

2021-2022 Assessment Cycle

Assessment Findings

Program Assessment Accomplishments

The Mathematics Department assessed our PSLOs with assignments in several courses. The Department also conducted exit interviews with graduating students.

During departmental meetings, the Department faculty discussed our assessment plan and results. The prior year's assessment report, collected data, and feedback from the Assessment Committee were made available to the faculty. The Mathematics Department was satisfied with last year's assessment activities. Thus, no changes have been made to our assessment practices.

The Department meets regularly with an Advisory Board, which is comprised of faculty members, recent graduates, and area actuaries employed at local businesses. The Board is made aware of our degree requirements and recommendations by the Society of Actuaries. The Board has an opportunity to provide input on our Applied Statistics track and to make suggestions for change.

The Applied Statistics track is similar to the Actuarial Program, but allows students to pursue a more general field of study. (Actuaries tend to work in the insurance field, while a statistician can work a variety of settings.) The department believes that a more general degree is necessary for students to pursue a variety of occupations. The duplication of some courses is needed in order to provide a well-rounded background while simultaneously allowing for the more general program.

The Department faced a difficult challenge with the retirement of one of our two Statistics faculty in Spring 2022. The Department was able to successfully hire a replacement.

Finding per Measure

BA/BS - Applied Statistics Outcome Set

PSLO 1

Outcome: Ability to solve a variety of problems in mathematics


Students will solve a variety of problems in mathematics including calculus, probability and statistics, and linear algebra.

- ▼ **Measure:** Anonymous portion of Exit Interview
Program level Indirect - Survey

Details/Description: Anonymous portion of Senior exit interviews

Acceptable Target: 70% of the students responding to the anonymous portion of the exit interview will indicate "Good", "Very Good", or "Excellent" on questions related to this PSLO.

Supporting Attachments:

 2021-2022 Compiled Anonymous responses.docx (Word Document (Open XML))

Findings for Anonymous portion of Exit Interview

Summary of Findings: The Department was disappointed that only 2 graduating students returned this survey. However, the results were in line with our measure in that 100% of the respondents indicating "Excellent", "Very Good", or "Good" on the associated questions. Thus, the measure was exceeded.

Results : Acceptable Target Achievement: Exceeded

Recommendations:


Reflections/Notes: Next year we will put more effort into getting our graduating students to complete the survey.


▼ **Measure:** Course Assignment
Course level Direct - Student Artifact

Details/Description: Specified assignments in MA 151

Acceptable Target: 70% of all students completing MA 151 will obtain an average of 2.5 (out of 4) on specified assessment assignments using the Departmental rubric.

Supporting Attachments:

 MA 151-Spring 2022-Assessment Data-names removed.xlsx (Excel Workbook (Open XML))

 MA-151-F21-Assessment Data-names removed.xlsx (Excel Workbook (Open XML))

 Project Rubric.pdf (Adobe Acrobat Document)

Findings for Course Assignment

Summary of Findings: For Fall 2021 and Spring 2022, 75% and 88% of students respectively earned an average of at least 2.5/4 on the associated assignments.

Results : Acceptable Target Achievement: Met

Recommendations:

Reflections/Notes:

▼ **Measure:** Course Grades *Course level Direct - Other*

Details/Description: Overall grades in MA 151, MA 152, MA 253, MA 301, MA 340, MA 341, MA 342

Acceptable Target: 70% of all students completing the respective courses will obtain a C or better in the course.

Supporting Attachments:

 Final Grade Dist Comp SP 22.xlsx (Excel Workbook (Open XML))

 Final Grade Dist FA 21.xlsx (Excel Workbook (Open XML))

Findings for Course Grades

Summary of Findings:

The only courses that did not hit the target were MA 253 in Spring 22, where 67% of the class obtained a C or higher, and MA 152 in Fall 21, where 63% of the class obtained a C or higher. However, for the entire academic year, 83.3% of MA 253 and 90% of MA 152 students obtained a C or higher in the course. Thus, the objective is considered to be met.

Results :

Acceptable Target Achievement: Met

Recommendations:

Reflections/Notes:

▼ **Measure:** Exit Interviews

Program level Indirect - Interview

Details/Description:

Senior exit interviews

Acceptable Target:

No more than 20% of the students responding will mention this as a concern during their free-response exit interview.

Supporting Attachments:

 2021-2022 Compiled responses.docx (Word Document (Open XML))

Findings for Exit Interviews

Summary of Findings:

One student commented that they wished there were more application problems. However, this was less than 20% of the responses.

Results :

Acceptable Target Achievement: Met

Recommendations:

Reflections/Notes:

PSLO 2

Outcome: Ability to do statistical analysis

Students will solve challenging problems involving the appropriate design of experiments, the derivation of the statistical properties of estimators, and the implementation of correct methods of statistical inference in order to make valid conclusions from data.

▼ **Measure:** Anonymous portion of Exit Interview
Program level Indirect - Survey

Details/Description:	Anonymous portion of Senior exit interviews
Acceptable Target:	70% of the students responding to the anonymous portion of the exit interview will indicate "Good", "Very Good", or "Excellent" on questions related to this PSLO.

Supporting Attachments:

[📎 2021-2022 Compiled Anonymous responses.docx \(Word Document \(Open XML\)\)](#)

Findings for Anonymous portion of Exit Interview

Summary of Findings:	The Department was disappointed that only 2 graduating students returned this survey. However, the results were in line with our measure in that 100% of the respondents indicating "Excellent", "Very Good", or "Good" on the associated questions. Thus, the measure was exceeded.
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Results :	Acceptable Target Achievement: Exceeded
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Recommendations:

Reflections/Notes:

Next year we will put more effort into getting our graduating students to complete the survey.

▼ **Measure:** Course Assignment
Course level Direct - Student Artifact


Details/Description:


Specified assignments in MA 340, 341, and 344

Acceptable Target:

70% of all students completing MA 340, 341, and 344 will obtain an average of 2.5 (out of 4) on specified assessment assignments using the Departmental rubric.

Supporting Attachments:

 MA 340-Spring 2022-Assessment Data.xlsx (Excel Workbook (Open XML))

 MA 344 - F2021 Assessment data-names removed.csv (File)

 Project Rubric.pdf (Adobe Acrobat Document)

Findings for Course Assignment

Summary of Findings:

MA 341 was not offered. 71.4% of MA 340 students and 100% of MA 344 earned at least a 2.5/4 average on the assessment assignments.

Results :

Acceptable Target Achievement: Met

Recommendations:

Reflections/Notes:


▼ **Measure:** Course Grades
Course level Direct - Other

Details/Description: Overall grades in MA 301, MA 340, MA 341, MA 342, MA 344, MA 345, MA 347

Acceptable Target: 70% of all students completing the respective courses will obtain a C or better in the course.

Supporting Attachments:

 Final Grade Dist Comp SP 22.xlsx (Excel Workbook (Open XML))

 Final Grade Dist FA 21.xlsx (Excel Workbook (Open XML))

Findings for Course Grades

Summary of Findings: At least 70% of students in all courses obtained a grade of C or higher.

Results : Acceptable Target Achievement: Met

Recommendations:

Reflections/Notes:

▼ **Measure:** Exit Interviews
Program level Indirect - Interview

Details/Description: Senior exit interviews

Acceptable Target: No more than 20% of the students responding will mention this as a concern during their free-response exit interview.

Supporting Attachments:

 2021-2022 Compiled responses.docx (Word Document (Open XML))

Findings for Exit Interviews

Summary of Findings: There were comments regarding a desire for more application problems in MA 344. However, this did not comprise 20% of the respondents.

Results : Acceptable Target Achievement: Met

Recommendations:

Reflections/Notes:

PSLO 3

Outcome: Ability to communicate mathematics


Students will communicate mathematics and statistical results both orally and in writing.

▼ **Measure:** Anonymous portion of Exit Interview
Program level Indirect - Survey

Details/Description: Anonymous portion of Senior exit interviews

Acceptable Target: 70% of the students responding to the anonymous portion of the exit interview will indicate "Good", "Very Good", or "Excellent" on questions related to this PSLO.

Supporting Attachments:

 2021-2022 Compiled Anonymous responses.docx (Word Document (Open XML))


Findings for Anonymous portion of Exit Interview

Summary of Findings:	The Department was disappointed that only 2 graduating students returned this survey. However, the results were in line with our measure in that 100% of the respondents indicating "Excellent", "Very Good", or "Good" on the associated questions. Thus, the measure was exceeded. Next year we will put more effort into getting our graduating students to complete the survey.
Results :	Acceptable Target Achievement: Exceeded
Recommendations:	
Reflections/Notes:	Next year we will put more effort into getting our graduating students to complete the survey.

▼ **Measure:** Course Assignment *Course level Direct - Student Artifact*

Details/Description:	Specified assignments in MA 346 and MA 348
Acceptable Target:	70% of all students completing MA 346 and MA 348 will obtain an average of 2.5 (out of 4) on specified assessment assignments using the Departmental rubric.

Supporting Attachments:

 Project Rubric.pdf (Adobe Acrobat Document)

Findings for Course Assignment

Summary of Findings:	MA 346 and MA 348 were not offered in AY21-22
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Results : Acceptable Target Achievement: Met

Recommendations:

Reflections/Notes:

▼ **Measure:** Course Grades


Course level Direct - Other

Details/Description: Overall grades in MA 346, MA 348

Acceptable Target: 70% of all students completing the respective courses will obtain a C or better in the course.

Supporting Attachments:

 Final Grade Dist Comp SP 22.xlsx (Excel Workbook (Open XML))

 Final Grade Dist FA 21.xlsx (Excel Workbook (Open XML))

Findings for Course Grades

Summary of Findings: Neither of these courses were offered in AY 21-22

Results : Acceptable Target Achievement: Met

Recommendations:

Reflections/Notes:

▼ **Measure:** Exit Interviews

Program level Indirect - Interview

Details/Description: Senior exit interviews

Acceptable Target: No more than 20% of the students responding will mention this as a concern during their free-response exit interview.

Supporting Attachments:

 2021-2022 Compiled responses.docx (Word Document (Open XML))

Findings for Exit Interviews

Summary of Findings: No students commented on this as a concern.

Results : Acceptable Target Achievement: Met

Recommendations:

Reflections/Notes:

PSLO 4

Outcome: Ability to identify and utilize appropriate practices and tools


Students will identify and utilize the appropriate practices and tools, including the use of technology, to solve mathematics problems and perform statistical modeling and analysis of data.

▼ **Measure:** Anonymous portion of Exit Interview
Program level Indirect - Survey

Details/Description: Anonymous portion of Senior exit interviews

Acceptable Target: 70% of the students responding to the anonymous portion of the exit interview will indicate "Good", "Very Good", or "Excellent" on questions related to this PSLO.

Supporting Attachments:

 2021-2022 Compiled Anonymous responses.docx (Word Document (Open XML))


Findings for Anonymous portion of Exit Interview


Summary of Findings:	The Department was disappointed that only 2 graduating students returned this survey. However, the results were in line with our measure in that 100% of the respondents indicating "Excellent", "Very Good", or "Good" on the associated questions. Thus, the measure was exceeded.
Results :	Acceptable Target Achievement: Exceeded
Recommendations:	
Reflections/Notes:	Next year we will put more effort into getting our graduating students to complete the survey.


▼ **Measure:** Course Assignment *Course level Direct - Student Artifact*


Details/Description:	Specified assignments in MAS 253, MA 340, MA 346, and MA 348
Acceptable Target:	70% of all students completing MA 253, MA 340, MA 346, and MA 348 will obtain an average of 2.5 (out of 4) on specified assessment assignments using the Departmental rubric.

Supporting Attachments:

 MA 253 F21 and SP22.xlsx (Excel Workbook (Open XML))

 MA 340-Spring 2022-Assessment Data.xlsx (Excel Workbook (Open XML))

 Project Rubric.pdf (Adobe Acrobat Document)

 Rubric for MA 253.docx (Word Document (Open XML))

Findings for Course Assignment

Summary of Findings: 91% of students in MA 253 and 100% of students in MA 340 earned an average of 2.5/4 or higher on the assessment assignments. MA 346 and MA 348 were not offered in AY 21-22.

Results : Acceptable Target Achievement: Met

Recommendations:

Reflections/Notes:


▼ **Measure:** Course Grades *Course level Direct - Other*

Details/Description: Overall grades in MA 253, MA 301, MA 340, MA 341, MA 342, MA 346, MA 348

Acceptable Target: 70% of all students completing the respective courses will obtain a C or better in the course.

Supporting Attachments:

 Final Grade Dist Comp SP 22.xlsx (Excel Workbook (Open XML))

 Final Grade Dist FA 21.xlsx (Excel Workbook (Open XML))

Findings for Course Grades

Summary of Findings:

The only courses that did not hit the target was MA 253 in Spring 22, where 67% of the class obtained a C or higher. However, for the entire academic year, 83.3% of MA 253 students obtained a C or higher in the course. Thus, the objective is considered to be met.

Results :

Acceptable Target Achievement: Met

Recommendations:

Reflections/Notes:

▼ **Measure:** Exit Interviews
Program level Indirect - Interview

Details/Description:

Senior exit interviews

Acceptable Target:

No more than 20% of the students responding will mention this as a concern during their free-response exit interview.

Supporting Attachments:

 2021-2022 Compiled responses.docx (Word Document (Open XML))

Findings for Exit Interviews

Summary of Findings:

No students commented on this as a concern.

Results :

Acceptable Target Achievement: Met

Recommendations:

Reflections/Notes:

Overall Recommendations

On our exit interviews, there were some lingering comments regarding adjunct teaching from our Covid 19 years. This adjunct is no longer teaching for the Department. Students also commented on a desire to have more application related practice problems in MA 344. This information has been communicated to the instructor of the course, who was teaching it for the first time.

Overall Reflection

All measures met or exceeded our expectations. The Department is satisfied with our assessment practices and results.

Faculty Collaboration

Faculty teaching a Program course list assessed PSLOs, measures of assessment, and aggregate results on their syllabi.

Several faculty participate in conducting senior exit interviews.

Many of our Program courses are taught by the same instructor each time the course is offered. These instructors use results to make any necessary changes to their course(s).

Assessment data for courses that are taught by multiple faculty are shared with the respective faculty. These faculty then discuss results together and decide what, if any changes, should be made.

Faculty who teach a prerequisite course to another program course share assessment data with the instructor(s) of the subsequent course(s). This gives the faculty of the subsequent course(s) the opportunity to make any necessary adjustments.

Assessment data is posted on the S drive for any interested math faculty member to review. Each fall an Assessment report on our annual findings is given at a faculty department meeting.

Communication & Collaboration with Students

Course syllabi list the PSLOs, the measures used to assess them, and aggregate results from previous semesters indicating if the measures have been satisfied. Faculty also are asked to indicate to students which specific assignments are addressing PSLOs.

The exit interviews give students the opportunity to voice concerns and/or offer suggestions for changes to the Program. Each student is interviewed separately by two different Mathematics faculty members. Several math faculty participate in the interview process. The overall results are compiled into a single file and placed on the S drive for all Mathematics faculty to view. The exit interview contains an anonymous portion. Questions on the anonymous portion reflect the PSLOs.

Communication & Collaboration with External Stakeholders

Our newsletter, "Slice of Pi", keeps our alumni, former faculty, benefactors, and other friends of the Department informed of our annual accomplishments and activities.

The Mathematics Department believes that the American Statistical Association, the American Mathematical Society, and the Mathematical Association of America are important stakeholders in our program. We continue to monitor changes and suggestions made by these organizations. Faculty members regularly attend and/or present at regional and national conferences. Two faculty members are on the Executive Committee for the Kansas MAA. Also, a faculty member serves on the MAA National Committee on Undergraduate Programs in Mathematics. These service roles allow our Department to not only monitor, but to also drive, curriculum changes for this degree. Additionally, an alumnus and former Department member is the Executive Director of the ASA. This is an invaluable connection for our Department to stay abreast of national trends.

The Department meets annually with an Actuarial Science Advisory Board. This Board is informed of both the Actuarial Science and Applied Statistics program requirements. The Department asks the Board for recommendations on our program.

Communication & Collaboration with University

Several member so of the Department attended CTTEL events. The Department Assessment Liaison and Department Chair communicated with other liaisons/Chairs in the College of Arts and Sciences, particularly with the Natural Sciences Division.

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