VICE CHANCELLOR FOR ACADEMIC AFFAIRS
OFFICE OF GRADUATE STUDIES

To: Phillip Pope, Associate Dean, Purdue University Graduate School

From: Steven T. Sarratore, Associate Vice Chancellor for Academic Programs and Director of Graduate Studies, IPFW

Re: Master of Arts for Teachers in Mathematics

Date: July 17, 2008 (Revised)

On behalf of the IPFW Department of Mathematical Sciences, I request that the Purdue University Graduate School reactivate the Master of Arts for Teachers in Mathematics. As per your request, I am providing information to support this request.

- Item 1: A detailed justification for offering the degree, the sustainability and expected outcomes of the program and the targeted audience.

This master's program is designed to support practicing teachers in their professional growth toward becoming master teachers. Its primary focus is on the development of pedagogical content knowledge and on the development of accepted research techniques in mathematics education. It is designed to support teachers' development of excellence in their own teaching and to help teachers advance and share their knowledge through teacher-action research.

We surveyed area teachers to determine if they would consider enrolling in the master's program as described—62.5% said yes. Teachers who responded favorably did so because they liked the concise time frame and they liked the blend of theory and practice. Two teachers responded asking if they could begin the program immediately. They recognize that teachers need both pedagogy and content in order to make good curricular decisions. Many of those who expressed no interest did so because they already have master's degrees. Some of those teachers indicated that they would still like to take some of the courses for license renewal.

To add anecdotal information to these statements, we have received several e-mails from area teachers asking when the degree will be offered. Several teachers are waiting to begin their master's level work, intending to enroll in this degree program.

You also asked about ***sustainability***. The demand for secondary teachers is expected to grow by 7.5% by 2012 (Indiana Department of Workforce Development). The demand is even greater in the science, technology, engineering, and mathematics area, and continued increasing demand is predicted. This expanding demand clearly points toward the sustainability of the program.

Our ***expected outcomes*** are three-fold. First, we expect teachers will become master teachers of mathematics and that they will have completed all of the foundational skills necessary to apply to the National Board for Professional Teaching Standards for board certification as a teacher of mathematics (see http://www.nbpts.org/). Second, the program will apply to the Indiana Division of Educator Licensing and Development for the authority to certify mentors of beginning middle and secondary school mathematics teachers (http://www.doe.state.in.us/dps/beginningteachers/mentors.html). Third, we expect this master's degree will more than adequately prepare students for any doctoral program in mathematics education in this country.

- Item 2: Degree Requirements

All of the required course work already is offered on this campus, and we have appropriate qualified mathematics education graduate faculty in place.

IPFW Department of Mathematical Sciences Graduate Faculty

Akkari, Safwan
Beineke, Lowell W
Chauhan, Chand Kumori
Coffman, Adam N
Coroian, I. Dan
Deng, Yihao
Dragnev, Peter
Frederick, William G.
Hersberger, James R.
Legg, David A.
Mau, Sue Tinsley
Pan, Yifei
Pippert, Raymond E.
Redett, David,a.
Townsend, Douglas W.
Vandell, Robert C.
Walsh, Matthew,p.
Weakley, Cecilia A.
Weakley, William D
Zubovic, Yvonne M.

Graduate faculty in the IPFW School of Education are also fully qualified to support this program.

Students in the program will complete 33 hours of course work. The specific courses are outlined below.

Applicants will meet all of the admission requirements for the Purdue University Graduate School. In addition, applicants need to have completed their beginning teacher induction period (two years of teaching) and possess a five-year proficient practitioner's license. If an applicant's undergraduate transcript shows no abstract algebra or real

analysis coursework, the applicant will be required to successfully complete one of those two courses prior to admission to the program.

Item 3: Courses that are available for students pursuing the degree.

The plan of study for most students will include the following:

Core Mathematics (15 Credits)

MA575—*Graph Theory*—3 cr.

MA598—*Topics in Mathematics: Mathematics Education*—3 cr.

MA556—*Introduction to the Theory of Numbers*—3 cr.

MA560—*Fundamental Concepts of Geometry*—3 cr.

MA580—*History of Mathematics*—3 cr.

Mathematics Education (3 Credits)

MA598—*Topics in Mathematics: Mathematics Education*—3 cr.

Professional Education (15 Graduate Credits from IPFW School of Education)

EDUA M550—*Practicum: Junior High/Middle School*—3 cr.

EDUC H538—*Critical Thinking and Education*—3 cr.

EDUC P503—*Introduction to Research*—3 cr.

EDUC S590—*Research in Secondary Education*—3 cr.

One of the following (3 cr.):

EDUC N517— *Advanced Study in the Teaching of Secondary School Mathematics*

EDUC N518—*Advanced Methods in the Teaching of Middle/Junior High School Mathematics*