CBMS 2010 Survey of Undergraduate Mathematical Sciences Programs

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Every five years since 1965 a comprehensive study of undergraduate programs in the mathematical sciences in the United States has been undertaken under the auspices of the Conference Board of the Mathematical Sciences (CBMS), with funding from the National Science Foundation and support from the mathematical sciences professional societies. A stratified random sample of 600 institutions has been selected for the 2010 survey from the roughly 2,500 institutions that are either public two-year colleges or (public or private) four-year colleges and universities that have undergraduate programs in mathematics or statistics. Depending upon their programs, the institutions selected will receive the survey instrument for undergraduate mathematics programs at four-year colleges and universities, for mathematics programs at public two-year colleges, or for undergraduate statistics programs at four-year institutions. This year, for the first time, the survey instrument will be available both online and in hard copy. The CBMS surveys request enrollment data for individual courses and information on majors, curricula, and pedagogy at the surveyed institutions; additional information on faculty is collected from the Annual Survey of the Mathematical Sciences (AMS-ASA-IMS-MAA-SIAM). A report based on the data gathered will be published in the spring of 2012, both online and in a paper monograph. The reports of the 2005, 2000, 1995, and 1990 CBMS surveys can be obtained online from links at `www.ams.org/cbms`.

The CBMS surveys have been very useful to academic planners and department chairs seeking additional resources from college and university administrators, as well as those seeking funding for further programs in mathematics, science, and technology at the state and national levels. Some examples of findings from the 2005 survey are given below (in some cases MAA President David Bressoud's online columns "Launchings" give further discussions of the issues raised by the data):

- Between fall 1995 and fall 2005 total enrollment in U.S. four-year colleges and universities grew by about 21%, while enrollment in those institutions' mathematics and statistics departments grew by only about 8%. In the same period, total enrollments in public two-year colleges grew by about 21%, while their mathematics and statistics course enrollments grew by about 18%.
- In 2005 Calculus II, III, and IV enrollments were up from 2000 at Ph.D.-level universities but down at B.A.- and M.A.-level institutions (see also `http://www.maa.org/columns/launchings/launchings_06_08.html`).
- In fall 2005 there were about 20,000 students enrolled in dual-enrollment Calculus I classes; about 18% of two-year college Calculus I enrollments were in dual-enrollment courses (`http://www.maa.org/columns/launchings/launchings_07_07.html`).

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• From 2000 to 2005 there was an 11% increase in the total number of full-time faculty in four-year mathematics departments—components of that increase were a 1% decrease in tenured faculty, a 33% increase in tenure-eligible faculty, and a 31% increase in other full-time faculty (including post-doctoral appointments).

• At Ph.D.-level institutions the percentage of calculus students taught by tenured and tenure-track faculty declined from 2000 to 2005 (see also `http://www.maa.org/columns/launchings/launchings_10_07.html`).

• The percentage of bachelor's degrees given to women has been declining from 2000 to 2005 (see also `http://www.maa.org/columns/launchings/launchings_09_09.html`).

• In 2005 about 30% of two-year colleges offered a program where preservice K–8 teachers could complete their entire mathematics or licensure requirements.

The 2010 Survey includes questions about special topics to be studied in 2010—including pedagogy in college algebra and elementary statistics courses, teacher preparation programs, and distance learning enrollments.

Given the data's importance to the mathematical community, administrators of those departments selected for the survey are urged to complete the survey. The new online system has a number of advantages over the hard copy form: it will automatically skip those questions that are not applicable (based on earlier responses), gray out portions of questions that do not apply, remind one of previous responses, and provide definitions when the cursor hovers over certain highlighted words. Questions about the survey may be addressed to the survey director, Ellen Kirkman (`kirkman@wfu.edu`).