



SAINT LOUIS  
UNIVERSITY

Saint Louis University  
Program Assessment Plan

**Program (Major, Minor, Core): Doctor of Philosophy in Mathematics**

**Department: Department of Mathematics and Computer Science**

**College/School: Arts and Sciences**

**Person(s) Responsible for Implementing the Plan: Graduate Faculty of the Department of Mathematics and Computer Science**

**Date Submitted: December 7, 2015**

Program Learning Outcomes	Curriculum Mapping	Assessment Methods	Use of Assessment Data
<i>What do you expect all students who complete the program to know, or be able to do?</i>	<i>Where is the outcome learned/assessed (courses, internships, student teaching, clinical, etc.)?</i>	<i>How do students demonstrate their performance of the program learning outcomes? How does the program measure student performance? Distinguish your direct measures from indirect measures.</i>	<i>How does the program use assessment results to recognize success and "close the loop" to inform additional program improvement? How/when is this data shared, and with whom?</i>
Demonstrate fundamental knowledge in the areas of algebra, analysis, topology, and differential geometry.	MATH 5110-5120, MATH 5210-5220/5230/5240, MATH 5310-5320, MATH 6410-6420.	Homework, Test and Exam item analysis.	Data shared with subsequent AY instructors in the relevant courses. Improvement measures result from discussion between current AY instructor and subsequent AY instructor.

<p>Demonstrate mastery in three of the above four areas.</p>	<p>MATH 5110-5120, MATH 5210-5220/5230/5240, MATH 5310-5320, MATH 6410-6420.</p>	<p>Preliminary exam item analysis.</p>	<p>Data shared with subsequent AY instructors in the relevant courses and faculty administrators of subsequent preliminary exams. Improvement measures result from discussions.</p>
<p>Demonstrate ability to identify and solve new research problems in pure or applied mathematics.</p>	<p>Topics courses: MATH 6180, MATH 6280, MATH 6320, MATH 6380, MATH 6480, MATH 6990. Ph.D. preliminary oral exam.</p>	<p>Reports submitted by faculty mentor and selected oral exam committee member.</p>	<p>Reports shared and discussed with new mentors.</p>
<p>Demonstrate ability to effectively communicate new research in both a written and oral setting.</p>	<p>Topics courses: MATH 6180, MATH 6280, MATH 6320, MATH 6380, MATH 6480, MATH 6990. Ph.D. preliminary oral exam. Ph.D. dissertation defense.</p>	<p>Oral exam analysis of student presentation and responses to questions. Dissertation defense analysis of student presentation and responses to questions.</p>	<p>Data and/or reports shared and discussed with new mentors.</p>
<p>Demonstrate ability to manage a large research project and prepare a manuscript.</p>	<p>Ph.D. dissertation defense.</p>	<p>Reports submitted by faculty mentor and selected dissertation committee member.</p>	<p>Reports shared and discussed with new mentors</p>

- 1. It is not recommended to try and assess (in depth) all of the program learning outcomes every semester. It is best practice to plan out when each outcome will be assessed and focus on 1 or 2 each semester/academic year. Describe the responsibilities, timeline, and the process for implementing this assessment plan.**

The first goal will be assessed beginning in Spring semester 2016. Current instructors of indicated courses will collect data on selected test items and share with subsequent instructors. In subsequent academic years the other three goals will be assessed one at a time, in essentially the same way. Oral exam data will be gathered at times of exams, and shared with subsequent oral exam committee members.

- 2. Please explain how these assessment efforts are coordinated with Madrid (courses and/or program)?**

Not applicable.

- 3. The program assessment plan should be developed and approved by all faculty in the department. In addition, the program assessment plan should be developed to include student input and external sources (e.g., national standards, advisory boards, employers, alumni, etc.). Describe the process through which your academic unit created this assessment plan. Include the following:**

- a. Timeline regarding when or how often this plan will be reviewed and revised. (This could be aligned with program review.)

Assessment plan and procedures will be reviewed and revised on a biannual cycle, beginning at end of AY 2016-17.

- b. How students were included in the process and/or how student input was gathered and incorporated into the assessment plan.

Revision of student evaluation forms to include selected questions for assessment. Interview of selected graduating students.

- c. What external sources were consulted in the development of this assessment plan?

None to date.

- d. Assessment of the manageability of the plan in relation to departmental resources and personnel.

The department has inadequate resources to fully implement this plan. Mathematics faculty work long hours already in performance of their duties in teaching, research, and service. In particular, successful mathematical research and innovative teaching of mathematics are

extremely time-intensive. If these duties are truly valued by the university, then a staff position should be created in order to help the department shoulder this additional burden.