

## Program Assessment

### Action-Planning: Step by Step Guide *revised 6/12/2022*

Now that the data collection process for the academic year is complete, the next step is to organize this data to be critically analyzed by faculty in order to develop some actionable plans for continual improvement.

As a reminder, we are conducting summative assessment, therefore data has been collected by IEPA from each of the courses where there is an expectation for students to demonstrate mastery of a program-level learning outcome (PLO). These step-by-step instructions use the Mathematics – Finance and Actuarial Track to illustrate the next steps in the process.

A screen shot of the curriculum map for the Mathematics – Finance and Actuarial Track is displayed below. Notice that the cells with an “M” are highlighted yellow. These indicate the assessment data points that are collected and aggregated by the IEPA.

#### IV. Curriculum Map

##### Mathematics (Finance and Actuarial Track)

I= Introduced

R= Reinforced

M= Demonstration of Mastery

		CSC 100*	CS 100*	CSC 137*	ACC 101**	ENG 105	MTH 122	MTH 221	MTH 222	MTH 239**	MATH 244**	MATH 341**	MATH 345**
MTH1	Demonstrate knowledge of the fundamental concepts and theories from calculus, probability, statistics, linear algebra and technical writing.					I	I	R	M	I	I	I	R
MTH2	Utilize various problem-solving and critical-thinking techniques to set up and solve applied problems in science, business, engineering, and technology fields.	I	I	I	I		R	R	M	M	R	R	R
MTH3	Communicate accurate mathematical terminology and notation in written and/or oral form in order to explain strategies to solve problems as well as to interpret found solutions.	I	I	I	R		R	R	M	M	R	R	R
MTH4	Use appropriate technology, such as graphing calculators and computer software, effectively as a tool to solve problems.	I	I	I	R		R	R	M	M	R	R	R

\* Students must take either CSC 100, CS 100 (NJIT) or CSC 137.

\*\* Students must take 4 out of the following 5 major electives: ACC 101, MTH 239, MATH 244 (NJIT), MATH 341 (NJIT) and MATH 345 (NJIT).

Data collection began in the Spring 2021 semester and will occur each Fall and Spring. Once all programs are fully onboarded, we will look into incorporating data collection for the Summer terms.

After the assessment data is collected by IEPA, an aggregate analysis is created and entered into the “Results” tab of your annual assessment template. Below is a screen shot of the “Results” tab, using the Mathematics – Finance and Actuarial Track as our example.

*Note: Data collection began in Spring 2021, so data for Fall 2020 will show as N/A in your 2020-2021 template.*

**Annual Results Summary**  
**Mathematics (Finance and Actuarial Track)**

		AY 2020-2021	Fall 2020		Spring 2021		AY 2020-2021
		Target	MTH 222	MTH 239**	MTH 222	MTH 239**	Final Results
<b>PLO 1</b>	Students will be able to demonstrate knowledge of the fundamental concepts and theories from calculus, probability, statistics, linear algebra and technical writing.	XX% of students will achieve a score of 75 or higher	N Assessed = <b>N/A</b> N Met Target = <b>N/A</b> % Met Target = <b>N/A</b>		N Assessed = 32 N Met Target = 21 % Met Target = 65.6		N Assessed = 32 N Met Target = 21 % Met Target =65.6 Target Met (Y/N) =
<b>PLO 2</b>	Students will be able to utilize various problem-solving and critical-thinking techniques to set up and solve applied problems in science, business, engineering, and technology fields.	XX% of students will achieve a score of 75 or higher	N Assessed = <b>N/A</b> N Met Target = <b>N/A</b> % Met Target = <b>N/A</b>	N Assessed = <b>N/A</b> N Met Target = <b>N/A</b> % Met Target = <b>N/A</b>	N Assessed = 32 N Met Target = 29 % Met Target = 90.6	N Assessed = 19 N Met Target = 17 % Met Target = 89.4	N Assessed = 51 N Met Target = 46 % Met Target =90.2 Target Met (Y/N) =
<b>PLO 3</b>	Students will be able to communicate accurate mathematical terminology and notation in written and/or oral form in order to explain strategies to solve problems as well as to interpret found solutions.	XX% of students will achieve a score of 75 or higher	N Assessed = <b>N/A</b> N Met Target = <b>N/A</b> % Met Target = <b>N/A</b>	N Assessed = <b>N/A</b> N Met Target = <b>N/A</b> % Met Target = <b>N/A</b>	N Assessed = 32 N Met Target = 23 % Met Target = 71.9	N Assessed = 19 N Met Target = 15 % Met Target = 78.9	N Assessed = 51 N Met Target = 38 % Met Target =74.5 Target Met (Y/N) =
<b>PLO 4</b>	Students will be able to use appropriate technology, such as graphing calculators and computer software, effectively as a tool to solve problems.	XX% of students will achieve a score of 75 or higher	N Assessed = <b>N/A</b> N Met Target = <b>N/A</b> % Met Target = <b>N/A</b>	N Assessed = <b>N/A</b> N Met Target = <b>N/A</b> % Met Target = <b>N/A</b>	N Assessed = 30 N Met Target = 28 % Met Target = 93.3	N Assessed = 19 N Met Target = 19 % Met Target = 100	N Assessed = 49 N Met Target = 47 % Met Target =95.9 Target Met (Y/N) =

**Individual Course Reports** – In addition to the aggregate analysis displayed on the previous page, the Program Coordinators will receive the assessment results broken out by course. Below is a screen shot of an individual course report.

MTH 222 (Mathematics - Finance and Actuarial Track) - Measures and Results

#1

COMPLETE

Collector: Web Link 1 (Web Link)  
Started: Tuesday, May 11, 2021 11:11:45 AM  
Last Modified: Tuesday, May 11, 2021 12:59:46 PM  
Time Spent: 01:48:01  
IP Address: 47.16.231.6

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Q1

Measure Description: Please describe in detail, the measurement tool that was used to assess whether students are achieving mastery of this program-level learning outcome.

PLO 1: The measurement tool was the final exam for the course. The 11 problems on the final exam required students to demonstrate their knowledge of concepts and theories from calculus, probability, statistics, linear algebra to correctly solve the problems and their knowledge of technical writing to present their solutions in written form.

Q2

Summary of Results: Please give the two requested numbers below. If you teach more than one section of this course, please combine all sections together.

How many students took this measure? **10**  
How many students met the target? **8**

Q3

Measure Description: Please describe in detail, the measurement tool that was used to assess whether students are achieving mastery of this program-level learning outcome.

PLO 2: The measurement tool was the homework exercise set for Section 3.1. The 11 applied exercises in this problem set, taken from science, business, engineering and technology, required students to use various problem-solving and critical-thinking procedures to set up and solve the problems.

Q4

Summary of Results: Please give the two requested numbers below. If you teach more than one section of this course, please combine all sections together.

How many students took this measure? **10**  
How many students met the target? **9**

**The Action-Planning Process** – When Program Coordinators receive their annual assessment results, they should form a small assessment committee which they will coordinate and lead. Assessment committees should consist of the Program Coordinator and at least two additional full-time or adjunct faculty that teach within the program. The assessment committees are charged with the following tasks:

- **Review and Discuss** – Review and discuss the aggregate assessment results using both the program’s curriculum map as a reference document, and accompanying course assessment reports for additional context.
  - **Recommendation!** – We recommend that you also review last year’s data and action-plans for your program. Read-only copies of Program Assessment templates from prior years can be found in IEPA’s Program Assessment SharePoint. *If you need assistance accessing this SharePoint site, please reach out to us.*
- **Decide where to focus efforts** - Select, based on the data, which PLOs should be focused on for improvement. This will usually be the PLOs with whose targets were not met. In year 1 of implementation, these will be the PLOs with the most opportunity for improvement.
- **Discuss and Develop Action-Plans** - Discuss and identify action-plans for how the percentage of students who successfully demonstrate mastery of these PLOs can be improved. Be able to describe these action-plans in detail, including a timeline for implementation and any College policies/processes that need to be navigated to in order to implement the action-plan.
- **Important note: In addition to considering improvements to the teaching and learning processes, also** assess the quality of your program’s assessment process to this point. Are the PLOs appropriate? Is the curriculum appropriate? Are the assessment measures used by faculty good indicators of mastery for each PLO? Are there any actions you recommend to improve the assessment process for your program?
- **Document Your Action-Plans** – Program Coordinators are responsible for documenting the action-plans that were decided upon by the assessment working group in the “Action-Plan” tab in their annual assessment template. Once this tab is completed, this template should be submitted to the program’s Division Chair for approval, and to IEPA for archival purposes, prior to August 15<sup>th</sup> of each year.
- **Revise Targets for the Upcoming Academic Year** – In the “Action Plan” tab of the annual assessment template, assessment committees should update or revise the targets for each PLO for the upcoming year. Programs should strive for continual improvement by continually raising the bar in their targets, but must also be realistic and accept that without the execution of action-plans, there is no reason to expect improvements. Therefore, expectations should be aligned with implementation.
- **Implement the Action-Plans** – Led by the Program Coordinator, the assessment committee should immediately begin implementing their action-plans. The data collection process will begin again each Fall concurrent with the implementation of the action-plans and the process will repeat annually.

Example:

**Annual Results Summary  
Mathematics (Finance and Actuarial Track)**

		AY 2020-2021 Targets	AY 2020-2021 Final Results	Action Plan for 2021-2022: <i>Please describe in detail, what, if any, actions will be taken to increase the percentage of students who successfully demonstrate mastery of this outcome.</i>	Updated Targets for 2021-2022
<b>PLO 1</b>	Students will be able to demonstrate knowledge of the fundamental concepts and theories from calculus, probability, statistics, linear algebra and technical writing.	XX% of students will achieve a score of 75 or higher	N Assessed = 32 N Met Target = 21 % Met Target = 65.6 Target Met (Y/N) =		
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<b>PLO 4</b>	Students will be able to use appropriate technology, such as graphing calculators and computer software, effectively as a tool to solve problems.	XX% of students will achieve a score of 75 or higher	N Assessed = 49 N Met Target = 47 % Met Target = 95.9 Target Met (Y/N) =		



**Notes:**

- **Diagnose** - Based on the data above, the assessment committee will likely decide to focus their efforts on improving PLO 1 (65.6% met target) and PLO 3 (74.5% met target) rather than focus on PLOs 2 and 4 which both scored highly (90.2% and 95.9% respectively).

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**Notes:**

- **Plan** – Assessment committees will summarize step-by step in detail, with timelines, both their programmatic and process-oriented action plans in the column indicated above.
- **Revise Targets** – Upon examination of current results and anticipated impact of ongoing action-plans, assessment committees should update/revise the target for each PLO for the upcoming academic year.

Please contact John Runfeldt or Samantha Brannigan in the Office of Institutional Effectiveness, Planning, and Assessment with any questions regarding this process

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