400

Supplies: $ 3,000

 CRLA annual certification: $ 150

 Tutorlingo annual renewal: $ 1,000

 Total: $100,450

The Madera Center wants to expand their mathematics tutoring hours using their second room (called the “ELC Overflow Room” or “ELC 2”).  If they receive equity funding, the plan is to include more mathematics study/drop-in hours.

C2. listing of courses in the program area including transfer/degree applicable, degree applicable/non-transfer, non-degree applicable, and non-credit;

Math 272: Math Assistance

INTDS 300: Academic Learning Center

Two classes are offered in conjunction with the Math Study Center. The college collects FTES for Math 272 and may collect non-credit FTES for the INTDS 300 course that the MSC uses.

Math 272, *Math Assistance* – a half-unit or full unit course. Students working individually or in small groups who attend and actively participate in mathematics tutoring for approximately 24 (half-unit) or 48 (full unit) hours a semester can receive a Passing grade in this positive attendance course. Several additional assignments are required by the instructor including several grade reports during the semester.

Interdisciplinary Studies 300, *Academic Learning Center* – a non-credit course. All students receiving drop in tutoring are enrolled in this class so that the college may collect FTES for their work. All minutes or hours that tutors work with a student must be reported on positive attendance “grade” rosters at the end of the semester. Attendance is maintained with SARS.

C3. list of degrees and certificates;

N/A

C4. brief facilities overview;

The Math Study Center at Reedley College operates out of FEM1. It contains 28 laptop computers for student use. There are two touch screen desktop computers used for SARS logins to track attendance data. The MSC is surrounded by mathematics faculty offices (including an office for adjunct mathematics faculty), the co-coordinators office, a STEM counselor office and a STEM Job Assistant office. There are six hexagonal tables with white board centers, a large oval table for computers, again with a white board center, and 2 tables that house 11 laptops. There are chairs for 56 students. The coordinators share an office with a desktop and printer. A computer projector, digital document camera, printer and several calculators are housed in the Coordinator’s office and are available for coordinator, tutor and/or student use. Wireless access to the college’s internet system is available in the MSC to all students and staff using notebook computers.

The positioning of the MSC in the middle of the mathematics faculty offices provides the students with access to their teachers. Mathematics faculty is encouraged to use the MSC to work with their own students at any time or to use the MSC for make-up testing. Teachers of on-line classes use the MSC for face-to-face meetings or testing. However, due to the closeness of the MSC and the half wall offices of the mathematics faculty, there are times that the faculty is disrupted by the “noise” tutoring sometimes produces. At other times, the student’s tutoring is disrupted by the faculty talking. The good does outweigh the bad and although it is a very good model for a departmental study center, changes should be researched in the future. Faculty need more private office spaces and the MSC is outgrowing the space provided.

A STEM Counselor has an office in the MSC. This has made it easy for students, faculty and coordinators to get updated, on the spot help with STEM major requirements. The STEM Ambassador program directors who are mathematics, engineering and computer science teachers, are also housed in the MSC. Again, this has given easy access to all involved in the MSC to keep aware of and promote STEM Ambassador activities.

It is imperative that our laptops are maintained and updated regularly. Several software programs are made available for the students working on their engineering courses and the system needs to be able to handle those. Computer services maintain the lab computers.

C6. supply requirements, if any.

The Math Study Center is 100% funded through the HSI STEM grant and receives a supply budget. Our biggest expense is dry erase markers and cleaning supplies. Paper and ink for the office printer and regular office supplies such as paper clips, staples, Kleenex, hand sanitizer are supplied by the HSI STEM grant budget.

D. Mission, Strategic Plan, and Educational Master Plan

D1. Describe how your program supports the College Mission Statement. Give a few specific examples.

The Reedley College Math Study Center supports the College Mission Statement by offering an “accessible educational environment ensuring high-quality innovative learning opportunities supported by services for student success.” The Math Study Center is an innovative service that provides RC students with the support they need to be successful in their mathematics classes. The majority of our students come from basic skills courses (Math 201 and Math 103) and transfer level courses (Math 5A/5B and Math 11). Additionally, the peer tutors benefit from the work experience as well as sharing their passion for mathematics and learning.

D2. Describe how your program supports the College Strategic Plan. Give a few specific examples.

*Goal 1: Student Success: Reedley College is committed to empowering students to achieve their educational and vocational goals by offering academic guidance and support, career technical training, and opportunities for personal growth that will promote success.*

* 1. The inclusion of a STEM counselor in the Math Study Center provides a convenient opportunity to develop an educational plan based on their educational goals.
	2. The Reedley College Math Study Center supports the mathematics program by providing assistance for students in basic skills and transfer level courses.
	3. Working with the peer tutors engages students in the college mathematics community and facilitates persistence and completion rates.
	4. The Math 272 (Math Assistance) class functions as a way to address the unique needs of students to aid in their academic success.

*Goal 2: Student Access: Reedley College is devoted to providing access and services for students to obtain their education goals.*

2.3 The Math Study Center’s primary goal is to assist students by helping them gain the skills necessary to succeed in STEM classes.

2.4 The Math Study Center provides mathematics skill-specific workshops during the semester that coincide with the topics being addressed in their mathematics classes.

*Goal 3: Teaching and Learning Effectiveness: Reedley College is committed to providing the highest quality instructional programs utilizing current and emerging instructional methods that focus on student success.*

3.4 The Math Study Center Coordinators participate in Program Review and SLO assessments for Math 272.

*Goal 5: Communication: Reedley College is committed to persistently improving its institutional, fiscal and technological effectiveness for each campus.*

5.6 The Math Study Center uses and maintains technology to support academic success through our 20 laptop computers. The MSC utilizes facility infrastructure by working with other on-campus support programs (FAST, STEM Ambassadors, Writing Center, Tutorial Center) to support students’ academic success. The MSC’s participation in the CRLA annual conference provides a connection to professional organizations and from that to other institutions and programs nationally and internationally.

*Goal 6: Organizational Effectiveness: Reedley College is committed to continually improving effectiveness in communication.*

6.2 Both part-time Math Study Center Coordinators participate in the TWM (Tutorial Center, Writing Center and Math Center) workgroup, which polycoms with Madera’s ELC and RC’s new Communications Center. These groups work together to support and promote each other’s services.

D3. Describe how your program supports the College Educational Master Plan. Give a few specific examples.

 Tutorial services are not addressed in the recommendations contained within the Reedley College Educational Master Plan. However, the MSC is described in detail within the plan narrative. Notably, tutorial services are specifically included in the paragraph describing “strengths of the college.” The plan states, “The College has developed a variety of services to support students including tutoring centers that focus on writing and mathematics. These tutoring centers were regarded as extremely critical to the success and support of students at Reedley College.”

E. In the table below, list only the recommendations deemed substantiated by the Program Review Committee from the previous Program Review and the implementation status of each. Include in the status column any barriers encountered. Add or delete rows as needed.

**Previous Program Recommendations**

| **Recommendation** | **Status**  | **Outcome**  |
| --- | --- | --- |
| This is the first program review of the Math Study Center and as such there are no previous program recommendations. |  |  |

F. If applicable, in the table below, list the recommendations from the previous accreditation report and the status of each. Include in the status column any barriers encountered.

Previous ACCJC or Other Accreditation Recommendations

|  |  |  |
| --- | --- | --- |
| **Recommendation** | **Status**  | **Outcome**  |
| This is the first program review of the Math Study Center and as such there are no previous ACCJC or other accreditation recommendations. |  |       |

## II. Quantitative Analysis

A. How many students were served by program/services area in the past year? How does this compare with past years?

Figure 1 and Figure 2 show the unduplicated student count served for Reedley College Math Study Center. Attendance each semester from the Spring 2009 semester through the Fall 2013 semester. There has been an upward trend in the number of students served by the Math Study Center even though the MSC hours have varied. The students served are enrolled in the INTDS 300 class from which positive attendance apportionment is collected. The Ed Code states that in order to collect apportionment, all tutors must have successfully completed instruction in tutoring methods. In order to continue to collect apportionment, a tutoring training program needs to be implemented.

*Figure 1: Math Study Center Students Served and Hours Open Each Semester*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Spring 09 | Fall 09 | Spring 10 | Fall 10 | Spring 11 | Fall 11 | Spring 12 | Fall 12 | Spring 13 | Fall 13 |
| Students served | 168 | 296 | 464 | 444 | 438 | 553 | 609 | 654 | 650 | 729 |
| Hours open/wk |  | 20 | 38 | 31.5 | 29.5 | 29.5 | 34.5 | 35.5 | 35.5 | 28 |

*Figure 2: Unduplicated Count of Students Served by the MSC from Fall 2009 to Fall 2013*

The HSI STEM grant funding we receive is for Hispanic serving institutions. Figure 3 shows the ratio of Hispanic students served by the MSC to the non-Hispanic students served by the MSC. There has been an 11.6% growth in the Hispanic student population utilizing the MSC.

*Figure 3: Students Served at the MSC by Ethnicity (Hispanic/Non-Hispanic)*

Figure 4 shows that although the number of hours the Math Study Center is open has varied each semester, the number of students served over the lifetime of the Math Study Center continues to increase. The hours of operation have been determined by the HSI STEM grant Funding each semester.

*Figure 4: Comparison of Hours the MSC is Open to the Number of Students Served Each Semester*

Figure 5 shows that when Reedley College students taking Math 101/201, Math 103, Math 4A and Math 4B are compared, the students using the Math Study Center have continually had success rates higher than those students not using the MSC. Although the success rate for students using the MSC has been greater, one trend we notice is that the success rate gap in each case has narrowed from a difference of 20% in F09 compared to a difference of 4%. As the number of students served by the MSC has grown (40% from S10 to S13), the success rates of all mathematics students in the indicated courses have steadily improved (from 50% to 60%) while those of the MSC served students have had a decrease (from a high of 72% to a low of 64%).

One of the goals of the MSC is to increase student’s mathematical skills and academic efficacy. As students use the MSC to successfully move through their lower mathematics courses and achieve those goals, they also become more independent learners. Many find they no longer need the assistance provided by the MSC and transition into the population of non-users, which may account for the increase in the overall success rates from 51% to 61%.

*Figure 5: Success Rate of RC Students in Math 101/201, 103, 4A and 4B.*

Figure 6 shows that this trend is true for Hispanic as well as non-Hispanic students.

*Figure 6: Success by Ethnicity and MSC Use for Students Enrolled in Math 101/201, 103, 4A and 4B at Reedley College*

The HSI STEM grant funding we receive is for Hispanic serving institutions. Figure 6 shows the ratio of Hispanic students served by the MSC to the non-Hispanic students served by the MSC. There has been an 11.6% growth in the Hispanic student population utilizing the MSC.

The MSC provides drop-in tutoring for all levels of mathematics. Our HSI STEM grant’s focus is on Math 101/201, 103, 4A and/or 4B.The faculty tutors are experienced, full-time or adjunct, mathematics teachers. The peer tutors have been successful in their previous mathematics classes and are usually enrolled in a mathematics class while tutoring. One of the qualifications to be a tutor is that they are in or have completed Math 5A, first semester calculus. Many of the peer tutors are in mathematics classes beyond Math 5A and some have also taken Stat 7 in order to help the students from that course. Figure 7 shows the number of student visits by mathematics course from Spring 2009 to Spring 2013.

*Figure 7: Math Study Center Usage by Math Course (Total Visits for Fall 2012 and Spring 2013)*

Figure 8 shows how the enrollment in Math 272 has fluctuated over the semesters it has been offered. The MSC Coordinator is the teacher of record for this class. Students are referred to this open entry/open exit class by mathematics instructors and counselors. While it appears we have a good number of students that utilize the MSC each semester, there are some students that still need a little extra encouragement and motivation to come in regularly. The goal of the Math 272 is to provide those students with that additional “motivation” to seek drop-in tutoring for their mathematics class in order for them to be successful.

*Figure 8: Math 272: Math Assistance enrollment from Fall 2009 to Fall 2013*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Fall 09 | Spring 10 | Fall 10 | Spring 11 | Fall 11 | Spring 12 | Fall 12 | Spring 13 | Fall 13 |
| Students completing | 7 | 38 | 24 | 18 | 19 | 18 | 16 | 18 | 9 |

We have not collected data on how Math 272 has contributed to student’s success in mathematics class. We also have no data on how Math 272 has contributed to increased enrollment in mathematics classes. In Spring 2012, the Math 272 SLO assessments results indicated a self-reporting of 100% positive responses to questions 7 and 8 on SLO#4: Students will be able to successfully complete concurrent course(s) with mathematical content.

|  |
| --- |
| 7. What is your grade in your current mathematics course? \_\_\_\_\_\_\_\_\_\_\_8. Has Math 272 assisted you in being successful this semester? Please explain. |

 Collecting data on this class will be an area of growth for the MSC. At this time we only have anecdotal data for how the class helped the students.

B. Identify and describe the processes and procedures that the program/services area uses to assess and measure outcomes.

The Math Study Center uses satisfaction, success, and participation to assess and measure outcomes. There have been no institutional researcher validated surveys administered, only informal surveys. It is important to measure the success of the MSC in relation to the success and retention in mathematics classes. It would be of interest to research demographics to see if we are meeting the needs of all groups. These data will be collected for future reporting.

C. If your program offers online services, use the collected data to evaluate your online services in comparison to your face-to-face services.

N/A

D. Provide a short analysis of the process and procedures identified in B above.

Students using the MSC for drop-in mathematics tutoring are required to login by entering their student ID on a touch screen monitor. SARS software captures student academic information such as classes they are enrolled in, how many times they visit the MSC, and how much time is spent in the MSC. This information is given to the institutional researcher to provide characteristic data. This information is valuable when doing the annual report for the HSI STEM grant in order to justify the impact it is having on RC students. Other methods used to measure the success/progress of the MSC are focus groups, workshops, surveys (paper/pencil and online via SurveyMonkey), and interviews.

The results of the MSC workshop surveys indicate that the workshops are well-received and successful. Although only a few students responded each semester, the results are favorable (see Appendix A). The majority of the students responding were Math 201 students. They had heard about the workshop mainly from their instructor, which shows support for the program from the Mathematics Department faculty. They majority of the respondents had attended five or more workshops during the semester. All students that responded said that the workshop helped them understand the material presented in their mathematics class with nearly all indicating that the workshop helped them earn a better grade. All responding students said they would recommend the workshops to other students. Comments received on the survey for the workshops were heavily in favor of offering them at more times and lengthening the workshop time. Other comments included holding them in bigger classrooms.

Comments were collected at the end of each workshop pertaining to the following questions:

1: What did you enjoy most about the workshop?

Many commented that the instructor was very good because she was helpful and explained everything very clearly. The organization of the teachers work and new techniques combined with friendliness were appreciated. Other comments regarded the room being warm and cozy and the handouts illustrating the steps to solve the problems.

2. What comments or suggestions can you provide for future workshops?

The comments centered about giving more workshops, extending the length of time for each workshop, offering the workshops at different times, providing snacks, and giving workshops on more topics. Many commented that the workshop was very helpful and they understood the material a lot better afterwards.

E. Analyze how the program’s historical funding patterns have impacted the program.

The Reedley College Math Study Center was created with STEM grant monies. Beginning in 2009, the center has been completely funded by several STEM grants. We have been fortunate to be able to build our center with that funding. However, once the HSI STEM grant is over (September 30, 2016), that funding will be gone.

In order to continue to maintain the same, high level of service that the MSC currently does, several key positions need to be funded beginning October 2016: full time coordinator (or 2 part-time coordinators), mathematics faculty for 28 hours per week, and peer tutors for 65 hours per week.

At the end of the grant, the school will institutionalize the MSC Coordinator. The faculty tutors will be paid through Schedule C. The peer tutors will be funded by a combination of sources not limited to Federal Work Study, Basic Skills Initiative, Student Success, ESL, general funds and/or future site grants. The supply budget will roll into the Mathematics Department budget.

**Budget Summary**

**(to be completed by Dean/Manager)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|   | **2008-20****09** | **20****09-20****10** | **2010-2011** | **2011-2012** | **2012-2013** | **Total Division Budget**For the 5th year  **2012-2013** | **Percent of Division 2012-2013** |
| **Salaries** |  |  |  |  |  | $338,025 |  |
| **Benefits** |  |  |  |  |  | $85,550 |  |
| **Instructional Supplies** |       |       |       |       |       |       |  |
| XX0 |       |       |       |       |       |       |  |
| LT0 |       |       |       |       |       |       |  |
| Perkins |       |       |       |       |       |       |  |
| Grant Funded | 10,000 | 4000 | 4000 | 4000 | 4000 | $117,540 |  |
| **Non-Instructional Supplies** |       |       |       |       |       |       |  |
| XX0 |       |       |       |       |       |       |       |
| LT0 |       |       |       |       |       |       |       |
| Perkins |       |       |       |       |       |       |       |
| Grant Funded |  |  |  |  |  |  |  |
| **Operating Expenses** |  |  |  |  |  |  |  |
| XX0 |  |  |  |  |  |  |  |
| LT0 |  |  |  |  |  |  |  |
| Perkins |  |  |  |  |  |  |  |
| Grant Funded |  |  |  |  |  |  |  |
| **Equipment** |  |  |  |  |  |  |  |
| XX0 |  |  |  |  |  |  |  |
| LT0 |  |  |  |  |  |  |  |
| Perkins |  |  |  |  |  |  |  |
| Grant Funded |  |  |  |  |  |  |  |
| Total |  |  |  |  |  |  |  |

## III. Student Learning Outcomes

A. An accreditation standard requires that the institution makes public expected learning outcomes. In what ways are the courses/program/degree/certificate outcomes made public?

 ☒Catalog ☒Brochure ☒Website

 ☐Articulation/Transfer Agreements ☐Other:

B. Include the hyperlink(s) for the course and program/degree/certificate to GELO mapping grid as it is stored in your Blackboard SLO Assessment folder here.

http://reedleycollege.edu/index.aspx?page=1107

C. Give a brief overview of the course assessments completed during the last five years, highlighting any results and action plans that have been particularly helpful in improving student learning and your program. Provide all Course SLO Assessment Report Forms for your program in appendix A.

A course assessment for Math 272 was given Spring 2012.

The Assessed Course SLO(s) were:

1. Students will be able to use the symbols and vocabulary of mathematics to clearly communicate concepts.
2. Students will be able to read, communicate, and understand mathematical ideas in a variety of settings, both verbally and in writing, making use of numerical, graphical and symbolic viewpoints.
3. Students will be able to apply mathematical concepts in a variety of vocational and academic programs.
4. 4: Students will be able to successfully complete concurrent course(s) with mathematical content.

The students were emailed the assessment with 2 weeks to return it. As this is an “assistance” course, this time frame did not impact their study time for finals. The institutional outcomes central to this course were: Communication Skills, Critical Thinking and Information Literacy, Global and Community Literacy and Personal Development. The Assessment was conducted through two methods: direct observation of performances, and student self-assessments. The instrument used for this assessment is provided in Appendix A.

Figure 9 shows the results of the students that responded (44%) to the assignment. Scores were on a rubric from 1 to 4 with 4 being the highest level:

*Figure 9: Results of the Spring 2012 Math 272 SLO Assessment*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Question | Score: 1 | Score: 2 | Score: 3 | Score: 4 | No response |
| 1 | 0 | 0 | 0 | 100 |  |
| 2 | 0 | 50% | 0 | 50% |  |
| 3 | 100% responded positively |  |
| 4 | 100% responded positively |  |
| 5 |  |  | 50% | 38% | 12% |
| 6 | 12% |  |  | 88% |  |
| 7 | 100% responded positively |
| 8 | 100% responded positively |

The Action Plan based on the assessment results indicate that no changes needed to be made but the course syllabus needed to be revised to reflect the SLO’s being assessed. This was done for Fall 2012.

D. Give an overview of the program/degree/certificate assessments completed during the last five years, highlighting any results and action plans that have been particularly helpful in improving student learning and your program. Provide all Instructional Program/Degree/Certificate SLO Assessment Report Forms for your program in appendix B.

N/A

E. Based on your assessments, have you identified additional resources needed to support the improvement of student learning or remedy any gaps you have found within your program (ie. staff development/training, equipment, technology, guest speaker, etc.)? Be sure to include these in your goals with appropriate page number references.

The Math Study Center needs to provide training in tutoring techniques, interpersonal relationships, study skills, and time management for its peer tutors so that they can provide the best possible services to the students. At this time no training is provided to our tutors. This prevents them from acquiring much needed skills and from advancing along their pay scale. The Math Study Center would like to develop a tutor training program or purchase an annual subscription to an online tutor training program (ie: Tutorlingo) in order to meet this need.

The Math Study Center needs to pursue College Reading and Learning Association (CRLA) certification in order to establish itself as a creditable facility among its peer facilities in the greater Fresno County area and other programs nationally and internationally.

The International Tutor Training Program Certification (ITTPC) through CRLA sets national standards for effective tutor training and outlines minimum requirements and extended options for institutions seeking to incorporate “best practices” into their training initiatives. Their goal is to certify programs that choose to “professionalize” their training so that both tutors and tutees have a rich and rewarding academic experience. CRLA authorizes certified institutions to certify their tutors, which in turn supports the mission, goals and objectives of the tutoring program within the individual college or university and within the academy at large.

In addition to the requirements for Level 1 certification by CRLA, tutor training should include presentations by DSPS and Veteran’s affairs. Training in subject specific skills should also be addressed.

The costs involved with the above include the CRLA certification ($150 annually), Tutorlingo ($1000 annually) and MSC staff attendance at the CRLA annual conference ($1000 annually).

## IV. Qualitative Analysis

A. Describe future trends unique to your area that will likely influence your program. How will students be affected by these trends?

* *Political (local ordinances, state or federal legislation, Title 5, Ed Code)*

According to the Ed Code on CCC Supplemental Learning Assistance and Tutoring Regulations and Guidelines, “tutoring, when provided by the college, shall be considered a method of instruction that involves a student tutor who has been successful in a particular subject or discipline, or who has demonstrated a particular skill, *and who has received specific training in tutoring methods* and who assists one or more students in need of special supplemental instruction in the subject or skill.

 Apportionment may be claimed for individual student tutoring only if all tutors successfully complete instruction in tutoring methods and the use of appropriate written and mediated instructional materials, including supervised practice tutoring.”

 While our peer tutors have been successful in mathematics, they have not received specific training in tutoring methods. We claim apportionment through INTDS 300. We will need to address student tutor training.

* *Economic (Labor Market Data, District Fact Book, Advisory Committees)*

 Our MSC is currently 100% funded by the HSI STEM grant. Even though we will continue to apply for grant monies, there is no guarantee that we will receive further grants or that STEM funding will be a priority by the government. Reedley College will need to institutionalize the funding of the MSC which includes monies for a full-time (or 2 part time) coordinators, faculty tutoring and student tutoring.

* *Sociological (migrant population, single parents, aging population trends)*

As a result of the successes of our grants and the outreach from the STEM Ambassadors and the STEM Conferences, our local community has embraced STEM education. More students are coming into the college with a STEM transfer degree in mind. Reedley College’s population mirrors the community in regards to ethnicity, as does the MSC. Our tutors need training in how to help a diverse population reach their goals. Some of the issues are the needs of the Hispanic population who are either starting or returning to college to pursue their goals.

In the MSC we work with a diverse student body. On a daily basis, our tutors work with veterans, physically disabled students, and learning disabled students. Many of our students are first general college students.

Most of our tutors speak Spanish but cultural sensitivity training would be helpful. We need to reach out to our veteran’s affairs office as well as DSPS to provide some training for our peer tutors so that those populations are successful.

* Technological (access, security, ethics)

Reedley College supports distance education. We need to look into ways we can extend our tutoring to those students. According to the Ed Code on CCC Supplemental Learning Assistance and Tutoring Regulations and Guideline, “a tutorial center may offer tutoring assistance between a tutor and tutee when they are separated by distance and are using on-line or other synchronous “real time” technologies such as videoconference, web conference, audio conference, etc. When the tutor and tutee are separated such that one or the other is not physically present in the tutoring center, the supervisor must be able to monitor the communication and a mechanism must be in place to accurately track positive attendance hours. If both the tutor and tutee are not physically present in the tutorial center, the district must ensure and be able to document, if audited, that the supervisor was actually able to, and did, monitor the interaction of the tutoring session.” This is a challenge we will need to address in the future.

* Educational (High School Graduation Rates, competition from other public and private postsecondary institutions, online education)

The implementation of Common Core in the high schools may generate an increase in student success and enrollment in higher level mathematics courses or just the opposite. Students may come in lacking skills necessary to succeed at the college level or able to move directly into transfer level mathematics courses. Reedley College, mathematics faculty, and the MSC will need to be sensitive to the changes and adjust accordingly. Training with the peer tutors should include the strategies used in Common Core at the high school level.

B. Describe and include rationale for any curriculum changes anticipated in the next 5 years. (If not applicable leave blank)

N/A

C. Discuss how your program meets the needs of the College’s diverse student, including:

C1. High-quality instruction of varying delivery modes and teaching methodologies.

The Math Study Center provides high-quality instruction and varying delivery modes and teaching methodologies. It is staffed by two co-coordinators with over 25 years of experience teaching all levels of mathematics from elementary through college. Both coordinators have master’s degrees in mathematics or mathematics education, with one having a PhD in Mathematics Education (Learning Environments). The Reedley College mathematics faculty (full time and adjunct), all of whom have at least a master’s degree in mathematics or mathematics education, help staff the MSC. The peer tutors are all in or have completed the first semester of Calculus and many are also in chemistry, physics or engineering classes. Many have teaching as their career goal. Their backgrounds vary, including students that have learning disabilities to students that are gifted. Many of the peer tutors are fluent in other languages (Spanish, Arabic, Punjabi). Individual and small group tutoring is provided on a drop-in basis. Workshops in topics timely to the content currently being taught in the mathematics classes are also provided for larger group instruction. These workshops are taught by a coordinator as well as faculty. Peer tutors will participate in a tutor training program beginning Spring 2015 in order to increase their effectiveness in the MSC.

C2. Appropriate breadth, rigor, sequencing, and completion time.

N/A

D. For students completing vocational and occupational certificates and degrees, describe how students will meet employment and other applicable standards and are prepared for external licensure and certifications.

N/A

E. Describe what your program has done to create links with support services or other instructional programs, if any.

The MSC workshops are include on the Student Success calendar and is distributed to all faculty.

The Math Study Center houses a STEM Counselor that is available to help students plan their course of study, register for their classes, and make decisions regarding transfer to a CSU or UC. The FAST program provides embedded tutors in some mathematics classes. Those tutors have “office hours” in our MSC. They are able to meet with the students from their class and help with the current lesson with the same notes from that teacher.

STEM Ambassadors complete volunteer hours by tutoring in the MSC.

The design of the MSC provides a student easy access to the Engineering, Computer Science, and Mathematics teachers.

The MSC coordinators meet with the Writing Center and the Tutorial Center Coordinators at various times during the semester as a committee to look at ways to coordinate services for students.

A MSC coordinator visitation to Fresno City College in order to see their learning center and gain information on Tutorlingo will occur December, 2014.

As part of our future tutor training program, Veteran’s Affairs office and DSPS will be invited to provide sensitivity training with our peer tutors. By participating in the CRLA annual conference, the MSC is connecting with other learning center professional organizations and from that association, with other institutions and programs nationally and internationally.

F. Describe any community or other institution partnerships or collaboration of which your program has had a part.

N/A

## V. Summary Statement

A. Describe the major conclusions reached based on this report’s quantitative and qualitative analyses and evaluation of the assessment of student learning outcomes.

The Math Study Center is proving to be a desirable place to obtain free drop-in tutoring that helps student be successful in their mathematics classes In order to become compliant with the Community College Tutoring Ed Code, a training program needs to be established. This will be done through the CRLA ITTPC tutoring certification program. . The workshop surveys indicate that they are providing a necessary and beneficial service. Student learning outcomes for Math 272 indicate that it is providing the structure and content that students need in order to be successful. A continuation or increase in the hours the MSC is open, monies to continue and maintain the level of support by peer tutors and faculty tutors, and a continued, dedicated space that respects mathematics faculty needs and growth of the MSC are needed to continue to make the MSC a key service provider to the students at RC.

B. Based on the conclusions above, complete the table below. List goals in priority order, including learning outcomes-related goals. Add/delete rows as needed.

|  |  |  |  |
| --- | --- | --- | --- |
| **Goal(s)\***(please provide the page number(s) where this goal is substantiated) | **Activities/Facilities/Curriculum/****Equipment Necessary to Accomplish Goals**  | **Resources Needed, Include Estimate Costs** | **Proposed Timeline** |
| 1. Develop/purchase a tutor training program and apply for CLRA certification. (Pages 18, 19, 21) | Tutorlingo, binders, miscellaneous office supplies, facilities, and technology to conduct tutoring | $1000 for Tutorlingo (annual renewal), $500 for supplies, $150 for CRLA certification (annual renewal),  | 2016 |
| 2. Collect data on Math 272’s contribution to the success and retention of students in the mathematics program. (Page 14) | Work with the institutional researcher to generate this data | No cost | Spring 2015 and on-going. |
| 3. Conduct institutional researcher validated surveys for the MSC, workshops and Math 272 in order to evaluate our program. (Page 14) | Work with the institutional researcher to develop and validate surveys. | No cost | Spring 2015 and on-going. |
| 4. Institutionalize the MSC at the current levels. (Page 16, 19) | FEM 1A, MSC Staff (coordinator(s), faculty tutors, peer tutors, student aide)Miscellaneous office supplies including dry erase markers, table cleaners and paper towels, printer paper | Full-time or 2 part-time coordinators ($40000 plus benefits)Faculty tutors (18 hrs/week, Schedule C, $27,500)Peer tutors (65 hrs/week, $23,400)Student Aide (15 hrs/week, $5,500)Supply budget ($1000) | October 2016 and on-going |
| 5. Provide professional development for MSC Staff (Page 9, 18, 19, 21) | Attendance at the CRLA annual conference | $1000 per person | Fall 2015 and annually |

\*As supported primarily by the report’s quantitative and qualitative analyses and evaluation of the assessment of student learning outcomes

# Student Learning Outcome Assessment Timeline

Complete the following chart indicating which year course, program, degree, and certificate outcomes will be completed. Each course must be assessed at least once during this timeframe. The program may conduct as many assessments of a single course, program, degree, or certificate as is meaningful.

|  |  |  |
| --- | --- | --- |
| Year | Courses, Program, Degree, and/or Certificate to be assessed | Person responsible for heading assessment and completing Reporting Form |
| Year 12013-2014 | Worked on Program Review | Kathleen LandonRebecca Reimer |
| Year 22014-2015 | INTDS 300 | MSC Coordinator(s) |
| Year 3 2015-2016 | Math 272 | MSC Coordinator(s) or Teacher of Record |
| Year 4 2016-2017 | Math Study Center Program | MSC Coordinator(s) |
| Year 52017-2018 | PROGRAM REVIEW REPORT WRITING YEAR(program to use 2013-2017 assessments in report) | No assessments conducted during program review report writing year. |

# Curriculum Revision Timeline

This Curriculum Revision Timeline will be tracked by the Curriculum Chair. Add/delete rows as needed.

|  |  |  |
| --- | --- | --- |
| **Course** | **Semester revision to be submitted** | **Person responsible for revision** |
| INTDS 300 | Spring 2016 | MSC Coordinator |
| Math 272 | Spring 2017 | MSC Coordinator |

# Appendix A: Course/Departmental Assessment Report for Instruction

## Fall 2012 Math Study Center Student Survey

**N = 437 n = 64**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  | **Extremely** | **Very** | **Moderately** | **Slightly**  | **Not at all** |
| 1 | How convenient is the Math Study Center to use? | 67.20% | 25.00% | 4.70% | 3.10% | 0.00% |
|   |   |   |   |   |   |   |
|  |  | **Extremely** | **Very** | **Moderately** | **Slightly**  | **Not at all** |
| 2 | How useful would online tutoring be to you? | 36.50% | 14.30% | 20.60% | 12.70% | 15.90% |
|   |   |   |   |   |   |   |
|  |  | **Do not need this** | **Do not want this** | **Satisfied with current** | **Cannot pay for this** | **Not willing to pay** |
| 3 | If you are not likely to use online tutoring, why not? | 19.10% | 10.60% | 36.20% | 25.50% | 8.50% |
|   |   |   |   |   |   |   |
|  |  | **Extremely** | **Very** | **Moderately** | **Slightly**  | **Not at all** |
| 4 | How important do the tutors at the Math Study Center make you feel? | 43.80% | 32.80% | 17.20% | 4.70% | 1.60% |
|   |   |   |   |   |   |   |
|  |  | **Extremely** | **Very** | **Moderately** | **Slightly**  | **Not at all** |
| 5 | How respectful of your time are the tutors at the MSC | 57.80% | 32.80% | 4.70% | 1.60% | 4.20% |
|   |   |   |   |   |   |   |
|  |  | **Extremely** | **Very** | **Moderately** | **Slightly**  | **Not at all** |
| 6 | How knowledgeable were the student tutor representatives at the Math Study Center? | 53.10% | 31.30% | 9.40% | 4.70% | 1.60% |
|   |   |   |   |   |   |   |
|  |  | **Extremely** | **Very** | **Moderately** | **Slightly**  | **Not at all** |
| 7 | How clear was the information the student tutor representatives at the MSC gave you? | 52.40% | 33.30% | 7.90% | 4.80% | 1.60% |
|   |   |   |   |   |   |   |
|  |  | **Extremely** | **Very** | **Moderately** | **Slightly**  | **Not at all** |
| 8 | How quickly did the student tutor representatives at the Math Center help you? | 32.30% | 38.70% | 21.00% | 1.60% | 6.50% |
|   |   |   |   |   |   |   |
|  |  | **Extremely** | **Very** | **Moderately** | **Slightly**  | **Not at all** |
| 9 | How likely are you to recommend the MSC to others? | 71.40% | 20.60% | 4.80% | 0.00% | 3.20% |
|   |   |   |   |   |   |   |
|  |  | **Extremely** | **Very** | **Moderately** | **Slightly**  | **Not at all** |
| 10 | How likely are you to use the MSC? | 66.70% | 22.20% | 6.30% | 3.20% | 1.60% |

|  |  |
| --- | --- |
| MSC Workshop Survey |  |
|  |  |  |  |
| **Q1:** | **In which math classes are you** |
|  | **currently enrolled?** |   |
|   | ***Spring 13*** | ***Fall 13*** | ***Spring 14*** |
|   | *n = 10* | *n = 6* | *n = 7* |
| Math 250 | 0.00% | 0.00% | 0.00% |
| Math 256 | 0.00% | 0.00% | 0.00% |
| Math 201 | 70.00% | 66.67% | 57.14% |
| Math 102 | 10.00% | 16.67% | 0.00% |
| Math 103 | 20.00% | 33.33% | 28.57% |
| Math 4A,B,C | 0.00% | 0.00% | 14.29% |
| Math 5A,B | 0.00% | 0.00% | 0.00% |
|  |  |  |  |
| **Q2:** | **How did you hear about the** |  |  |
|  | **workshop(s) you attended?** |  |  |
| ***may answer more than once*** |  |   |   |
| Friend | 0.00% | 16.67% | 16.67% |
| Instructor | 80.00% | 100.00% | 100.00% |
| Counselor | 0.00% | 0.00% | 0.00% |
| Flyer | 30.00% | 16.67% | 0.00% |
| Email | 0.00% | 0.00% | 0.00% |
|  |  |  |  |
| **Q3:** | **Approximately how many** |
|  | **workshops did you attend** |
|  | **this semester?** |  |
| One | 10.00% | 16.67% | 0.00% |
| Two | 20.00% | 16.67% | 28.57% |
| Three | 20.00% | 0.00% | 14.29% |
| Four | 10.00% | 16.67% | 14.29% |
| Five or more | 40.00% | 50.00% | 42.86% |
|  |  |  |  |
| **Q4:** | **Did the workshop(s) you** |
|  | **attended help you understand** |
|  | **the material presented in class?** |
| Yes | 100.00% | 100.00% | 100.00% |
| No | 0.00% | 0.00% | 0.00% |
|  |  |  |  |
| **Q5:** | **Did the workshop(s) you attended** |
|  |  **help you earn a better grade?** |
| Yes | 90.00% | 100.00% | 100.00% |
| No | 10.00% | 0.00% | 0.00% |
|  |  |  |  |
| **Q6:** | **Would you recommend the**  |
|  | **workshop(s) you attended to** |
|  | **other students?** |  |
| Yes | 100.00% | 100.00% | 100.00% |
| No | 0.00% | 0.00% | 0.00% |
|  |  |  |  |
| **Q7:** | **What could the Math Study Center** |
|  | **do to improve our workshops?** |
| *Workshops* |   |   |   |
|  Offer more times | 33.33% | 50.00% | 25.00% |
|  Lengthen time | 33.33% | 0.00% | 0.00% |
|  Good as is | 0.00% | 50.00% | 50.00% |
|  Hold in bigger room | 0.00% |   | 25.00% |
| *Study Center* |   |   |   |
|  more help | 16.67% | 0.00% | 0.00% |
|  helpful | 16.67% | 0.00% | 0.00% |

## Course SLO Assessment Report Form

Please complete a form for each course.

1. **Date: 5/18/12**
2. **Contact Person: Kathleen Landon**
3. **Department: Mathematics**
4. **Course Name and Number: Math 272**
5. **Assessed Course SLO(s):**
6. Students will be able to use the symbols and vocabulary of mathematics to clearly communicate concepts.
7. Students will be able to read, communicate, and understand mathematical ideas in a variety of settings, both verbally and in writing, making use of numerical, graphical and symbolic viewpoints.
8. Students will be able to apply mathematical concepts in a variety of vocational and academic programs.
9. 4: Students will be able to successfully complete concurrent course(s) with mathematical content.
10. **Describe your assessment timeline, including a rationale for your decision:**

The students were mailed the survey with 2 weeks to return it. As this is an “assistance” course, I didn’t want the requirement to impact their study time for finals.

1. **Institutional Outcome Alignment:**

 Which institutional outcome(s) is central to your course?

[x] Communication Skills

* Interpret various types of written, visual, and verbal information.
* Organize ideas and communicate precisely and clearly to express complex thoughts both orally and in writing.

[x] Critical Thinking and Information Literacy

* Analyze quantitative information and apply scientific methodologies.
* Employ critical and creative modes of inquiry to solve problems, explore alternatives, and make decisions.
* Synthesize researched information obtained from accurate, credible, and relevant sources to support, advance, or rebut an opinion.

[ ] Global and Community Literacy

* Analyze the fine arts, humanities, and social sciences from cultural, historic, and aesthetic perspectives.
* Apply historical and contemporary issues and events to civic and social responsibility.
* Demonstrate sensitive and respectful treatment of a variety of ethnic, religious, and socioeconomic backgrounds.

[ ] Personal Development

* Assess current knowledge, skills, and abilities to further develop them and apply them to new situations.
* Incorporate physical and emotional principles to make healthy lifestyle choices.
* Make ethical personal and professional choices.
1. **Assessment Assignments and/ or Instruments:**

 Which were used to assess the SLO?

|  |  |
| --- | --- |
| [ ] Item analysis of exams, quizzes, problem  sets, etc. (items linked to specific  outcomes)[ ] Assignments based on rubrics (essays/  reports, projects, performances,  presentations, etc.)[ ] Assignments based on checklists [x] Direct observation of performances,  structured practice or drills, “practical”  exams, small group work, etc. | [x] Student self-assessments (e.g. reflective  journals, surveys)[ ] Classroom Assessment Techniques (CATS,  “clicker” mediated responses, etc.)[ ] Capstone projects or final summative  assessment (final exams, capstone projects,  portfolios, etc.)[ ] Other (please describe)      |

1. **Please attach any instruments used for assessment (rubrics, checklists, surveys, etc.).**

 See end of document

1. **What is your expected level of achievement for measuring success?**

70% of the students to receive 3 or better on the Free Response questions.

1. **Assessment Results:**

What did members of your program learn from the assessment of the outcome? Did the assessment work, and if not, what needs to be revised?

 The following are the results of the students that responded (44%) to the assignment:

SLO 1:

 #1 100% scored a 4

 #2 50% scored a 2 50% scored a 4

 #3 100% responded positively

 #4 100% responded positively

SLO 2:

 #5 12% did not respond, 50% scored a 3, 38% scored a 4

SLO 3:

 #6 12% scored a 1, 88% scored a 4

SLO 4:

 #7 100% responded positively

 #8 100% responded positively

1. **Action Plan:**

Based on the assessment results, what changes, if any, are planned to increase student success? When will they be implemented? Please check any appropriate boxes and *provide a brief description with a timeline for changes*.

[x] Results are positive—no changes to be made

[ ] Conduct further assessment related to the issue and outcome

[ ] Use new or revised teaching methods (e.g., more use of group work, new

 lecture, etc.)

[ ] Develop new methods of evaluating student work

[ ] Plan purchase of new equipment or supplies needed for modified student

 Activities

[ ] Make changes in staffing plans (e.g., modified job descriptions, requests for

 new positions, etc.)

[ ] Engage in professional development about best practices for this type of

 class/activity

[ ] Revise the course sequence or prerequisites

[x] Revise the course syllabus or outline (e.g., change in course topics)

[ ] Unable to determine what should be done

[ ] Other:

*Provide a brief description with a timeline for changes:*

Changes to the course syllabus will be made for Fall 2012.

|  |  |
| --- | --- |
| Math 272 S12 | SLO Assessment |

Please take a moment to help us evaluate the objectives of Math 272. When you’re done, please drop the questionnaire in the box on the door of FEM1.

About You

|  |  |  |
| --- | --- | --- |
| Name |  | What math class(es) are you enrolled in? |
|  |  |

|  |
| --- |
| How often do you come to the Math Study Center?* Every day
* 4 or 5 times a week
* 3 or fewer times a week
 |
| What do you typically work on? (mark all that apply)* Homework on computer
* Homework not on computer
* Test preparation
* Specific questions from homework
* Test corrections
 |

SLO #1: Students will be able to use the symbols and vocabulary of mathematics to clearly communicate concepts.

|  |  |
| --- | --- |
| 1. Give an example of **3 new symbols/vocabulary terms** that you have used in your math class. | 2. Choose **one** of the 3 new symbols/vocabulary terms and explain it to me as if I was on the phone with you and could not see a picture. |
| 3. I use the symbols and vocabulary of my math class to clearly communicate with my teacher or peers **during class.*** Never
* Sometimes
* Always
 | 4. I am comfortable using the vocabulary from my math class when I am **in class**?* Never
* Sometimes
* Always
 |

Additional Comments about using mathematical symbols and vocabulary to clearly communicate with others

SLO #2: Students will be able to read, communicate, and understand mathematical ideas in a variety of settings, both verbally and in writing, making use of numerical, graphical and symbolic viewpoints.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5. **Find and Solve** a problem from your math class to show me that you can read, communicate and understand mathematics ideas making use of numerical, graphical and symbolic viewpoint. (Show your work on another sheet of paper. You may use graph paper.)**THIS IS AN EXAMPLE OF WHAT I’M ASKING:**The number of trees planted by an agency in different years is given below (let 1997 be time = 0):

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Years | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | … | 2010 |
| Number of trees planted | 400 | 450 | 500 | 550 | 600 | 650 | … | ? |

How many trees were be planted in 2010 if this pattern continued). Explain how you find the answer in as many ways as possible (equations, graphs, patterns, etc.)*Numerical Method:**This could be solved using* ***patterns****:*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Years | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |  |
| Number of trees planted | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1050 |  |

They planted 1050 trees in 2010.*Slope = 50, y-intercept = 400* *Equation: y = 50x + 400**Find y when x = 13**Y = 50(13) + 400**Y = 650 + 400**Y = 1050 trees*They planted 1050 trees in 2010.*Symbolic Method:**This could be solved using an* ***equation****:*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Years | 0 | 1 | 2 | 3 | 4 | 5 | … | 13 |
| Number of trees planted | 400 | 450 | 500 | 550 | 600 | 650 | … | ? |

*Graphical Method:*They planted 1050 trees in 2010. |

Additional Comments about using mathematical symbols and vocabulary to clear communicate with others.

SLO #3: Students will be able to apply mathematical concepts in a variety of vocational and academic programs.

|  |
| --- |
| 6. Choose a topic from your math class and explain how you could use it in another class or on a job. |

SLO #4: Students will be able to successfully complete concurrent course(s) with mathematical content.

|  |
| --- |
| 7. What is your grade in your current math course? \_\_\_\_\_\_\_\_\_\_\_8. Has Math 272 assisted you in being successful this semester? Please explain.     |

Thank you for your participation!