

Massachusetts Changes to Improve the Mathematical Preparation of Elementary Teachers

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In 2006 the Massachusetts Board of Elementary and Secondary Education voted to strengthen the mathematics knowledge standards for the licensure of teachers at the elementary level and to reconfigure our teacher tests accordingly. Come March 2009, all candidates for elementary teacher and pK-8 special education licenses will be required to pass a separately scored mathematics test.¹ A detailed description of the standards and the depth of knowledge required in elementary math were provided in 2007 with publication of the “Guidelines for the Mathematical Preparation of Elementary Teachers”²

In a cover letter, Commissioner David Driscoll wrote:

“These guidelines highlight the breadth and depth of mathematics that teachers at the elementary level must not only be able to do, but understand and explain in many ways to students. The fact that the Guidelines do not extend beyond the mathematics covered by elementary schools should not be construed to mean that the mathematics preparation recommended herein will be easy—quite the contrary. It will require most candidates to delve far deeper into the underlying structures of mathematics than they have previously explored. It will require mathematics and teacher preparation program faculty to substantially rethink and redesign their courses.”

The document goes on to recommend that prospective elementary teachers take 3 to 4 mathematics courses, and it spells out in detail the content and level of understanding expected from those courses. These recommendations are consistent with the 2001 report prepared by the Conference Board of the Mathematical Sciences, titled “The Mathematical Education of Teachers”³. Moreover, the guidelines are chock full of sample problems illustrating the level of understanding expected of our elementary teachers.

The Massachusetts Department of Higher Education funded a series of four meetings for higher education faculty to learn about the new regulations and test, to explore appropriate course design, and to discuss the challenges they faced back home convincing local administrations to increase math course requirements. The last meeting—attended by over 125 mathematics and education faculty—included a presentation by Sybilla Beckmann from the University of Georgia, along with talks by local mathematics professors from public and private colleges, graduate and undergraduate programs, and community colleges⁴.

Members of our team have been involved in lobbying for these changes, writing the guidelines, designing the new test, teaching preservice math courses, and organizing the meetings.

Our job is not finished. Mathematics faculty are calling for help with these new courses, via professional development workshops and support for regional collaboration among 4-year colleges and community colleges. We are designing a summer workshop for this purpose and have received proposals for follow-up implementation projects from several collaborative groups around the state for their local needs. We are seeking funds for these projects.

¹ http://www.mtel.nesinc.com/PDFs/MA_FLD003_SubtestII_PRACTICE_TEST.pdf

² <http://www.doe.mass.edu/mtel/MathGuidance.pdf>

³ www.cbmsweb.org/MET_Document

⁴ <http://www.mass.edu/meetings/MathResources20080403.asp>