UNIT REPORT

Mathematics MS - Assessment Plan Summary

Mathematics MS

Develop Consistent & Stable Cohort Size

Goal Description:

A fall cohort of ten supported graduate students allows us to maintain a healthy program with consistent class sizes, class schedules and graduation rates above 7 students per year.

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Support Ten New Students Each Year

Performance Objective Description:

We will support ten new graduate students each year, as many as twenty in the two years of our program. Support should be such that full time students are supported by at least $10,000 more than the cost of tuition and fees.

RELATED ITEM LEVEL 2

Focus on Fall Cohorts

KPI Description:

We will focus on strong Fall term cohorts of 10 students. We will rarely allow students to enter during the Spring term. Students will not be allowed to enter in the Summer term.

Results Description:

During 2016-17, we brought in nine new graduate students, just one short of our goal.

RELATED ITEM LEVEL 3

Recruitment for 2017 and beyond.

Action Description:

We plan to continue our goal of recruiting at least 10 new first-year graduate students for each Fall cohort. Recruitment efforts will include targeted recruiting at regional 4-year (no M.S. program) institutions such as TX Southern University and University of Dallas. In addition, we will continue attempting to build a "pipeline" with PhD-granting institutions such as UH and UNT to attract those applicants not ready for their doctoral programs.

We will also continue to serve as aper-doctoral mentoring department through the Math Alliance.

Develop Research Skills

Goal Description:

Students who choose to complete a thesis will develop research skills

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Demonstrate Graduate-Level Research Skills

Learning Objective Description:

Students completing the MS with a thesis will demonstrate skills in completing original research.

RELATED ITEM LEVEL 2

Thesis Defense Rubric

Indicator Description:

The attached rubric will be used to rate student research during the thesis defense.

Criterion Description:

MS students choosing to complete a thesis will score either a "fail", "pass" or "high pass" on their thesis based on the given rubric.

Findings Description:

No MS students submitted a thesis in the previous year. Next year, however, may see several theses presented and defended. This rubric will be used.

RELATED ITEM LEVEL 3

Thesis Defenses

Action Description:

In Fall 2017 and Spring 2018, it is anticipated that three M.S. students will be writing and submitting a thesis. Because of this increase in number over recent years, particular attention will be paid to the quality of these theses and the rubric used to assess the students' defenses.

RELATED ITEM LEVEL 1

Participation In Colloquia

Learning Objective Description:

Faculty will hold a regular colloquium series and graduate students will be encouraged to participate in that series.

RELATED ITEM LEVEL 2

Consistent Colloquium Series

Indicator Description:

The Faculty Colloquium series will have 3 or more meetings per month. One or more talks during the school year in the colloquium series will be given by graduate students. At least half of the graduate students will attend that colloquium on a regular basis.

Criterion Description:

The faculty colloquium series is a chance for faculty and students (both undergraduate and graduate) tone exposed to mathematics not seen in a traditional classroom. Consequently, a culture of research and exploration is fostered through a healthy colloquium series.

It is also a place for potential faculty hires to present their research to the department for the purpose of making informed hiring decisions.

Findings Description:

The faculty colloquium series met at least twice each month, with off weeks hosting a teaching seminar led by faculty.

The early Spring 2017 semester saw 7 invited speakers for job interviews, so "colloquium fatigue" definitely set in. A goal of 3 colloquia each month is perhaps to high.

RELATED ITEM LEVEL 3

Maintain momentum with colloquium series

Action Description:

Perhaps because of the renewed interest in weekly colloquia during Fall 2016 and (less so) Spring 2017, we have seen an increase in the number of M.S. students interested in writing a thesis. Therefore, we will continue to foster a robust, active colloquium series each week.

Another reason for the increase in interest of students writing a thesis may be the REU programs we've hosted over the last few years. M.S. students were hired as graduate research assistants over the summer, and often the research done with the undergraduate REU students evolved into a thesis the following year. We will continue to encourage undergraduate research.

Emphasize Written Communication Skills

Goal Description:

The curriculum will provide students with opportunities to develop the skills typically required of professionals in the area of study.

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Communicating Mathematical Ideas-Written

Learning Objective Description:

Students will be able to write rigorous proofs of mathematical statements, read mathematical research manuscripts, write formal mathematical papers, and use critical thinking skills to solve research problems.

RELATED ITEM LEVEL 2

Comprehensive Examination

Indicator Description:

Students in the MS program will take a written comprehensive examination in the areas of abstract algebra and analysis. The examination will be scored by a committee of faculty.

Criterion Description:

At least two-thirds of our students will pass their comprehensive examinations on their first attempt.

Findings Description:

More than two thirds of our MS-Mathematics students passed the comprehensive examination on the first attempt.

RELATED ITEM LEVEL 3

Second attempts on Comp. Exams

Action Description:

While more than two-thirds of our MS students passed all components of the comprehensive exams on the first attempts, one-third did not. A plan of study for the following semester was created for each of these students, and all passed the exam on their second attempt.

Moving forward, we have allowed some students (the brightest in each class) to petition for an exemption from certain examinations. This allows a student who has excelled in analysis, for example, to concentrate fully on the algebra portion of the exam.

RELATED ITEM LEVEL 1

Conversation On Teaching

Learning Objective Description:

Graduate faculty and graduate students will regularly discuss the teaching profession.

RELATED ITEM LEVEL 2

Teaching Seminar

Indicator Description:

Graduate faculty will lead a teaching seminar with participation from graduate students. This seminar will meet at least monthly.

Criterion Description:

Because many of our MS students will either continue in doctoral programs (which require teaching as part of their graduate assistantships) or as instructors at 2-year schools, quality teacher training is a valuable component of our MS program. Almost all of our tenure-track mathematics faculty regularly experiment in their classrooms with evidence-based, innovative teaching techniques. It would be a shame for the results of the these experiments to not be shared with graduate students.

Findings Description:

The teaching seminar was a success, held at least once each month.

RELATED ITEM LEVEL 3

Providing even more teacher training for MS students

Action Description:

In Fall 2017 and Spring 2018 a new summer bridge course will be offered to incoming undergraduate STEM majors. MS students will have the opportunity to work as teaching assistants in the three weeks preceding each Fall semester. This will provide even more experience with evidence-based, innovative teaching techniques before entering their own classrooms.

RELATED ITEM LEVEL 1

Students Will Be Proficient At LaTeX

Learning Objective Description:

Graduate students will become proficient in the use of LaTeX for mathematical writing.

RELATED ITEM LEVEL 2

LaTeX Intensive Courses

Indicator Description:

At least one course per semester in our MS-Math program will require LaTeX to be used in the submission of homework assignments. Whenever possible, these submissions will be accepted online using Blackboard.

Criterion Description:

LaTeX is the accepted and widely used publishing package used by mathematicians worldwide. Any doctoral student in mathematics will be expected to use LaTeX when writing a dissertation.

Findings Description:

LaTeX was required in core graduate algebra and analysis courses in 2017-18.

RELATED ITEM LEVEL 3

More courses with LaTeX

Action Description:

More M.S. courses will be taught using LaTeX as the preferred submission platform. This will prepare students for PhD programs.

Improve Graduate Student Environment

Goal Description:

We will increase and improve the graduate student environment, including office space and quality of office space, desks, tutoring area.

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Increased Office Space

Performance Objective Description:

We will increase office space to comfortably handle 20 MS-Math students, each with their own desk and access to personal file cabinets.

Our current office space can currently handle 18 MS-Math students, each with their own desk and personal file cabinet.

RELATED ITEM LEVEL 2

Increased office space

KPI Description:

We will attempt to move more of our students and adjunct instructors into the first floor of LDB. This will allow more "elbow room" in the large TA office on the 4th floor.

Results Description:

Our attempt at finding more office space on the first floor of LBD failed. Turns out other departments are low on office space as well.

RELATED ITEM LEVEL 3

A plan to get more offices

Action Description:

In Fall 2018, the Dept. of Biological Sciences will move to their new lab building. This should make all of the 1st floor and part of the 3rd floor available to our department and the Dept. of Geology & Geography. It is unclear who will be moving into the first floor (Nursing? Physics? Computer Science?) but there should be plenty of room on the third floor to be shared with Geology and Geography. It is hoped that we can absorb 4-5 offices or one large room to be used as office space for 8-10 graduate students.

Improve Graduate Student Support

Goal Description:

We will increase graduate student support so that our program attacts good students who can study fulltime.

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Graduate Assistants Should Not Need A Second (Outside) Job

Performance Objective Description:

We will increase graduate student support so that students in the program, including international students, can earn $1000/mo over tuition and fees. This will eliminate the need for our teaching assistant grad students to take a second outside job. (A second job + TA + 3 classes is difficult for domestic students and is illegal for international students.)

RELATED ITEM LEVEL 2

Attempt to increase financial support of MS students

KPI Description:

We will attempt to convince the new Dean of Graduate Studies that our MS students deserve an increase in salary from $13,000 to $18,000. This increased amount in consistent with competitor institutions (UL-Lafayette, for example).

Results Description:

We were told by the Dean of Graduate Studies that across-the-board increases in TA salaries will not be granted in the near future. The best way to find money for increases in pay for MS students, according to him, is to utilize distance learning funds.

RELATED ITEM LEVEL 3

Give up on trying to increase TA salaries

Action Description:

Instead of counting on the university to increase TA salaries, we will instead attempt to supplement the salaries of some TAs with grant funds, REU stipends, etc.

Improve Instruction By TAs

Goal Description:

We will improve our instructional support for TA instruction in 1000-level classrooms.

RELATED ITEMS/ELEMENTS

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RELATED ITEM LEVEL 1

Mentoring Of 1000-level Instructors

Performance Objective Description:

We will actively mentor graduate students teaching 1000-level classes.

Each graduate student that teaches a 1000-level course is now paired with a tenured faculty member who either is teaching the same course or has recently taught that course. This faculty member serves as a teaching mentor for the student throughout the semester.

RELATED ITEM LEVEL 2

Consistent mentoring program for teaching TAs

KPI Description:

Plan for TAs who will be teaching:

Semester 1: assigned to grading for an instructor, plus tutoring hours in ASC

Semester 2: assigned as a TA for a specific course, attends class regularly

Semester 3: assigned to teach one section of course observed in Semester 2, with faculty mentor

Semester 4: assigned to teach one (or two) sections of that same course, less mentoring necessary

Results Description:

Currently between year 1 and year 2 of the plan described in the KPI. So far, so good. Those TAs with more teaching experience (as former high school teachers, for example) were given courses to teach on their own during their third semester.

RELATED ITEM LEVEL 3

Continue plan described in the KPI

Action Description:

Everything looks good so far... we are happy with the performance of our 2nd year graduate students who are teaching courses.

RELATED ITEM LEVEL 1

Stable Teaching Program

Performance Objective Description:

We will develop a consistent and stable teaching schedule and program for TAs teaching 1000 level classes.

We are currently assigning each TA who has earned at least 18 hours of graduate credit a teaching assignment of one 1000 level course per semester.

RELATED ITEM LEVEL 2

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Update to Previous Cycle's Plan for Continuous Improvement

Previous Cycle's Plan For Continuous Improvement (Do Not Modify):

We are happy with the growth we've seen in the MS-Math program. We have 7 new students each year (5 are needed to sustain a program) but would like 10. We have made sure our students get enough research experience and LaTeX exposure. We need to rely less on international students and more on external (federal) funding.

Update of Progress to the Previous Cycle's PCI:

We've seen an increase in new MS students (7 last year, 9 this year). We are hoping to receive more federal funding to help ease the financial burden of our MS students.

Plans for 2017-18

Closing Summary:

We plan on the following:

-- submitting proposals for external funding to help assist MS students with financial burdens

-- relying less on international students and more on domestic students for new TA positions

-- recruiting heavily for the new 5-year BS/MS program. This would decrease the number of full-time MS students who require 2 years to earn an MS degree.