

APR 13 2005

Master Degree in Mathematics
Assessment of Student Learning Plan
Kansas State University

BY:.....

A. College, Department, and Date

College: Arts and Sciences
Department: Mathematics
Date: Nov. 1, 2004

B. Contact Person(s) for the Assessment Plans

Louis Pigno, Department Head
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C. Degree Program

Master of Science in Mathematics

D. Assessment of Student Learning Three-Year Plan

1. Student Learning Outcome(s)

In the next three years we will focus our assessments on the following student learning outcomes:

- K-1: Students will know the standard theorems and techniques of undergraduate mathematics.
- K-4: Students will know the standard theorems and techniques of a specialized area of mathematics at an advanced level (as defined by the student's committee).

Special rationale for selecting these learning outcomes

Our Masters Program SLOs are divided into two categories: "Knowledge" (K-1 through K-4) and "Reasoning" (R-1 through R-5). Among the knowledge SLOs K-1 is the most important one, because all others depend on it. The choice of K-4 is motivated, on the one hand, by it's rich relationship with all university-wide SLOs, and on the other hand by it's intrinsic importance for identifying prospective Ph.D. students.

Relationship to K-State Student Learning Outcomes

Program SLOs	University-wide SLOs (Graduate Programs)			Program SLO is conceptually different from university SLOs
	Knowledge	Skills	Attitudes and Professional Conduct	
K-1	X			
K-4	X	X	X	

2. How will the learning outcomes be assessed? What groups will be included in the assessment?

K-1 will be assessed mostly by a direct formative method, as follows.

- Counseling Exam. This exam has three components: Analysis, Algebra, and Computational (Applied) Mathematics. The K-1 SLO will be assessed using the Computational Mathematics component, which is a one-hour written test. In case of failure, students are enrolled in MATH 715, and are required to re-take the exam.

K-4 will be assessed using several direct summative methods depending on the format chosen by the student, in consultation with the student's Supervisory Committee.

- Master's Thesis. The student writes a thesis and defends it before the Department of Mathematics faculty. For this option there must be six to eight credit hours of MATH 899 (Thesis Topics) on the Program of Study.
- Master's Report. The student writes a report and defends it before the Department of Mathematics faculty. For this option there must be two credit hours of MATH 898 (Master's Research) on the Program of Study.
- Master's Exam. The student will take an examination, either written, oral, or both, administered by the Supervisory Committee. Alternatively, the student may take the Ph.D. Qualifying Examination (see Doctorate Assessment Plan). Passing the Qualifying Exam (the preferred method) is a strong indication a student is ready to continue into the Ph.D. program.

The table below describes the detailed structure of (the preliminary version of) this system, as well as the groups involved in the assessment process.

SLO	Assessment method	Who carries on assessment	Who is assessed
K-1	<i>Written Test:</i> Computational Counseling Exam	Counseling Exam Committee & GPAC	All students who enter Graduate Program
K-4	<i>Oral Examination:</i> Master's Thesis	Supervisory Committee	All students who choose Thesis as Master's Examination format
K-4	<i>Oral Examination:</i> Master's Report	Supervisory Committee	All students who choose Report as Master's Examination format
K-4	<i>Written Test:</i> Qualifying Exam	GPAC & QE Committee; Ratified by faculty	All students who take the Qualifying Exam

3. When will these outcomes be assessed? When and in what format will the results of the assessment be discussed?

The Graduate Program Advisory Committee (GPAC) will have the primary responsibility for managing the assessment program. In assessing K-1, priority will be given to new graduate students (who start in Fall 2005). Those students already in our program will be partially assessed, the data accumulated from them being used as baseline data. In addition to GPAC, the student's Supervisory Committee will be directly engaged in assessing K-4.

Three-year timeline

Fall 2004	Collect data from Master's defenses.
January 2005	Collect data from Counseling Exams; Collect data from Qualifying Exams.
February 2005	GPAC discusses academic progress and makes recommendations to graduate students and their academic advisors.
March 2005	Faculty Meeting to discuss students with poor academic performance.
May 2005	Collect data from Master's defenses.; GPAC evaluates the assessment process, and necessary revisions, including rubric/curriculum changes. Baseline data (K-1) is analyzed.
August 2005	Collect data from Counseling Exams; Collect data from Qualifying Exams.
December 2005	Collect data from Master's defenses.
January 2006	Collect data from Counseling Exams; Collect data from Qualifying Exams.
February 2006	GPAC discusses academic progress and makes recommendations to graduate students and their academic advisors.
March 2006	Faculty Meeting to discuss students with poor academic performance;
May 2006	Collect data from Master's defenses; GPAC evaluates the K-1 assessment results for 1 st year graduate students, and identifies areas of concern regarding student learning.
August 2006	Collect data from Counseling Exams; Collect data from Qualifying Exams.
December 2006	Collect data from Master's defenses.
January 2007	Collect data from Counseling Exams; Collect data from Qualifying Exams.
February 2007	GPAC discusses academic progress and makes recommendations to graduate students and their academic advisors.
March 2007	Faculty Meeting to discuss students with poor academic performance.
May 2007	Collect data from Master's defenses; GPAC evaluates the K-1 assessment results for 2 nd year graduate students, and identifies areas of concern regarding student learning.
August 2007	Collect data from Counseling Exams. Collect data from Qualifying Exams.
Fall 2007	Collect data from Master's defenses; GPAC evaluates the K-1 assessment results for 3 rd year graduate students; GPAC and the Department Head analyze the assessment process, and prepare a new assessment plan.

4. What is the unit's process for using assessment results to improve student learning?

Historically, GPAC has reviewed all assessment data, and has made recommendations to graduate students and their advisors, as well as to the curriculum committee. In addition, any faculty member in the department may suggest ideas or concerns for the GPAC and/or the curriculum committee to consider. These committees then provide recommendations to the faculty that are accepted (or not) at scheduled faculty meetings. Several changes aimed at improving student learning (for example new Counseling and Qualifying Exam systems) have been implemented in the past decade from this model. With the new assessment plan we will have a more rigorous and formalized method of collecting and analyzing data, as well as monitoring student academic progress, but will keep the same process for improvement as it seems to be working well.