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| **Mathematics MAT151 College Algebra**  **2022-2023 Assessment Report** |
| **Assessment Reporting Form:** This report is to show that academic assessment is occurring and that the results are being used to make changes to improve student learning. The assessment being reported could be for Program Learning Outcomes (PLOs), Measurable Student Level Outcome (MSLOs), and/or Course Common Student Learning Outcomes (CSLOs). Each program should be assessing and gathering data for at least **two** PLOs OR **two** MSLOs that contain CSLOs each year.  On the Baseline Assessment Reporting Form, please record the baseline for the percentage of students who are proficient in the student learning outcome(s) assessed and identify improvements that will be made to increase that percentage. Later, you’ll complete a follow-up assessment (recorded on a Follow-Up Assessment Reporting Form) to ascertain whether the adopted improvements resulted in an increased percentage of students proficient in the assessed learning outcome(s). |
| **Course or Program Assessment Details Due Oct. 13, 2022** |
| **1. Program name or course name and number**: College Algebra (MAT151) |
| **2. Division in which the program or course is located**: Mathematics |
| **3. Date form completed**: Wednesday, October 12th, 2022 |
| **4. Name of person completing report**: Ali Peyravi |
| **5. Semester and year in which the assessment was conducted**: Fall 2022 |
| **6. Number of student participants**: 297 |
| **7. Number of faculty/staff participants**: 10 |
| **8. What PLOs and/or MSLOs and CSLOs did you assess for this baseline assessment? (For clarity, please label each measure listed as a PLO, MSLO, or CSLO.)**  MLSO: 6. (Application Level) Solve systems of linear and nonlinear equations.  CSLO: 2, 4 |
| **9. Describe the assessment method used and the criteria for successful achievement of student learning outcomes. (e.g., rubrics, licensing exam, internship, portfolio, exam, quiz, research paper, performance exam, EAC, etc.)**  Two questions on Final Exam.  a) Completing square  b) System of non-linear equations |
| **Course or Program Assessment Results & Evaluation Due December 10, 2021** |
| **10. What percentage of the participating students were proficient in the PLOs, MSLOs or CSLOs?  What percentage of correct answers was determined as proficient? (For example, a student must answer 70% of the questions correctly to be considered proficient.)**  We defined the average (mean) of 70% as proficient. The department assessment for the 2022-2023 school year included an analysis of two questions taken from the MAT151 (College Algebra) final exam. The first question chosen for analysis asked students to determine the radius and center of a circle through the process of completing the square (#1665). The second question chosen for analysis asked students to solve a system of non-linear equations (#134670). The results of both questions revealed similar average scores (0.641 and 0.667, respectively) as well as similar standard deviations (0.413 and 0.372, respectively). Based on the guiding rubric used for scoring, the results of #1665 might indicate that, on average, students were able to complete the square but were unable to identify the radius and/or center of the circle based on their result. The results of #134670 might indicate that, on average, students were able to identify at least one of the two solutions or were able to identify at least the y-component of each solution. |
| **11. What changes/improvements were made or will be made in response to the outcomes of the assessment process?**  The results from the assessment showed us the average were 64.1% and 66.7% which are not too far from our goal. The department decided to add some problems (completing square problems) into the course assessment for the next semester. |
| ***Feel free to attach your PLOs OR MSLOs and CSLOs and indicate which were assessed***  MLSO:  6. (Application Level) Solve systems of linear and nonlinear equations.  CSLO:  2-Integrative Knowledge – Identify, comprehend, apply and synthesize facts, concepts, theories and practices across broad and specialized knowledge areas.  3-Reasoning Skills – Inquire and analyze to solve problems, draw conclusions or create innovative ideas. |

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| **Feedback Rubric** | | | | | |
| **Category** | **1 - Developing** | **2 – Satisfactory** | **3 - Exemplary** | **Score** | **Feedback** |
| **Outcomes Identified** | Outcomes to be assessed were not clear | Outcomes to be assessed were identified but were not aligned to CSLOs | PLOs or MSLOs to be assessed were identified and aligned with CSLOs | **3** | MLSO:  6. (Application Level) Solve systems of linear and nonlinear equations.  CSLO:  2-Integrative Knowledge – Identify, comprehend, apply and synthesize facts, concepts, theories and practices across broad and specialized knowledge areas.  3-Reasoning Skills – Inquire and analyze to solve problems, draw conclusions or create innovative ideas. |
| **Scope of Assessment** | The assessment was given by only one faculty member and/or to one class | The assessment was given by a few faculty members to several classes, but it was not district-wide | The assessment was given district-wide by all faculty teaching the course. | **3** | **The assessment problems were chosen from the final exam.** |
| **Quality of Assessment** | The assessment did not have articulated criteria for assessment of knowledge, skills, and attitudes (e.g., rubrics, exemplary work). | The assessment somewhat articulated criteria for assessment of knowledge, skills, and attitudes (e.g., rubrics, exemplary work). | The assessment clearly articulated criteria for assessment of knowledge, skills, and attitudes (e.g., rubrics, exemplary work). | **3** | **Please see the Additional Comments** |
| **Interpreting Results** | Data of assessment results was not provided. | Data of assessment results was provided and there was evidence that the results were somewhat analyzed | Data of assessment results was provided and there was evidence that the results were analyzed in depth | **3** | **Please see the Additional Comments** |
| **Reflection and Future Action** | Reflection of the results of the assessment was not apparent and no changes and/or improvements based on them were identified. | Reflection of the results of the assessment was somewhat clear and one change and/or improvements based on them was identified. | Reflection of the results of the assessment was clear and several changes and/or improvements based on them were identified. | **3** | **Please see the Additional Comments** |
| **Additional Comments:**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | If everything is correct | If the completing square, h, and k are correct but not r | If the completing square is correct but not h, k, and r | If the completing square and r are correct but not h and k | If some steps are partially correct | If everything is incorrect | | 1 | 0.75 | 0.5 | 0.5 | 0.25 | 0 |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **System of the Non-linear Equations: ID # 134670** | If everything is correct | If x values are correct but not y value | If y value is correct but not x values | If there is just one correct solution (point) | If some steps are partially correct | If everything is incorrect | | 1 | 0.75 | 0.5 | 0.5 | 0.25 | 0 | | | | | | |



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| **Course or Program Assessment Details Due May 30, 2022** |
| **1. Program name or course name and number**: College Algebra (MAT151) |
| **2. Division in which the program or course is located**: Mathematics |
| **2. Date form completed**: 06-18-2023 |
| **3. Name of person completing report**: Ali Peyravi |
| **4. Semester and year in which the assessment was conducted**: Spring 2023 |
| **5. Number of student participants**: 144 |
| **6. Number of faculty/staff participants**: 9 |
| **7. What PLOs and/or MSLOs and CSLOs did you assess for this baseline assessment? (For clarity, please label each measure listed as a PLO, MSLO, or CSLO.)**  MLSO: 6. (Application Level) Solve systems of linear and nonlinear equations.  CSLO: 2, 4 |
| **8. Describe the assessment method used and the criteria for successful achievement of student learning outcomes. (e.g., rubrics, licensing exam, internship, portfolio, exam, quiz, research paper, performance exam, EAC, etc.)**   |  | | --- | | Two questions on Final Exam.  a) Completing square  b) System of non-linear equations | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |
| **9. What percentage of the participating students were proficient in the PLOs, MSLOs or CSLOs?  What percentage of correct answers was determined as proficient? (For example, a student has to answer 70% of the questions correctly to be considered proficient.)**  We defined the average (mean) of 70% as proficient. The department assessment for the 2022-2023 school year included an analysis of two questions taken from the MAT151 (College Algebra) final exam. The first question chosen for analysis asked students to determine the radius and center of a circle through the process of completing the square (#1665). The second question chosen for analysis asked students to solve a system of non-linear equations (#134670). The following are the results of the **Spring 2023** semester: The results of both questions revealed similar **average scores** (**0.68 and 0.73**, respectively) as well as similar standard deviations (0.41 and 0.38, respectively). Based on the guiding rubric used for scoring, the results of #1665 might indicate that, on average, students were able to complete the square but were unable to identify the radius and/or center of the circle based on their result. The results of #134670 might indicate that, on average, students were able to identify at least one of the two solutions or were able to identify at least the y-component of each solution. A look back at our data from the fall semester revealed an increased average score for both questions as well as similar values of standard deviation. These results would indicate that scores increased while the variation among those scores remained relatively the same. |
| **10. What changes/improvements were made or will be made in response to the outcomes of the assessment process?**  We have started from the Fall 2022 semester to gather the data for the final exam (two questions) for MAT151 (College Algebra) course. For the Spring 2023, I have new data but without any adjustments.  The following are the results of the **Spring 2023** semester: The results of both questions revealed **similar** **average scores** (**0.68 and 0.73**, respectively) as well as **similar** **standard deviations** **(0.41 and 0.38**, respectively).  **We have decided to add more problems (completing square and system of non-linear equations) to the assignments HW and exams that we will assign during the semester.**  **We will start off our adjustment from Fall 2023 semester.** |
| **Additional Comments or feedback on the Assessment Process (Optional):** |