## Example 2: Graduate Program

The mission of the [1] Computational and Applied Mathematics MS program is to [2] provide students with skills and knowledge in the areas of computational mathematics and computational sciences in order to [3] prepare them to be computational and applied mathematicians, statisticians, data scientists and teachers. [4] The program seeks to help students conduct research in the field through an applied modeling project. [5] The program aligns with the mission of the College and the University in our pursuit to apply scientific principles creatively and responsibly.

## Example 3: Certificate Program

[5] In alignment with the Darden College of Education and Professional Studies, the program is focused on preparing professional educators. The [1] Autism Certificate Program is designed [2] to prepare professional educators to implement research-based methods and procedures, [3] to deliver high-quality academic and nonacademic instruction to students with autism spectrum disorder, and to maintain lifelong professional development.

## MEASURES

Measures are opportunities for programs to collect information about how well students are demonstrating or performing the Student Learning Outcomes (SLOs).

Well-chosen measures will yield information that is relevant, useful, and actionable. Measures should be consistently administered to help ensure that data are reliable and that issues of faculty bias are addressed. Measures should directly assess the intended outcome to help ensure data are valid and represent the phenomenon.

There should be at least two measures for every SLO because multiple assessment measures provide a convergence of evidence. This convergence promotes the use of results for decision making. Each measure should incorporate the majority of students in the program or a representative sample. At least one of the measures should be a direct measure of student learning which requires the evaluation of student work samples.

### Common Assessment Measures

| If you want to… | Use these sources of information | And asses them using |
|---|---|---|
| Assess knowledge and conceptual understanding | Multiple-choice tests | Item scores that are mapped back to test blueprints |
| Assess thinking and performance skills | Papers, projects, performances, essays, exhibitions, field experiences, and other learning activities | Program level rubrics, rubrics |
| Assess attitudes and values | Reflective writing<br><br>Self-assessments and surveys | Qualitative analysis<br><br>Item scores that are mapped back to outcomes |
| Draw an overall picture of student learning, including thinking and performance skills as well as attitudes, values, and habits of mind | Portfolios | Rubrics and reflective writing |
| Compare your students against peers | Published instruments, national or certification exams | Item scores and instrument sub-scores that are mapped back to key learning outcomes |

Meets Standard Criteria on Academic Assessment Rubric:

☑ Most measures directly assess intended outcome (validity); measures are consistent across administrations (reliable); results will yield useful and meaningful information for improvement; includes multiple types of measures; includes 1 direct measure for each outcome; sufficient details are provided about where and how students demonstrate learning; sufficient details are provided about the measures to determine relevancy and rigor.

Here's a template to follow:

In

How-

The test is [3] 100 multiple choice questions. Specific questions on the test are used to measure this student learning outcome. [4] Sub scores should be at or above the national average on questions related to this outcome.

The program addresses the consistent application of the test across administrations by [5] using the

## TARGETS

A Target states the expected achievement level of students in the program.F1 1134(.T /GS7 gsdm)7T emenry
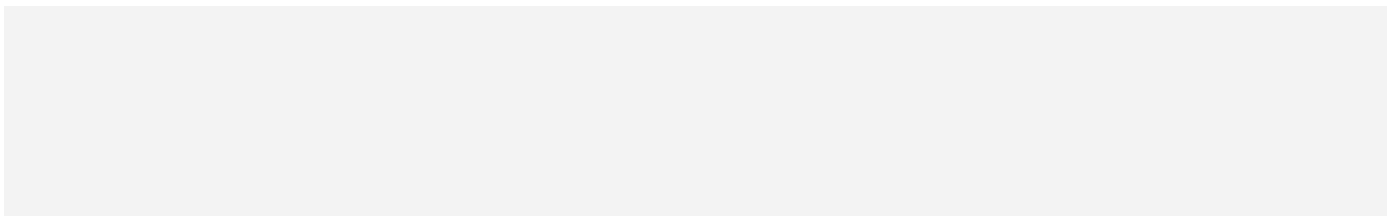
## RESULTS

Results or findings are the information collected through the Measures that tell the program how well students are meeting the Target.  The Results should be a succinct summary statement.

When identifying whether or not the program met its target for a particular result, please refer to the following explanations and use the term that is most appropriate:

- ‹ Exceeded: All data reported significantly surpass the target set
- ‹ Met:  All data reported achieve or surpass the target set
- ‹ Partially Met:  A portion of the data reported do not meet the target set
  - o Example 1: When reporting findings for two or more groups, one or more group achieves or surpasses the target but other(s) do not.
  - o Example 2: When reporting multiple Meets Standard Criteria, one or more Meets Standard Criteria achieves or surpasses the target but other(s) do not.
- ‹ Not Met:  All data reported do not meet the target set

## How to Report Results

Results should address the following questions:

1. Do the results report on the information described in the target (a. percentage of students; b. standard of performance)?
2. If using percentages or some other calculated final tally, what are the numbers involved in creating the final result? (e.g., 87/94=92.55%)
3. Did the program clearly state achievement of the target (target status)?

Meets Standard Criteria on Academic Assessment Rubric:
- ☑ Results are related to the specific measures of outcome; results provide evidence of target achievement.

Here's a template to follow:

Results:        [1a. Percentage of students to achieve the standard] [2. percentage breakdown] of the students [1b. standard of performance]e 0.329 0.588 RG[(e 315.38 217.08 Tm0.184 0.329 0.588 rg.588

## INTERPRETATION & USE OF RESULTS

This asks programs to extrapolate meaning from the results and provide additional detail or context to fully explain the results to an outside reader. Various levels of analysis could be conducted to make sense of the information. It is especially important to compare learning environments and analyze the results over time to look for trends. This is an opportunity for faculty to make sense of the results against the larger landscape of the program and factors impacting the student learning outcome.

### How to Interpret Results

The Interpretation of Results should address the following questions:

a. What are the strengths and weaknesses of student learning in this area?
b. For programs with both online and face-to-face degree options: how does the performance of these unique learning environments compare?
c. How do the results compare to previous years?
d. How do the results fit into the larger landscape of student learning in the program?
e. How were results shared within the program?

## Examples

Example 1: Analysis of final paper rubric scores, outcome - historical, social, and cultural knowledge

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Overall, students in the program are able to articulate the historical, social, and cultural dimensions of a topic of their choosing.  [1a] <u>Students who earned a score of 1 - Unacceptable on this area of rubric failed to articulate at least one of the required dimensions of the topic.  Most projects who earned this score confused the social and cultural dimensions, although they were able to articulate the historical dimension.</u>  [1a] <u>Students who earned scores of 4 - Exemplary were able to connect their topic to the present day in addition to the required discussion of each dimension.</u> [1c] <u>An analysis of last year's data shows that students continue to struggle with the social and cultural dimensions.</u> [1d] <u>students are advised to take ODUU 330 and 350 before taking this course; however, we do not have prerequisites in place to formally require this. ODUU 330 and 350 both reinforce skills that are mastered in this course. This could be why we are seeing lower student performance than desired.</u> The results suggest that the program should emphasize the distinction between social and cultural dimensions when discussing historical topics. [1e] Assessment results were shared and discussed a

Over the past several years the program has seen a trend in students receiving low pass rates on the Praxis I. [1d] After some analysis and review by the program, the decision was made to purchase the NorthStar PRAXIS Core Prep package that is accessible on-line for free by all students. All IDS-TP teacher candidates are advised to use this resource. Advisors were instructed to share and show this resource to students during the spring advising meeting. Since the addition of this resource and targeted advising, students' Reading scores on PRAXIS Core continue to be stronger than their scores on the Writing subtest.

In order to be the best program in the state, we are striving for a 95% pass rate. [1e] Program faculty and staff met to review assessment information and determine the actions needed.

Methods 1 and Statistics in Research courses both added a critique assignment to help students further develop these skills. [2c] This is the first year that students with these modifications have gone through the comprehensive exam. Exam scores were higher in the research methods and analysis areas than previous year.

Example 2: Reading and writing test scores improve with additional test prep, outcome - content knowledge

[2a] Over the past several years the program has seen a trend in students receiving low pass rates on the Praxis I which directly assessed content knowledge, specifically reading and writing. [2b] After some analysis and review by the program, the decision was made to purchase the NorthStar PRAXIS Core Prep package that is accessible on-line for free by all students. All teacher candidates are advised to use this resource. Advisors were instructed to share and show this resource to students during the spring advising meeting. [2c] Since the addition of this resource and targeted advising, students' Reading scores on PRAXIS Core continue to be stronger than their scores on the Writing subtest. A seven-year trend in scores reflects that these are the highest pass rates in 7 years. There was significant improvement in both Reading and Writing PRAXIS Core scores this year.

## ACTION PLANS

This asks programs to explain their process of sharing and using assessment results for decision making. The strength of assessment is not that it provides quick fixes for a problem, but that it promotes active, informed, and systematic improvement of a program through discussion among faculty.  This is an opportunity to review student learning data and make decisions as a program.

### How to Use Results and Create Action Plans

The Use of Results and Action Plans should address the following questions:

a. How is assessment information about the quality of learning shared and used for program decision making in areas such as curriculum, pedagogy, and other aspects that impact learning?
b. What actions do the results suggest need to be implemented?
c. What concrete actions will the program take to sustain or improve this outcome? What is the timeframe of these actions?

Meets Standard Criteria on Academic Assessment Rubric:

☑ Action plans are developed directly from results and are aligned with the outcome; actions are intended to modify course, program, teaching methods, curriculum, etc. to improve student learning; as necessary, actions are intended to improve assessment strategies.

Here's a template to follow:

3. Use of Results and Creation of Action Plans
Assessment information was reviewed and discussed [3a. describe process for using results]. As appropriate, [3a. describe process for decision making – e.g., changes and recommendations about curriculum, pedagogy, or other aspects that impact learning are made]. Ba.1 Tm 1 401.18 288.85 Tm0.18W˙ňB311q0