MEMORANDUM

1 February 2011

To: General Studies Council

Re: Reinstating (MA) Status of College Algebra

From: M. Kawski (Associate Director for Undergraduate Programs), F. Milner (Director of Mathematics for STEM Education), J. Rody (Associate Director for Freshman Mathematics), W. Raskind (Director of the School of Mathematical and Statistical Sciences)

Cc: Art Blakemore, Gerry Corey

We write to request the reinstatement of the MA general studies status of MAT 117, College Algebra, effective with the Fall 2011 semester. In order for this change to be considered, it is necessary that the General Studies Council first change the requirements that courses with the MA designation must fulfill. We are hereby petitioning that such a change be implemented and MAT 117 reinstated.

The former Department of Mathematics and Statistics at ASU approved the removal of this status in 2005 in favor of MAT 142 (College Mathematics), with written support from both U. of Arizona and NAU for our offering a College Mathematics course that is similar to courses offered on their campuses for the general education mathematics requirement. It is important to note that University of Arizona has continued to allow either of their equivalent courses to ASU’s MAT 117 and MAT 142 to satisfy the general education mathematics requirement since the latter was given the equivalent of our MA status. Please see the relevant section of the UA catalogue:

http://catalog.arizona.edu/2010-11/policies/math.htm

At UA the equivalent of ASU’s MAT 117 is called Math 110. It is listed in the M-strand (moderate knowledge) and suggested for students who may need somewhat more mathematics, whether they actually take another course or not.

The introduction of MAT 114 (now MAT 142) as the MA general education course for most ASU students has been a big success and we do not want to change that. In fact, we would like to see even more students enroll and succeed in this course but, at present,
they are restricted from doing that because they do not meet the minimum score requirement on our placement test for incoming students (formerly the UPT, currently the Math Placement Test with ALEKS). A visible problem is that, both UPT and ALEKS are algebra-based tests that essentially test only algebraic skills, the majority of which are not necessary for success in College Mathematics.

Please see the attached memo prepared in 2004 for the Dean of CLAS providing a rationale for the approval of the changes that were being proposed at the time, namely removing the MA status from MAT 117 and granting it to MAT 114 (now MAT 142).

The main goal of the 2005 change has been accomplished:
“Providing most students NOT in majors that include algebra-based, higher level mathematics courses a course that “exposes students to mathematics in context. Through topics such as Logic, Probability, Statistics, Finance and others, students see a practical or applicable side of mathematics (as opposed to the decontextualized and abstract side of mathematics presented in college algebra). We believe our non-calculus track students are much better served with a mathematics course that is in general a little less formal, less abstract and less symbolic in nature. The MAT 114, College Mathematics course is more intuitive, more contextual and more concrete in nature.”

However, the changes implemented then also mean that College Algebra is not even an option for students who may be interested or whose major requires them to pass that course. For example, for elementary teachers, MAT 142 may serve some purpose for them as adult citizens, but College Algebra would serve them better for their professional background. As it stands today, an elementary teacher who receives her/his degree at ASU, only takes College Mathematics (MAT 142), and MTE 180-181 (Mathematics for Elementary Teachers I-II) focusing on numbers, number systems, operations on numbers; patterns, algebraic reasoning, and functions; problem solving; data analysis, probability, and discrete mathematics; geometry and measurement; structure and logic. This is, in part, the reason why so many elementary school teachers have such a low level of mathematics skills, particularly in algebra. Requiring College Algebra instead of College Mathematics would already be a significant improvement in their preparation for elementary classroom mathematics, and the MLFTC is supportive of such a change.

Another aspect of the current state of MAT 117 and MAT 142, is that, in order to place in the latter course, we require placement scores identical to those needed for the former, mainly because many would find it strange if the required score was lower for MAT 142
than for MAT 117, since the former satisfies the general education mathematics requirement but the latter does not. Given the nature of the placement test, it is a very poor predictor of success in MAT 142 because it tests the wrong skills for that course. In fact, a good number of MAT 142 instructors believe that many students who are prevented now from taking MAT 142 because of low placement scores would be successful in the course, were they allowed to register for it. To test this hypothesis, students with a placement score of at least 30 will be allowed to take MAT 142 in Spring 2011, while the minimum score required to register in MAT 117 will remain at 40.

One other factor that has changed since 2004 is the focus of school mathematics, especially in view of the newly developed and Arizona-adopted Common Core Standards. These have a stronger focus on data analysis and statistics and a somewhat decreased focus on algebra, thus making a the overlap in content between what will typical Algebra II high school courses and typical College Algebra courses visibly smaller than it used to be.

We believe it will beneficial to many students to have the option of satisfying the general education MA with MAT 117. With proper advising, and with the weight of the successful history of MAT 142, we do not expect any negative outcomes if this change takes place. In several conversations on this issue at the Office of the Provost, there was visible interest and support for putting forth this proposed change to the appropriate committees for approval.