Program Mission The Applied Mathematics Program is designed to prepare students who wish to work in industry or government after graduation from the University of Scranton. It will prepare students to take on the 21st century STEM (Science, Technology, Engineering, Mathematics) jobs which require a strong mathematical background. This program supports the University mission to promote the tradition of excellence of the of the Society of Jesus. It is also a major "dedicated to the freedom of inquiry and personal development," a vital part of the University mission. This program also supports the CAS mission in its dedication to the pursuit of wisdom "to addressing the critical problems of the world."

Referring to your annual assessment reports, please reflect on and report any changes or improvements you have made to your program as a result of evidence you have gathered

For year 1, the Department examined the following PLOs for Applied Mathematics:a) Demonstrate college-level knowledge in foundational mathematicsb) Demonstrate college-level knowledge in applied mathematicsc) Demonstrate college-level knowledge in fields related to mathematicsFor year 2, the Department examined the following PLOs for Applied Mathematics:a) Construct models to solve real-world problemsb) Demonstrate competence in analytical and critical reasoningln reviewing the annual assessment report for the Applied Mathematics program, we can see that students are learning foundational mathematics in courses such as Math 114, 221, 222, and 351. Students are also able to demonstrate college-level knowledge in applied mathematics based on the artifacts collected to assess this PLO and the associated instruments used to assess these artifacts. As the Applied Mathematics program is still in its infancy, there are few changes or improvements that are appropriate to make at this time. However, we plan to continue to carefully assess the program and make appropriate changes and improvements based on assessment results.

Curriculum

The curriculum provides more than one opportunity for students to meet the Program Learning Objectives

Which key courses and assignments does the program use to ensure that students are meeting these program learning outcomes?

Math 114, 221, 222, 341, 351, 361, 371

Program Learning Outcomes to be Assessed

Program Applied Mathematics **Program Learning Outcome** 1).Demonstrate college-level knowledge in foundational mathematics, e.g., Calculus and Linear Algebra How will you collect and analyze the evidence that students are meeting the PLO (e.g. Review aggregate scores on embedded questions; review scores on standardized tests; use a rubric to score samples of student writing). We will collect and analyze evidence that students are meeting the above PLOs for the Applied Mathematics Program in the following ways: a.Review student scores on the Departmental Applied Mathematics exit exam b.Collect artifacts from student work in key courses Where in the program does the evidence reside? Evidence can reside in a particular course, sections of a particular course, or outside of courses (e.g. survey of graduates) The evidence resides in particular courses, namely Math 114, 221, 222, 310, 341, 351, 371. Also, evidence is provided by the Applied Mathematics Exit Exam and the departmental senior survey that accompanies the exam. Is the evidence direct or indirect Direct evidence is actual student outputs, which can be analyzed or aggregated using quantitative or qualitative methods. Indirect is secondary information, such as perceptions, attitudes, or self-ratings. Direct (course and exam performance) and indirect (student survey) What tools are necessary to collect evidence? (Rubics, Portfolio, Embedded Exam Questions etc.) portfolios and exam questions Are there benchmarks that you will use to interpret your results? Benchmarks are associated with quantitative evidence and can be determined based on disciplinary norms or previous results on the same assignment, survey, etc. As an example of one benchmark, we will use past performance on the Applied Mathematics Exit Exam.

Program Learning Outcome

2).Demonstrate college-level knowledge in applied mathematics

How will you collect and analyze the evidence that students are meeting the PLO (e.g. Review aggregate scores on embedded questions; review scores on standardized tests; use a rubric to score samples of student writing).

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Where in the program does the evidence reside? Evidence can reside in a particular course, sections of a particular course, or outside of courses (e.g. survey of graduates)

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Is the evidence direct or indirect Direct evidence is actual student outputs, which can be analyzed or aggregated using quantitative or qualitative methods. Indirect is secondary information, such as perceptions, attitudes, or self-ratings.

Direct (course and exam performance) and indirect (student survey)

What tools are necessary to collect evidence? (Rubics, Portfolio, Embedded Exam Questions etc.)

portfolios and exam questions

Are there benchmarks that you will use to interpret your results? Benchmarks are associated with quantitative evidence and can be determined based on disciplinary norms or previous results on the same assignment, survey, etc.

Program Learning Outcome

3).Construct models to solve real-world problems

How will you collect and analyze the evidence that students are meeting the PLO (e.g. Review aggregate scores on embedded questions; review scores on standardized tests; use a rubric to score samples of student writing).

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Direct (course and exam performance) and indirect (student survey)

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portfolios and exam questions

Are there benchmarks that you will use to interpret your results? Benchmarks are associated with quantitative evidence and can be determined based on disciplinary norms or previous results on the same assignment, survey, etc.

Program Learning Outcome

4). Use computing tools in modeling or problem solving

How will you collect and analyze the evidence that students are meeting the PLO (e.g. Review aggregate scores on embedded questions; review scores on standardized tests; use a rubric to score samples of student writing).

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Direct (course and exam performance) and indirect (student survey)

What tools are necessary to collect evidence? (Rubics, Portfolio, Embedded Exam Questions etc.)

portfolios and exam questions

Are there benchmarks that you will use to interpret your results? Benchmarks are associated with quantitative evidence and can be determined based on disciplinary norms or previous results on the same assignment, survey, etc.

Program Learning Outcome

5).Demonstrate competence in analytical and critical reasoning

How will you collect and analyze the evidence that students are meeting the PLO (e.g. Review aggregate scores on embedded questions; review scores on standardized tests; use a rubric to score samples of student writing).

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Direct (course and exam performance) and indirect (student survey)

What tools are necessary to collect evidence? (Rubics, Portfolio, Embedded Exam Questions etc.)

As an example of one benchmark, we will use past performance on the Applied Mathematics Exit Exam.

Are there benchmarks that you will use to interpret your results? Benchmarks are associated with quantitative evidence and can be determined based on disciplinary norms or previous results on the same assignment, survey, etc.

Program Learning Outcome

6).Read, write, and communicate mathematics effectively

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Direct (course and exam performance) and indirect (student survey)

What tools are necessary to collect evidence? (Rubics, Portfolio, Embedded Exam Questions etc.)

portfolios and exam questions

Are there benchmarks that you will use to interpret your results? Benchmarks are associated with quantitative evidence and can be determined based on disciplinary norms or previous results on the same assignment, survey, etc.

Program Learning Outcome

7).Demonstrate college-level knowledge in fields related to mathematics

How will you collect and analyze the evidence that students are meeting the PLO (e.g. Review aggregate scores on embedded questions; review scores on standardized tests; use a rubric to score samples of student writing).

We will collect and analyze evidence that students are meeting the above PLOs for the Applied Mathematics Program in the following ways: a.Review student scores on the Departmental Applied Mathematics exit exam b.Collect artifacts from student work in key courses

Where in the program does the evidence reside? Evidence can reside in a particular course, sections of a particular course, or outside of courses (e.g. survey of graduates)

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