Statistical Abstract of Undergraduate Programs in the Mathematical Sciences in the United States

Fall 2015 CBMS Survey

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Richelle (Rikki) Blair
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Foreword

Every five years since 1965, the Conference Board of the Mathematical Sciences (CBMS) has sponsored a national survey of undergraduate mathematical and statistical sciences in the nation's two- and four-year colleges and universities. The 2015 CBMS survey, conducted with NSF support, is the eleventh report in this series of now fifty years of data. The CBMS surveys study two-year college mathematics programs, and the undergraduate programs of mathematics departments and statistics departments at four-year colleges and universities. Three different instruments are sent to a stratified random sample of these three populations, and this report presents the estimates computed using the responses to these questionnaires.

This report is organized as follows.

- Chapter 1 gives an overview of the results of the 2015 CBMS survey; tables in this chapter are designated with the label S, for "summary". The tables in this chapter are presented in more detail (e.g. four-year college data is broken down up level of department) in later chapters.

- Chapter 2 reports on the special projects of the 2015 survey; tables in this chapter are designated with the label SP, for "special project". The special projects in 2015 for two- and four-year institutions are the mathematical education of pre-college mathematics/statistics teachers, practices in distance learning courses, academic resources available to undergraduates, and trends in dual enrollments. Special projects for four-year departments include interdisciplinary courses in four-year mathematics departments, requirements in the national majors in mathematics and statistics in four-year departments, availability of upper level classes in four-year mathematics departments and statistics, estimates of post-graduation plans of graduates of four-year mathematics departments and statistics departments, assessment in four-year mathematics departments and statistics departments, divisional graduation credit for advanced placement courses in four-year mathematics and statistics departments, pedagogy and making changes at four-year mathematics and statistics departments, statistics majors and minors at four-year mathematics departments, profiles of other full-time faculty at four-year mathematics and statistics departments.

- Chapter 3 focuses on course enrollments and the numbers of undergraduate degrees awarded by mathematics and statistics departments at four-year colleges and universities, including data on who is teaching courses; tables in this chapter are labeled by E, for "enrollment".

- Chapter 4 concerns the demographics of faculty in mathematics and statistics departments of four-year colleges and universities; tables in this chapter are labeled by F, for "faculty". As explained in this chapter, these data were obtained from the Annual Survey, conducted by the American Mathematical Society.

- Chapter 5 studies courses taught primarily to beginning students in mathematics and statistics departments at four-year colleges and universities; tables in this chapter are labeled by FY, for "first year".

- Chapter 6 focuses on enrollments, course offerings, and instructional practices at two-year colleges; tables in this chapter are labeled with TYE, for "two-year enrollment".

- Chapter 7 presents faculty demographics and special topics at two-year colleges; tables in this chapter are labeled with TYF, for "two-year faculty".

Other important information is included in appendices:

- Appendix I contains the enrollments (both with, and without, distance learning enrollments) for each individual course listed on the four-year mathematics and statistics department questionnaires, along with past enrollments (with distance learning enrollments included). Standard errors for the 2015 course enrollments are also included.

- Appendix II contains details about the survey procedure.

- Appendix III gives the list of responders to the 2015 survey.

- Appendices IV, V, VI, and VII give the actual questionnaires used in the 2015 CBMS survey. The instruments themselves can be useful in interpreting the results of the survey.

- Appendix VIII gives the standard errors for each of the tables. It is important to remember that the survey is based on a sample, and the numbers provided in the tables are estimates that are subject to sampling error.

Throughout this report, we often include the standard error (SE) with the estimate, e.g. "52% (SE 2.2)", meaning that the estimate is 52% and the standard error in this estimate is 2.2. Data from the 2015 survey are compared to similar data from earlier CBMS surveys. The change in an estimate from the estimate in a previous survey is often expressed both as percentage change, and as the number of SEs this change represents (e.g. "grew by about 13% (2 SEs)" means that, if X(2015) is the estimate in 2015 and X(2010) is the estimate in 2010, then (X(2015)-X(2010))/X(2010) = .13 and (X(2015)-X(2010))/SE(X(2015)) = 2).

Throughout this report, enrollments do not include dual enrollments, unless indicated by table caption. Depending upon the caption on the table, enrollments may, or may not, include distance learning enrollments. One can use Appendix I to find enrollments of courses at four-year departments for fall 2015 with, or without, distance learning enrollments included (this is not the case for CBMS surveys previous to the 2010 survey, as past appendices give enrollments only with distance learning enrollments included). One can use the tables in Chapter 6 to find enrollments of courses at two-year departments for fall 2015 with, or without, distance learning enrollments included, depending upon the caption. In the text of this report, whether the enrollments cited include, or do not include, distance learning enrollments is generally determined by the comparable historical data available.

This report refers to earlier CBMS reports (called CBMS2010, CBMS2005, etc.). This report, and the preceding nine CBMS reports (beginning with the 1970 report), are available online at: http://www.ams.org/profession/data/cbms-survey/cbms-survey. Other references can be found in the bibliography at the end of the report.