Mission / Purpose

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Student Learning Outcomes, with Any Associations and Related Measures, Targets, Findings, and Action Plans

SLO 1: Advanced knowledge of research
PhD students will demonstrate advanced knowledge of research in mathematics.

Connected Documents
Curriculum Map IIL-Applied Maths Ph.D.
Curriculum Maps I-Applied Maths Ph.D.
Grading Rubric for Qualifying Exams-Applied Maths Ph.D.
Rubrics for Dissertations-Applied Maths Ph.D.

Relevant Associations:

Standard Associations
SACS 3.3.1
3.3.1.1 Educational programs, to include student learning outcomes

General Education/Core Curriculum Associations
8 Mathematics - SLO is related to the essential characteristics and basic processes of inquiry and analysis in the discipline, encourages the development of critical thinking and requires students to analyze, synthesize and evaluate knowledge

Strategic Plan Associations
University of Alabama
1.1 Promote and enhance areas of academic, scholarship, and research excellence.

Related Measures

M 1: Exam Performance
Knowledge will be assessed on the qualifying exams using the grading rubric for qualifying exams. The percentage of students who achieve at least 80% on the qualifying exam will be calculated.
Source of Evidence: Standardized test of subject matter knowledge
Target:
This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

M 2: Assessment based on dissertation defense
Knowledge will be assessed on the dissertation defense using selected dimensions of the grading rubric for dissertations. The rubric is completed by the students' dissertation committee members. The percentage of students who achieve an average of 3 or higher will be calculated.
Source of Evidence: Senior thesis or culminating major project
Target:
This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

M 3: Complete exams in 2 years
90% of PhD students will successfully complete their qualifying exams within two years.
Source of Evidence: Academic indirect indicator of learning - other
Target:
This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

SLO 2: Professional Communication Ability
PhD students will be able to communicate mathematics in a professional manner.

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University of Alabama
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**Related Measures**

**M 4: Evaluation of dissertation defense**
Assessment will be based on an evaluation of students’ dissertation defense using selected dimensions of the grading rubric for dissertations. The rubric is completed by the students’ dissertation committee members. The percentage of students who achieve an average of 3 or higher will be calculated.

Source of Evidence: Senior thesis or culminating major project

**Target:**
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**M 5: Evaluation of PhD students’ teaching**
Assessment will be based on an evaluation of PhD students’ teaching, completed by undergraduate students using the university’s student opinions of instruction survey. The percentage of PhD students who received an average rating of 3.0 or higher on select questions will be calculated.

Source of Evidence: Academic indirect indicator of learning - other

**Target:**
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**Other Outcomes, with Any Associations and Related Measures, Targets, Findings, and Action Plans**

**OthOtm 3: Program Outcome: High Level of Recognized Quality**
The program will improve and sustain a high level of recognized quality.

**Connected Document**
Employer’s Survey-Applied Maths Ph.D.

**Related Measures**

**M 6: Graduate Seminar Attendance**
80% of PhD students who passed the Qualifying Exam should attend at least 6 Graduate Seminars.

Source of Evidence: Academic indirect indicator of learning - other

**Target:**
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**M 7: Survey results**
An average of 4 points from the following surveys is a good indicator for a high level of recognized quality.

Source of Evidence: Student course evaluations on learning gains made

**Target:**
This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

**OthOtm 4: Program Outcome: Sustain Optimal Level of Enrollment**
The program will build and sustain an optimal level of annual program enrollments and degree completion.

**Related Measures**

**M 8: Increase Enrollments**
For UA, the new enrollments should be at least 1 each year. Currently we have 0 students in the Joint PhD program.

Source of Evidence: Academic indirect indicator of learning - other

**Target:**
This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

**M 9: Meet the degree completion requirement**
Meet the degree completion requirement set by ACHE: 2.25 graduates/year.

Source of Evidence: Academic indirect indicator of learning - other

**Target:**
This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

**OthOtm 5: Program Outcome: Highly Valued by Program Graduates**
The program will be highly valued by its program graduates and other key constituencies it serves.

**Connected Documents**
Faculty and Student Survey-Applied Maths Ph.D.
Recent Graduates’ Survey-Applied Maths Ph.D.

**Related Measures**

**M 10: Employer Survey**
Survey the employers of our recent graduates about their satisfaction, quality and performance of our graduates at their work places.

Source of Evidence: Employer survey, incl. perceptions of the program

**Target:**
This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

**M 11: Recent graduates survey**
Survey our recent graduates about their perception on how well the program prepares them for their work.
Source of Evidence: Student satisfaction survey at end of the program

**Target:**
This is a joint program with UAB and UAH. Currently, we have no students in this program at UA.
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Related Measures

M 1: Exam Performance
Knowledge will be assessed on the qualifying exams using the grading rubric for qualifying exams. The percentage of students who achieve at least 80% on the qualifying exam will be calculated.

Source of Evidence: Standardized test of subject matter knowledge

Target:
This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

Finding (2012-2013) - Target: Not Reported This Cycle
This is a joint program with UAB and UAH. Currently, we have no students in this program at UA. In the academic year of 2012-13, six faculty members at UA served as members of qualifying exams committee, or dissertation committees for PhD students at UAB and UAH.

M 2: Assessment based on dissertation defense
Knowledge will be assessed on the dissertation defense using selected dimensions of the grading rubric for dissertations. The rubric is completed by the students' dissertation committee members. The percentage of students who achieve an average of 3 or higher will be calculated.

Source of Evidence: Senior thesis or culminating major project

Target:
This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

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This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

M 3: Complete exams in 2 years
90% of PhD students will successfully complete their qualifying exams within two years.

Source of Evidence: Academic indirect indicator of learning - other

Target:
This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

Finding (2012-2013) - Target: Not Reported This Cycle
This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

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PhD students will be able to communicate mathematics in a professional manner.

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**Relevant Associations:**

**Standard Associations**

SACS 3.3.1

3.3.1.1 Educational programs, to include student learning outcomes

**General Education/Core Curriculum Associations**

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**Strategic Plan Associations**

University of Alabama

1.1 Promote and enhance areas of academic, scholarship, and research excellence.

**Related Measures**

**M 4: Evaluation of dissertation defense**

Assessment will be based on an evaluation of students' dissertation defense using selected dimensions of the grading rubric for dissertations. The rubric is completed by the students' dissertation committee members. The percentage of students who achieve an average of 3 or higher will be calculated.

Source of Evidence: Senior thesis or culminating major project

**Target:**

This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

**Finding (2012-2013) - Target: Not Reported This Cycle**

This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

**M 5: Evaluation of PhD students' teaching**

Assessment will be based on an evaluation of PhD students' teaching, completed by undergraduate students using the university's student opinions of instruction survey. The percentage of PhD students who received an average rating of 3.0 or higher on select questions will be calculated.

Source of Evidence: Academic indirect indicator of learning - other

**Target:**

This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

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**Other Outcomes, with Any Associations and Related Measures, Targets, Findings, and Action Plans**

**OthOtm 3: Program Outcome: High Level of Recognized Quality**

The program will improve and sustain a high level of recognized quality.

**Connected Document**

Employer's Survey-Applied Maths Ph.D.

**Related Measures**

**M 6: Graduate Seminar Attendance**

80% of PhD students who passed the Qualifying Exam should attend at least 6 Graduate Seminars.

Source of Evidence: Academic indirect indicator of learning - other

**Target:**

This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

**Finding (2012-2013) - Target: Not Reported This Cycle**

This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

**M 7: Survey results**

An average of 4 points from the following surveys is a good indicator for a high level of recognized quality.

Source of Evidence: Student course evaluations on learning gains made

**Target:**

This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

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**OthOtm 4: Program Outcome: Sustain Optimal Level of Enrollment**

The program will build and sustain an optimal level of annual program enrollments and degree completion.

**Related Measures**

**M 8: Increase Enrollments**

For UA, the new enrollments should be at least 1 each year. Currently we have 0 students in the Joint PhD program.

Source of Evidence: Academic indirect indicator of learning - other

**Target:**

This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

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**M 9: Meet the degree completion requirement**

Meet the degree completion requirement set by ACHE: 2.25 graduates/year.
Source of Evidence: Academic indirect indicator of learning - other

**Target:**
This is a joint program with UAB and UAH. Currently, we have no students in this program at UA

**Finding (2012-2013) - Target: Not Reported This Cycle**
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The program will be highly valued by its program graduates and other key constituencies it serves.

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Survey the employers of our recent graduates about their satisfaction, quality and performance of our graduates at their work places.

Source of Evidence: Employer survey, incl. perceptions of the program

**Target:**
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Survey our recent graduates about their perception on how well the program prepares them for their work.

Source of Evidence: Student satisfaction survey at end of the program

**Target:**
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University of Alabama

Detailed Assessment Report
2011-2012 Applied Mathematics Ph.D.
As of 7/31/2014 09:25 AM CENTRAL

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**Curriculum Maps #1 (In which courses or in what activities or assignments are Student Learning Outcomes Addressed)**

Use “Introduce” when outcome is first address; “Reinforce” when outcome is reinforced; and “Master” when outcome is expected to be mastered. Note that you do not need to obtain a measure from every course in which an outcome is addressed (see Map #2)

**Curriculum Map 1 (Student Learning Outcomes)**

<table>
<thead>
<tr>
<th>Course 1</th>
<th>Student Learning Outcome 1</th>
<th>Student Learning Outcome 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualifying Exam</td>
<td>PhD students will demonstrate advanced knowledge of research in mathematics.</td>
<td>PhD students will be able to communicate mathematics in a professional manner.</td>
</tr>
<tr>
<td>Course 2</td>
<td>Master</td>
<td>Master</td>
</tr>
<tr>
<td>Dissertation Defense</td>
<td>Master</td>
<td></td>
</tr>
<tr>
<td>Course 3</td>
<td></td>
<td>Master</td>
</tr>
<tr>
<td>GTA teaching</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Curriculum Map II  (What assessment measures will be employed in which courses/activities/assignments for each Student learning Outcome)

Indicate which measure is being obtained in which course by typing “Measure n.n” in the appropriate cell. If you’d rather use a description of the measure, that is fine. Also, indicate the year/semester in which the measure will be obtained (e.g., Fall 2011). Student learning outcomes must be assessed at least once within a 2 ½ year period. Note that a measure does not need to be obtained from every course in which an outcome is covered (see Map #1).

<table>
<thead>
<tr>
<th></th>
<th>Student Learning Outcome 1</th>
<th>Student Learning Outcome 2</th>
</tr>
</thead>
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<td></td>
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<tr>
<td>Course 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualifying Exam</td>
<td>Grading rubric for Qualifying Exams</td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
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<td>Dissertation Rubric</td>
<td>Dissertation Rubric</td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>student evaluations; faculty evaluations</td>
</tr>
</tbody>
</table>
## Employer’s perception about the readiness of our graduates for their jobs

<table>
<thead>
<tr>
<th>1: Not well prepared</th>
<th>2: Adequate</th>
<th>3: Good</th>
<th>4: Very good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Faculty/student survey about the effect of the seminar on students’ research interests

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Master’s Student</th>
<th>PhD Student</th>
<th>Passed Q-Exam</th>
<th>Will Take Q-Exam</th>
<th>Will NOT take Q-Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students can learn from the talk</td>
<td>Strongly Agree (5)</td>
<td>Agree (4)</td>
<td>Undecided (3)</td>
<td>Disagree (2)</td>
<td>Strongly disagree (1)</td>
</tr>
<tr>
<td>Topics enhances students’ research interest</td>
<td>Strongly Agree (5)</td>
<td>Agree (4)</td>
<td>Undecided (3)</td>
<td>Disagree (2)</td>
<td>Strongly disagree (1)</td>
</tr>
<tr>
<td>Talk opens students’ view on research</td>
<td>Strongly Agree (5)</td>
<td>Agree (4)</td>
<td>Undecided (3)</td>
<td>Disagree (2)</td>
<td>Strongly disagree (1)</td>
</tr>
</tbody>
</table>
Student’s perception about their readiness for his/her job

<table>
<thead>
<tr>
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<th>2: adequate</th>
<th>3: Good</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Grading Rubric for Qualifying Exams

<table>
<thead>
<tr>
<th>Number of problems tried in part I</th>
<th>Number of problems solved/proved correctly in part I</th>
<th>Number of problems solved/proved partially correct in part I</th>
<th>Number of problems tried in part II</th>
<th>Number of problems solved/proved correctly in part II</th>
<th>Number of problems solved/proved partially correct in part II</th>
<th>Total score of the exam</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>
# Rubrics for Dissertations

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Not acceptable.</strong></td>
<td>Individual fails to meet the required level</td>
<td>Individual not performing at adequate level</td>
<td>Individual performing at satisfactory level</td>
<td>Tasks and goals are being accomplished</td>
<td>Results are outstanding, great accomplishments</td>
</tr>
<tr>
<td><strong>Dissertation writing and organization</strong></td>
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<td><strong>General knowledge related to Dissertation</strong></td>
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<td><strong>Mathematical contribution</strong></td>
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