

Course Student Learning Outcomes Assessment

MATH 105 Mathematics for Liberal Arts Students

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General Information (Course Student Learning Outcomes Assessment)

Standing Requirements

Course Description

An overview of mathematics for the liberal arts student. Topics will include problem solving financial management probability statistics and selected other topics such as set theory geometry logic mathematical modeling and the history of mathematics.

Course Student Learning Outcomes

MATH 105 Mathematics for Liberal Arts Students Outcome Set

Outcome

Outcome

Outcome 1
Students will be able to recognize mathematical applications in everyday life and demonstrate appropriate, relevant problem solving skills.

Outcome 2

Students will locate and utilize mathematical resources and technology while demonstrating numerical reasoning and literacy.

Mapping

Institutional Student Learning Outcomes: Act 3, Communicate 1, Communicate 2, Communicate 3, Learn 1, Learn 2, Learn 3, Think 1, Think 2, Think 3

Institutional Student Learning Outcomes: Act 3, Communicate 1, Communicate 2, Communicate 3, Learn 1, Learn 2, Learn 3, Think 1, Think 2, Think 3

2014-2015 Assessment Cycle

Measurements

Outcomes and Measures

MATH 105 Mathematics for Liberal Arts Students Outcome Set

Outcome

Outcome 1

Students will be able to recognize mathematical applications in everyday life and demonstrate appropriate, relevant problem solving skills.

▼ **Measure:** Math 105 SLO 1 - Fall 2014
Course level; Direct - Exam

Description of Measurement Tool: Students are given a comprehensive final exam written by their individual instructors. Four questions, testing the same topic at the same level of difficulty, were chosen to be scored.

The rubric scale used is from 0 to 2.
2: Correct with appropriate approach
1: Minor error in calculation
0: Attempted and totally incorrect, or not attempted

Criteria for Success: Individual & Collective Student Criterion: Individually, success is defined as a score of 2 on the rubric scale.
Collectively, success is defined as 70% of the students being individually successful.

Cycle of Assessment: This outcome is assessed every two years.

For this report, the data was gathered in Fall 2014, collated, analyzed, reported, and discussed in Spring 2015, with recommendations implemented in Fall 2015.

Who is Responsible for Assessment Activity?: The Math 105 coordinator of record for 2014-2015, Jane Francis, is responsible for the assessment.

Findings

Finding per Measure

MATH 105 Mathematics for Liberal Arts Students Outcome Set

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Who is Responsible for Assessment Activity?: The Math 105 coordinator of record for 2014-2015, Jane Francis, is responsible for the assessment.

Findings for Math 105 SLO 1 - Fall 2014

Summary of Findings: Four questions (topic of each question is listed below) were assessed from the final exams.

Five out of six sections offered were assessed. (Final exams from one section were accidentally damaged and could not be salvaged for use in this assessment.)

Note: Since final exam questions were not embedded, the questions used in the assessment varied slightly from one instructor's finals to another. In order to find similar questions of the same level of difficulty, not all exams were used to assess each question.

Collective student success rates per topic question:

1. Unit conversion using dimensional analysis: 88% (107/122 exams)
2. Calculate the mean of a data set: 93% (84/90 exams)
3. Correct use of a financial formula (consumer math application): 44% (54/122 exams)
4. Set application using a Venn diagram: 35% (43/122 exams)

Overall: 65%

Results: Criteria for Success Achievement Status: Not Met

Analysis of Findings: Our success rates are not consistently as high as we would like.

Areas of concern:

A. Financial formula application: 18% of the students set up the formula correctly, but had problems using a calculator correctly; 41% of the students either didn't attempt the problem or used an incorrect formula for the application.

B. Set application using a Venn diagram: 34% of the students set up an incorrect Venn diagram but were able to correctly interpret the results of their Venn diagram to solve the application; 30% of the students were not able to set up a correct Venn diagram or interpret the results of their Venn diagram.

Recommendations: These results will be sent to current and past Math 105 Instructors. Encourage instructors to focus on the two areas of concern listed under Analysis of Findings. Possibly go to embedded questions on the Math 105 final exam in order to get consistent findings and to be able to use all of the exams in the assessment.

This Findings is associated with the following Actions:

Math 105 SLO 1 Plan of Action 2014-2015

(Plans of Action; 2014-2015 Assessment Cycle)

Overall Recommendations

No text specified

Plans of Action

Actions

MATH 105 Mathematics for Liberal Arts Students Outcome Set

Outcome

Outcome 1

Students will be able to recognize mathematical applications in everyday life and demonstrate appropriate, relevant problem solving skills.

▼ Action: Math 105 SLO 1 Plan of Action 2014-2015

This Action is associated with the following Findings

Findings for Math 105 SLO 1 - Fall 2014

(Measurements and Findings; 2014-2015 Assessment Cycle)

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4. Set application using a Venn diagram: 35% (43/122 exams)

Overall: 65%

Details of Plan of Action: These results will be sent to all full-time and part-time math faculty, and will be discussed at our department meeting. The following will be addressed:

1. Emphasize to students the importance of carefully reading an application problem, with additional emphasis on understanding the vocabulary presented in the problem.
2. When teaching consumer math, stress the importance of understanding which formulas are used in which applications.
3. Spend more quality time on Venn diagram applications, again emphasizing vocabulary.

Plan of Action Timeline: Spring 2015: The Plan of Action will begin during the next scheduled faculty meeting after the assessment. Faculty meetings are once a month during Fall and Spring semesters.

Fall 2015 – Fall 2017: All faculty teaching Math 105 will be given reminders of the SLO results and the suggestions laid out in our Plan of Action at the beginning of each semester in their welcome packet.

Fall 2016: New Data will be collected to reassess this SLO.

Who is responsible for carrying out the Plan of Action?: The Math 105 coordinator of record for 2015-2017 will be responsible for the assessment.

How will you determine if the Plan of Action has been effective?: We will reassess this SLO in two years to determine if this Plan of Action was successful.

Additional Resources Required (if any):

Budget request amount: \$0.00

Priority: Medium

Action Statuses

MATH 105 Mathematics for Liberal Arts Students Outcome Set

Outcome

Outcome 1

Students will be able to recognize mathematical applications in everyday life and demonstrate appropriate, relevant problem solving skills.

▼ Action: Math 105 SLO 1 Plan of Action 2014-2015

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Fall 2015 – Fall 2017: All faculty teaching Math 105 will be given reminders of the SLO results and the suggestions laid out in our Plan of Action at the beginning of each semester in their welcome packet.

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Who is responsible for carrying out the Plan of Action?: The Math 105 coordinator of record for 2015-2017 will be responsible for the assessment.

How will you determine if the Plan of Action has been effective?: We will reassess this SLO in two years to determine if this Plan of Action was successful.

Additional Resources Required (if any):

Budget request amount: \$0.00

Priority: Medium

Status for Math 105 SLO 1 Plan of Action 2014-2015

No Status Added

Status Summary

No text specified

Summary of Next Steps

No text specified

2013-2014 Assessment Cycle

Measurements

Outcomes and Measures

MATH 105 Mathematics for Liberal Arts Students Outcome Set

Outcome

Outcome 2

Students will locate and utilize mathematical resources and technology while demonstrating numerical reasoning and literacy.

▼ Measure: Math 105 SLO 2 Course level; Direct - Other

Description of Measurement Tool: Student projects were used for this assessment. The projects consisted of three parts:

- 1) survey, data collection and statistical calculations
- 2) Online research of survey topic and narrative of their findings.
- 3) Summary of their findings presented to the class.

Note: students were permitted to work on the project with up to three other students, if desired. The portions of the project used for the assessment are as follows:

- Criteria 1. Data collection methods clearly explained and statistical calculations correctly done
- Criteria 2. Online search done and presented according to parameters set forth by instructor
- Criteria 3. Classroom presentation clearly conveying survey results and summary

The criteria used to measure success:

1. Data collection methods clearly explained and statistical calculations correctly done

Score of 0 if done improperly
Score of 1 if minor errors
Score of 2 if done properly

2. Online search done and presented according to parameters set forth by instructor

Score of 0 if done improperly
Score of 1 if minor errors
Score of 2 if done properly

3. Classroom presentation clearly conveying survey results and summary

Score of 0 if results not clearly communicated
Score of 1 if results communicated adequately
Score of 2 if results communicated using visual aids or Powerpoint presentation

Total scores of 5 or 6 are considered "successful."

Criteria for Success: Individual & Collective Student Criterion: A successful student must score a total of 5 or 6 on the rubric scale. Collectively, the students are successful if at least 70% of the students assessed score a total of 5 or 6.

Cycle of Assessment: This outcome will be assessed in the fall semester every three years.

For this report, the data was gathered in Fall 2013, collated, analyzed, reported, and discussed in Spring 2014, with recommendations implemented in Fall 2014.

Who is Responsible for Assessment Activity?: The Math 105 coordinator of record for 2013-2014, Jane Francis, is responsible for the assessment.

 Findings

Finding per Measure

MATH 105 Mathematics for Liberal Arts Students Outcome Set

Outcome

Outcome 2

Students will locate and utilize mathematical resources and technology while demonstrating numerical reasoning and literacy.

▼ **Measure:** Math 105 SLO 2
Course level; Direct - Other

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1. Data collection methods clearly explained and statistical calculations correctly done

Score of 0 if done improperly
Score of 1 if minor errors
Score of 2 if done properly

2. Online search done and presented according to parameters set forth by instructor

Score of 0 if done improperly
Score of 1 if minor errors
Score of 2 if done properly

3. Classroom presentation clearly conveying survey results and summary

Score of 0 if results not clearly communicated
Score of 1 if results communicated adequately
Score of 2 if results communicated using visual aids or Powerpoint presentation

Total scores of 5 or 6 are considered "successful."

Criteria for Success: Individual & Collective Student Criterion: A successful student must score a total of 5 or 6 on the rubric scale. Collectively, the students are successful if at least 70% of the students assessed score a total of 5 or 6.

Cycle of Assessment: This outcome will be assessed in the fall semester every three years.

For this report, the data was gathered in Fall 2013, collated, analyzed, reported, and discussed in Spring 2014, with recommendations implemented in Fall 2014.

Who is Responsible for Assessment Activity?: The Math 105 coordinator of record for 2013-2014, Jane Francis, is responsible for the assessment.

Findings for Math 105 SLO 2

Summary of Findings: There were 26 projects (total of 63 students) assessed.

Total Score	# of Projects	# of Students
0	1	1
1	0	0
2	0	0
3	2	4

4 5 9
5 10 26
6 8 23

Results: Criteria for Success Achievement Status: Met

Analysis of Findings: Eighteen out of 26 projects had scores of 5 or 6, which is 69% of the projects. Forty-nine of the 63 students had scores of 5 or 6, which is 78% of the students. Thus, a majority of the students were successful in accomplishing the major goals of this project, which are stated as the three criteria for this assessment. While the resources and technology were somewhat simple to utilize, students had to be able to communicate both numerical results and results found online in a clear, logical way.

Recommendations: The scope of this assessment was limited to a single project assigned by one professor. In order to get more global results, it will be necessary to either standardize a common project with a common rubric for all Math 105 classes or to set a general rubric that could be easily implemented by individual instructors to fit their own assigned projects. It may be difficult to get uniform results with the second option.

Overall Recommendations

No text specified

 **Plans of Action**

Actions

MATH 105 Mathematics for Liberal Arts Students Outcome Set

Outcome

Outcome 2 *No actions specified*

Students will locate and utilize mathematical resources and technology while demonstrating numerical reasoning and literacy.

 **Status Reports**

Action Statuses

MATH 105 Mathematics for Liberal Arts Students Outcome Set

Outcome

Outcome 2 *No actions specified*

Students will locate and utilize mathematical resources and technology while demonstrating numerical reasoning and literacy.

Status Summary

No text specified

Summary of Next Steps

No text specified

2012-2013 Assessment Cycle

 **Measurements**

 **Findings**

 **Plans of Action**

 **Status Reports**