

# Course Student Learning Outcomes Assessment

**MATH 219 Statistics and Probability**

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## **General Information (Course Student Learning Outcomes Assessment)**

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# Standing Requirements

## 📖 Course Description

Beginning course in statistics. Includes descriptive statistics graphical displays of data probability confidence intervals hypothesis testing regression contingency tables ANOVA and non-parametric statistics. Includes use of technology.

## 📖 Course Student Learning Outcomes

### MATH 219 Statistics and Probability Outcome Set

Outcome	
Outcome	Mapping
Outcome 1 To read and critically analyze the validity of a statistical statement by considering how the data was obtained and the appropriateness of the statistical methods used.	<b>Institutional Student Learning Outcomes:</b> Act 2, Learn 1, Think 1
Outcome 2 Know how to collect data from a population and represent it in an organized and visual manner.	<b>Institutional Student Learning Outcomes:</b> Communicate 1, Communicate 2, Communicate 3, Learn 1, Think 1, Think 2
Outcome 3 To read and interpret data represented in a chart or graph.	<b>Institutional Student Learning Outcomes:</b> Act 3, Communicate 1, Communicate 3, Learn 2, Think 1, Think 3

# 2014-2015 Assessment Cycle

## Measurements

### Outcomes and Measures

#### MATH 219 Statistics and Probability Outcome Set

##### Outcome

###### Outcome 1

To read and critically analyze the validity of a statistical statement by considering how the data was obtained and the appropriateness of the statistical methods used.

▼ **Measure:** Math 219 SLO 1 - Fall 2014  
Course level; Direct - Exam

**Description of Measurement Tool:** 40 Multiple Choice questions each written to testing one of the three SLOs. Plus free-response questions asking the students to graphically represent two sets of data so the data can be compared. Plus the student will make observations about the data and perform the appropriate Hypothesis test on the two set of data.

Multiple choice questions are assessed as correct or incorrect where the free-response questions use a rubric scale from 0-4:

- 4 - Exemplary, complete understanding
- 3 - Thoughtful, clear understanding
- 2 - Developing, literal
- 1 - Limited, barely acceptable
- 0 - Minimal, unacceptable

16 Multiple choice questions measure SLO 1

**Criteria for Success: Individual & Collective Student Criterion:** Individually, success is defined as getting 70% of the multiple choice questions correct.

Collectively, success is defined as 70% of each SLO questions were answered correctly.

**Cycle of Assessment:** These outcomes are assessed in the fall of every year. This data was collected in the Fall of 2014. Collated, analyzed, reported, and discussed in Spring 2015, with recommendations implemented in spring and fall 2015

**Who is Responsible for Assessment Activity?:** The Math 219 coordinator of record for 2014-2015, Craig Nance, is responsible for the assessment.

###### Outcome 2

Know how to collect data from a population and represent it in an organized and visual manner.

▼ **Measure:** Math 219 SLO 2 - Fall 2014  
Course level; Direct - Exam

**Description of Measurement Tool:** 40 Multiple Choice questions each written to testing one of the three SLOs. Plus free-response questions asking the students to graphically represent two sets of data so the data can be compared. Plus the student will make observations about the data and perform the appropriate Hypothesis test on the two set of data.

Multiple choice questions are assessed as correct or incorrect where the free-response questions use a rubric scale from 0-4:

- 4 - Exemplary, complete understanding
- 3 - Thoughtful, clear understanding
- 2 - Developing, literal
- 1 - Limited, barely acceptable
- 0 - Minimal, unacceptable

8 Multiple choice questions and 3 free response measure SLO 2

**Criteria for Success: Individual & Collective Student Criterion:** Individually, success is defined as getting 70% of the multiple choice questions correct and an average score of 2.5 or higher on the free response questions.

Collectively, success is defined as... 70% of each SLO questions were answered correctly. An average score of 2.5 for the graphical free response question.

**Cycle of Assessment:** These outcomes are assessed in the fall of every year. This data was collected in the Fall of 2014. Collated, analyzed, reported, and discussed in Spring 2015, with recommendations implemented in spring and fall 2015

**Who is Responsible for Assessment Activity?:** The Math 219 coordinator of record for 2014-2015, Craig Nance, is responsible for the assessment.

**Outcome 3**

To read and interpret data represented in a chart or graph.

▼ **Measure:** Math 219 SLO 3 - Fall 2014  
Course level; Direct - Exam

**Description of Measurement Tool:** 40 Multiple Choice questions each written to testing one of the three SLOs. Plus free-response questions asking the students to graphically represent two sets of data so the data can be compared. Plus the student will make observations about the data and perform the appropriate Hypothesis test on the two set of data.

Multiple choice questions are assessed as correct or incorrect where the free-response questions use a rubric scale from 0-4:

- 4 - Exemplary, complete understanding
- 3 - Thoughtful, clear understanding
- 2 - Developing, literal
- 1 - Limited, barely acceptable
- 0 - Minimal, unacceptable

16 Multiple choice questions measure SLO 3

**Criteria for Success: Individual & Collective Student Criterion:** Individually, success is defined as getting 70% of the multiple choice questions correct.

Collectively, success is defined as 70% of each SLO questions were answered correctly.

**Cycle of Assessment:** These outcomes are assessed in the fall of every year. This data was collected in the Fall of 2014. Collated, analyzed, reported, and discussed in Spring 2015, with recommendations implemented in spring and fall 2015

**Who is Responsible for Assessment Activity?:** The Math 219 coordinator of record for 2014-2015, Craig Nance, is responsible for the assessment.

 Findings

Finding per Measure

**MATH 219 Statistics and Probability Outcome Set**

**Outcome**

**Outcome 1**

To read and critically analyze the validity of a statistical statement by considering how the data was obtained and the appropriateness of the statistical methods used.

▼ **Measure:** Math 219 SLO 1 - Fall 2014  
Course level; Direct - Exam

**Description of Measurement Tool:** 40 Multiple Choice questions each written to testing one of the three SLOs. Plus free-response questions asking the students to graphically represent two sets of data so the data can be compared. Plus the student will make observations about the data and perform the appropriate Hypothesis test on the two set of data.

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Collectively, success is defined as 70% of each SLO questions were answered correctly.

**Cycle of Assessment:** These outcomes are assessed in the fall of every year. This data was collected in the Fall of 2014. Collated, analyzed, reported, and discussed in Spring 2015, with recommendations implemented in spring and fall 2015

**Who is Responsible for Assessment Activity?:** The Math 219 coordinator of record for 2014-2015, Craig Nance, is responsible for the assessment.

### Findings for Math 219 SLO 1 - Fall 2014

**Summary of Findings:** 189 students were evaluated from 8 sections of Math 219.

The success rate for all 3 SLOs were lower than previous years and did not meet the 70% goals for each SLO.


SLO 1 success rate was 61%

**Results:** Criteria for Success Achievement Status: Not Met

**Analysis of Findings:** These were the lowest results we have had since we started evaluating SLOs. I contribute this to the fact 5 of the 8 sections were taught by adjunct instructors that were teaching the course for the first or second time. 8 of the 40 questions had success rates 40% or less.

**Recommendations:** To inform the statistics instructors about the 8 questions that were identified with low success rates. To discuss how to help their students understand these concepts.

**Substantiating Evidence:**

 Math 219 SLO Data - Fall 2014 (Adobe Acrobat Document) (See appendix)

**This Findings is associated with the following Actions:**

**Math 219 SLO Action Plan - Fall 2014**

(Plans of Action; 2014-2015 Assessment Cycle)

### Outcome 2

Know how to collect data from a population and represent it in an organized and visual manner.

#### ▼ Measure: Math 219 SLO 2 - Fall 2014 Course level; Direct - Exam

**Description of Measurement Tool:** 40 Multiple Choice questions each written to testing one of the three SLOs. Plus free-response questions asking the students to graphically represent two sets of data so the data can be compared. Plus the student will make observations about the data and perform the appropriate Hypothesis test on the two set of data.

Multiple choice questions are assessed as correct or incorrect where the free-response questions use a rubric scale from 0-4:

- 4 - Exemplary, complete understanding
- 3 - Thoughtful, clear understanding
- 2 - Developing, literal
- 1 - Limited, barely acceptable
- 0 - Minimal, unacceptable

8 Multiple choice questions and 3 free response measure SLO 2

**Criteria for Success: Individual & Collective Student Criterion:** Individually, success is defined as getting 70% of the multiple choice questions correct and an average score of 2.5 or higher on the free response questions.

Collectively, success is defined as... 70% of each SLO questions were answered correctly. An average score of 2.5 for the graphical free response question.

**Cycle of Assessment:** These outcomes are assessed in the fall of every year. This data was collected in the Fall of 2014. Collated, analyzed, reported, and discussed in Spring 2015, with recommendations implemented in spring and fall 2015

**Who is Responsible for Assessment Activity?:** The Math 219 coordinator of record for 2014-2015, Craig Nance, is responsible for the assessment.

### Findings for Math 219 SLO 2 - Fall 2014

**Summary of Findings:** 189 students were evaluated from 8 sections of Math 219.

The success rate for all 3 SLOs were lower than previous years and did not meet the 70% goals for each SLO.

SLO 2 success rate was 62%


The free response question did meet its goal of an average score of 2.53 for the group with 63% of the students scoring 3 or higher. 88% of the students drew the correct type of graph.

**Results:** Criteria for Success Achievement Status: Not Met

**Analysis of Findings:** These were the lowest results we have had since we started evaluating SLOs. I attribute this to the fact 5 of the 8 sections were taught by adjunct instructors that were teaching the course for the first or second time. 8 of the 40 questions had success rates 40% or less.

**Recommendations:** To inform the statistics instructors about the 8 questions that were identified with low success rates. To discuss how to help their students understand these concepts.

**Substantiating Evidence:**

 Math 219 SLO Data - Fall 2014 (Adobe Acrobat Document) (See appendix)

**This Findings is associated with the following Actions:**

**Math 219 SLO Action Plan - 2014-2015**

(Plans of Action; 2014-2015 Assessment Cycle)

### Outcome 3

To read and interpret data represented in a chart or graph.

#### ▼ Measure: Math 219 SLO 3 - Fall 2014

Course level; Direct - Exam

**Description of Measurement Tool:** 40 Multiple Choice questions each written to test one of the three SLOs. Plus free-response questions asking the students to graphically represent two sets of data so the data can be compared. Plus the student will make observations about the data and perform the appropriate Hypothesis test on the two sets of data.

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16 Multiple choice questions measure SLO 3

**Criteria for Success: Individual & Collective Student Criterion:** Individually, success is defined as getting 70% of the multiple choice questions correct.

Collectively, success is defined as 70% of each SLO question were answered correctly.

**Cycle of Assessment:** These outcomes are assessed in the fall of every year. This data was collected in the Fall of 2014. Collated, analyzed, reported, and discussed in Spring 2015, with recommendations implemented in spring and fall 2015

**Who is Responsible for Assessment Activity?:** The Math 219 coordinator of record for 2014-2015, Craig Nance, is responsible for the assessment.



## Findings for Math 219 SLO 3 - Fall 2014

**Summary of Findings:** 189 students were evaluated from 8 sections of Math 219.

The success rate for all 3 SLOs were lower than previous years and did not meet the 70% goals for each SLO.


SLO 3 success rate was 63%

**Results:** Criteria for Success Achievement Status: Not Met

**Analysis of Findings:** These were the lowest results we have had since we started evaluating SLOs. I contribute this to the fact 5 of the 8 sections were taught by adjunct instructors that were teaching the course for the first or second time. 8 of the 40 questions had success rates 40% or less.

**Recommendations:** To inform the statistics instructors about the 8 questions that were identified with low success rates. To discuss how to help their students understand these concepts.

**Substantiating Evidence:**

 Math 219 SLO Data - Fall 2014 (Adobe Acrobat Document) (See appendix)

**This Findings is associated with the following Actions:**

**Math 219 Action Plan 2014-2015**

(Plans of Action; 2014-2015 Assessment Cycle)

## Overall Recommendations

*No text specified*

## Plans of Action

### Actions

## MATH 219 Statistics and Probability Outcome Set

### Outcome

#### Outcome 1

To read and critically analyze the validity of a statistical statement by considering how the data was obtained and the appropriateness of the statistical methods used.

#### ▼ Action: Math 219 SLO Action Plan - Fall 2014

**This Action is associated with the following Findings**

#### Findings for Math 219 SLO 1 - Fall 2014

(Measurements and Findings; 2014-2015 Assessment Cycle)

**Summary of Findings:** 189 students were evaluated from 8 sections of Math 219.

The success rate for all 3 SLOs were lower than previous years and did not meet the 70% goals for each SLO.

SLO 1 success rate was 61%

**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) Send a detail list of concepts that need to be emphasized that the 8 questions addressed to all the instructors teaching statistics.
- 2) Meet with any new statistics instructors and discuss these concepts in detail.

Etc.

**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 2016: All faculty teaching Math \_219 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 219 coordinator(s) of record for 2015-2018 will be responsible for the assessment.

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

**Additional Resources Required (if any):**

**Budget request amount:** \$0.00

**Priority:** Medium

## Outcome 2

Know how to collect data from a population and represent it in an organized and visual manner.

### ▼ Action: Math 219 SLO Action Plan - 2014-2015

#### This Action is associated with the following Findings

##### Findings for Math 219 SLO 2 - Fall 2014

(Measurements and Findings; 2014-2015 Assessment Cycle)

**Summary of Findings:** 189 students were evaluated from 8 sections of Math 219.

The success rate for all 3 SLOs were lower than previous years and did not meet the 70% goals for each SLO.

SLO 2 success rate was 62%

The free response question did meet its goal of an average score of 2.53 for the group with 63% of the students scoring 3 or higher. 88% of the students drew the correct type of graph.

**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) Send a detail list of concepts that need to be emphasized that the 8 questions addressed to all the instructors teaching statistics.

2) Meet with any new statistics instructors and discuss these concepts in detail.

Etc.

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Fall 2015 – Fall 2016: All faculty teaching Math \_219 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 219 coordinator(s) of record for 2015-2018 will be responsible for the assessment.

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

**Additional Resources Required (if any):****Budget request amount:** \$0.00**Priority:** Medium**Outcome 3**

To read and interpret data represented in a chart or graph.

▼ **Action:** Math 219 Action Plan 2014-2015

**This Action is associated with the following Findings****Findings for Math 219 SLO 3 - Fall 2014**

(Measurements and Findings; 2014-2015 Assessment Cycle)

**Summary of Findings:** 189 students were evaluated from 8 sections of Math 219.

The success rate for all 3 SLOs were lower than previous years and did not meet the 70% goals for each SLO.

SLO 3 success rate was 63%

**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) Send a detail list of concepts that need to be emphasized that the 8 questions addressed to all the instructors teaching statistics.

2) Meet with any new statistics instructors and discuss these concepts in detail.

Etc.

**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 2016: All faculty teaching Math \_219 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 219 coordinator(s) of record for 2015-2018 will be responsible for the assessment.

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

**Additional Resources Required (if any):****Budget request amount:** \$0.00**Priority:** Medium

 **Status Reports**

**Action Statuses**

**MATH 219 Statistics and Probability Outcome Set**

## Outcome

### Outcome 1

To read and critically analyze the validity of a statistical statement by considering how the data was obtained and the appropriateness of the statistical methods used.

#### ▼ Action: Math 219 SLO Action Plan - Fall 2014

**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) Send a detail list of concepts that need to be emphasized that the 8 questions addressed to all the instructors teaching statistics.
  - 2) Meet with any new statistics instructors and discuss these concepts in detail.
- Etc.

**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 2016: All faculty teaching Math \_219 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 219 coordinator(s) of record for 2015-2018 will be responsible for the assessment.

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

**Additional Resources Required (if any):**

**Budget request amount:** \$0.00

**Priority:** Medium

#### Status for Math 219 SLO Action Plan - Fall 2014

*No Status Added*

### Outcome 2

Know how to collect data from a population and represent it in an organized and visual manner.

#### ▼ Action: Math 219 SLO Action Plan - 2014-2015

**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) Send a detail list of concepts that need to be emphasized that the 8 questions addressed to all the instructors teaching statistics.
  - 2) Meet with any new statistics instructors and discuss these concepts in detail.
- Etc.

**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 2016: All faculty teaching Math \_219 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 219 coordinator(s) of

record for 2015-2018 will be responsible for the assessment.

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

**Additional Resources Required (if any):**

**Budget request amount:** \$0.00

**Priority:** Medium

**Status** for Math 219 SLO Action Plan - 2014-2015

*No Status Added*

**Outcome 3**

To read and interpret data represented in a chart or graph.

▼ **Action:** Math 219 Action Plan 2014-2015

**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) Send a detail list of concepts that need to be emphasized that the 8 questions addressed to all the instructors teaching statistics.
- 2) Meet with any new statistics instructors and discuss these concepts in detail.
- Etc.

**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 2016: All faculty teaching Math \_219 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 219 coordinator(s) of record for 2015-2018 will be responsible for the assessment.

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

**Additional Resources Required (if any):**

**Budget request amount:** \$0.00

**Priority:** Medium

**Status** for Math 219 Action Plan 2014-2015

*No Status Added*

**Status Summary**

*No text specified*

**Summary of Next Steps**

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*No text specified*

# 2013-2014 Assessment Cycle

## Measurements

### Outcomes and Measures

#### MATH 219 Statistics and Probability Outcome Set

##### Outcome

###### Outcome 1

To read and critically analyze the validity of a statistical statement by considering how the data was obtained and the appropriateness of the statistical methods used.

▼ **Measure:** Math 219 SLO 1  
Course level; Direct - Exam

**Description of Measurement Tool:** Students are given a departmental final with 16 embedded multiple-choice questions pertaining to specific topics for this SLO.

**Criteria for Success: Individual & Collective Student Criterion:** Individually, success is defined as correctly answering 11 of the 16 multiple choice questions. Collectively, success is defined as 70% of the class being individually successful.

**Cycle of Assessment:** This SLO is assessed every year, generally, using data from fall and summer courses.

**Who is Responsible for Assessment Activity?:** The Math 219 coordinator of record for 2013-2014, Craig Nance, is responsible for the assessment.

###### Outcome 2

Know how to collect data from a population and represent it in an organized and visual manner.

▼ **Measure:** Math 219 SLO 2  
Course level; Direct - Exam

**Description of Measurement Tool:** Students are given a departmental final with 8 embedded multiple-choice questions and one embedded free-response question pertaining to specific topics for this SLO.

The multiple choice questions are assessed as either correct or incorrect.  
The free-response question is assessed on a 4 point rubric.

- 4: Correct with appropriate algebraic approach
- 3: Minor error or algebraic approach
- 2: Attempted, but no appropriate algebra used
- 1: blank

**Criteria for Success: Individual & Collective Student Criterion:** Individually, success is defined as correctly answering 6 of the 8 multiple-choice questions and earning a 3 or 4 on the free-response rubric scale. Collectively, success is defined as 70% of the class being individually successful.

**Cycle of Assessment:** This SLO is assessed every year, generally, using data from fall and summer courses.

**Who is Responsible for Assessment Activity?:** The Math 219 coordinator of record for 2013-2014, Craig Nance, is responsible for the assessment.

###### Outcome 3

To read and interpret data represented in a chart or graph.

▼ **Measure:** Math 219 SLO 3  
Course level; Direct - Exam

**Description of Measurement Tool:** Students are given a departmental final with 16 embedded multiple choice questions pertaining to specific topics for this SLO.

These questions will be assessed as correct or incorrect.

**Criteria for Success: Individual & Collective Student Criterion:** Individually, success is defined as correctly answering 11 out of the 16 questions. Collectively, success is defined as 70% of the class being individually successful.

**Cycle of Assessment:** This SLO is assessed every year, generally, using data from fall and summer courses.

**Who is Responsible for Assessment Activity?:** The Math 219 coordinator of record for 2013-2014, Craig Nance, is responsible for the assessment.

 Findings

Finding per Measure

MATH 219 Statistics and Probability Outcome Set

Outcome

Outcome 1

To read and critically analyze the validity of a statistical statement by considering how the data was obtained and the appropriateness of the statistical methods used.

▼ **Measure:** Math 219 SLO 1  
Course level; Direct - Exam

**Description of Measurement Tool:** Students are given a departmental final with 16 embedded multiple-choice questions pertaining to specific topics for this SLO.

**Criteria for Success: Individual & Collective Student Criterion:** Individually, success is defined as correctly answering 11 of the 16 multiple choice questions. Collectively, success is defined as 70% of the class being individually successful.

**Cycle of Assessment:** This SLO is assessed every year, generally, using data from fall and summer courses.

**Who is Responsible for Assessment Activity?:** The Math 219 coordinator of record for 2013-2014, Craig Nance, is responsible for the assessment.

Findings for Math 219 SLO 1

**Summary of Findings:** Overall success: 71.7% correct.

This is a increase of 4.7% from the previous year. Only two questions had a low percentage.

**Results:** Criteria for Success Achievement Status: Met

**Analysis of Findings:** The increase in the percentages is a positive result. The two low percentage questions improved from the previous year by 10%. These are the most missed questions on the final, but nothing can be done to the problem to improve the results.

**Recommendations:** Instructors will be asked to continue to stress Methods of Testing which are the concepts most commonly missed.

Outcome 2

Know how to collect data from a population and represent it in an organized and visual manner.

▼ **Measure:** Math 219 SLO 2  
Course level; Direct - Exam

**Description of Measurement Tool:** Students are given a departmental final with 8 embedded multiple-choice questions and one embedded free-response question pertaining to specific topics for this SLO.

The multiple choice questions are assessed as either correct or incorrect. The free-response question is assessed on a 4 point rubric.

- 4: Correct with appropriate algebraic approach
- 3: Minor error or algebraic approach
- 2: Attempted, but no appropriate algebra used
- 1: blank



**Criteria for Success: Individual & Collective Student Criterion:** Individually, success is defined as correctly answering 6 of the 8 multiple-choice questions and earning a 3 or 4 on the free-response rubric scale.

Collectively, success is defined as 70% of the class being individually successful.

**Cycle of Assessment:** This SLO is assessed every year, generally, using data from fall and summer courses.

**Who is Responsible for Assessment Activity?:** The Math 219 coordinator of record for 2013-2014, Craig Nance, is responsible for the assessment.

### Findings for Math 219 SLO 2

**Summary of Findings:** Overall success rate: 68.6 %.

This is 1.5% drop from the previous semester. Only one question had a low success rate.

86% drew a comparison graph correctly. This is an increase of 8%.

62% scored 3 or higher on a 4 point. The mean score was 2.7

**Results:** Criteria for Success Achievement Status: Met

**Analysis of Findings:** I attribute the drop to variability of data.

**Recommendations:** The methods of collecting data and proper method for representing quantitative data need to be presented better. We see no need for any changes to these questions at this time.

### Outcome 3

To read and interpret data represented in a chart or graph.

#### ▼ Measure: Math 219 SLO 3 Course level; Direct - Exam

**Description of Measurement Tool:** Students are given a departmental final with 16 embedded multiple choice questions pertaining to specific topics for this SLO.

These questions will be assessed as correct or incorrect.

**Criteria for Success: Individual & Collective Student Criterion:** Individually, success is defined as correctly answering 11 out of the 16 questions. Collectively, success is defined as 70% of the class being individually successful.

**Cycle of Assessment:** This SLO is assessed every year, generally, using data from fall and summer courses.

**Who is Responsible for Assessment Activity?:** The Math 219 coordinator of record for 2013-2014, Craig Nance, is responsible for the assessment.

### Findings for Math 219 SLO 3

**Summary of Findings:** Overall success rate: 71 %

This is a drop of 0.5% from the previous semester. One question had a high failure rate.

**Results:** Criteria for Success Achievement Status: Met

**Analysis of Findings:** One question has a high fail rate. We changed the wording to the problem. It did not help. It appears the students are not reading carefully.

**Recommendations:** Instructors will be asked to encourage the students to read problems carefully.

## Overall Recommendations

*No text specified*

 **Plans of Action**

 **Status Reports**

## 2012-2013 Assessment Cycle

### Measurements

#### Outcomes and Measures

### MATH 219 Statistics and Probability Outcome Set

#### Outcome

##### Outcome 1

To read and critically analyze the validity of a statistical statement by considering how the data was obtained and the appropriateness of the statistical methods used.

▼ **Measure:** Final Exam  
Course level; Direct - Exam

**Description of Measurement Tool:** 45 question, 40 Multiple Choice questions and 5 free response questions.

**Criteria for Success: Individual & Collective Student Criterion:** 70% of the questions relating to this outcome will be correctly answered.

**Cycle of Assessment:** Will be evaluate one a year. Usually the spring semester using the previous fall and summer data.

**Who is Responsible for Assessment Activity?:** Course coordinator is responsible of collecting and accessing the test data

##### Outcome 2

Know how to collect data from a population and represent it in an organized and visual manner.

▼ **Measure:** Final Exam  
Course level; Direct - Exam

**Description of Measurement Tool:** 45 question, 40 Multiple Choice questions and 5 free response questions.

**Criteria for Success: Individual & Collective Student Criterion:** 70% of the questions relating to this outcome will be correctly answered.

**Cycle of Assessment:**

**Who is Responsible for Assessment Activity?:**

##### Outcome 3

To read and interpret data represented in a chart or graph.

*No measures specified*

### Findings

#### Finding per Measure

### MATH 219 Statistics and Probability Outcome Set

#### Outcome

##### Outcome 1

To read and critically analyze the validity of a statistical statement by

▼ **Measure:** Final Exam  
Course level; Direct - Exam

considering how the data was obtained and the appropriateness of the statistical methods used.

**Description of Measurement Tool:** 45 question, 40 Multiple Choice questions and 5 free response questions.

**Criteria for Success: Individual & Collective Student Criterion:** 70% of the questions relating to this outcome will be correctly answered.

**Cycle of Assessment:** Will be evaluate one a year. Usually the spring semester using the previous fall and summer data.

**Who is Responsible for Assessment Activity?:** Course coordinator is responsible of collecting and accessing the test data

**Findings for Final Exam**

*No Findings Added*

**Outcome 2**

Know how to collect data from a population and represent it in an organized and visual manner.

▼ **Measure:** Final Exam  
Course level; Direct - Exam

**Description of Measurement Tool:** 45 question, 40 Multiple Choice questions and 5 free response questions.

**Criteria for Success: Individual & Collective Student Criterion:** 70% of the questions relating to this outcome will be correctly answered.

**Cycle of Assessment:**

**Who is Responsible for Assessment Activity?:**

**Findings for Final Exam**

*No Findings Added*

**Outcome 3**

To read and interpret data represented in a chart or graph.

*No measures specified*

**Overall Recommendations**

*No text specified*

 **Plans of Action**

**Actions**

**MATH 219 Statistics and Probability Outcome Set**

**Outcome**

**Outcome 1**

To read and critically analyze the validity of a statistical statement by considering how the data was obtained and the appropriateness of the statistical methods used.

▼ **Action:** Test plan

**This Action is associated with the following Findings**

No supporting Findings have been linked to this Action.

**Details of Plan of Action:**

**Plan of Action Timeline:**

**Who is responsible for carrying out the Plan of Action?:**

**How will you determine if the Plan of Action has been effective?:** re test

**Additional Resources Required (if any):**

**Budget request amount:** \$0.00

**Priority:**

## Status Reports

### Action Statuses

## MATH 219 Statistics and Probability Outcome Set

### Outcome

#### Outcome 1

To read and critically analyze the validity of a statistical statement by considering how the data was obtained and the appropriateness of the statistical methods used.

#### ▼ Action: Test plan

##### Details of Plan of Action:

##### Plan of Action Timeline:

**Who is responsible for carrying out the Plan of Action?:**

**How will you determine if the Plan of Action has been effective?:** re test

**Additional Resources Required (if any):**

**Budget request amount:** \$0.00

**Priority:**

#### Status for Test plan

**Current Status:** Not Implemented

**Budget Status:** Approved

**Explanation of current status:** no problem

**Has the Plan of Action been effective? What are the next steps?:** yes continue what we have been doing

### Status Summary

*No text specified*

### Summary of Next Steps

*No text specified*



# Appendix

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- A. **Math 219 SLO Data - Fall 2014** (Adobe Acrobat Document)
  - B. **Math 219 SLO Data - Fall 2014** (Adobe Acrobat Document)
  - C. **Math 219 SLO Data - Fall 2014** (Adobe Acrobat Document)
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