

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

Fall 1995 CBMS Survey

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While this 1995 CBMS report is similar in format to the 1990 CBMS report, the scope and depth of detail of this report go well beyond that report. Hopefully, this report will be of use to the mathematics and statistics community.



Foreword

This is the seventh in a series of survey reports conducted under the auspices of the Conference Board of the Mathematical Sciences (CBMS). The first appeared in 1965, with subsequent survey reports every five years thereafter. These surveys primarily count fall enrollment in each undergraduate course offered at departments of mathematics and statistics at four-year colleges and universities and two-year mathematics programs in the United States. They also report on the number of course sections, the number of departmental and program faculty by type of appointment, gender, age, and ethnicity together with the number and gender of baccalaureate degrees awarded by these departments. In addition, policies and practices for advising departmental majors and faculty access to computers are included. Data for this 1995 CBMS report were collected in the Fall 1995, and, except in three instances, are based upon information from this academic period.

This report does not contain any information on graduate programs, except that enrollment in advanced or upper-level undergraduate courses includes all enrollment, not distinguishing between undergraduate or graduate students.

This report consists of a series of tables, each usually accompanied by some descriptive figures highlighting aspects of the data presented in the table, along with written commentary on the data.

Data were aggregated by level of department. PhD mathematics departments are all those mathematics and mathematical sciences departments which award a PhD in their department, MA mathematics departments are those which award a master's degree as the highest degree, and BA departments are those which offer either a bachelor's degree as the highest degree or offer no degree. Data on two-year college mathematics departments programs are reported both in the summary chapter and, specifically, in the last two chapters.

A statistics department is labeled a PhD or a MA department according to the classification of the companion mathematics department. However, only two of the responding PhD statistics departments reported not having a PhD degree in statistics.

A mathematics department is one in which mathematics is the primary discipline, although it may be a multi-titled department. It may also contain subunits in related disciplines. Data from other related depart-

ments, such as operations research or applied mathematics, are reported with the mathematics department at that school.

Because a large amount of the data collected continues to update previous survey data, much historical data are presented in the tables. However, there are many new features in the 1995 CBMS reports including:

- a detailed analysis on the number of course sections in four-year college and university departments of mathematics and statistics giving the percentage of enrollment taught by the four types of instructors: tenured/tenure-eligible faculty, other full-time faculty, part-time faculty, and graduate teaching assistants. These data are presented by type of department and level of course. For mathematics departments these levels are: remedial, precalculus, calculus, and advanced. For two-year mathematics programs, a similar analysis is presented;
- specifically for mainstream and non-mainstream Calculus I and II and for introductory statistics and statistics and probability, a further breakdown of enrollment by type of instructional format: large lecture, regular sections with fewer than 30 students, and those regular sections with larger enrollment. In addition, other features of these courses, such as the percentage of enrollment using a "reform" text or using graphing calculators, are presented;
- a much more detailed profile of both two-year and four-year college and university mathematics and statistics faculty, full-time and part-time, with more emphasis on separating the data by gender, age, and ethnicity;
- information on advising practices for mathematics and statistics departmental majors at four-year colleges and universities;
- information on availability of terminal/computer and Internet access for all levels of mathematics and statistics faculty;
- an analysis of various methods of evaluating teaching for two-year mathematics program faculty;
- a detailed description of the services offered by mathematics laboratories at two-year colleges.

All data in this report were obtained from a stratified random sample of four-year colleges and universities and a separate stratified random sample of two-year colleges. The sample sizes were larger than for any of the previous CBMS surveys and the response rates were good. As with any sample survey there are sampling errors which are controlled by a good sampling design and non-sampling errors such as nonresponse and reporting errors. Further information on the sampling procedures and related items for this study are found in Appendix II.

The report is organized into seven chapters. The first is a summary chapter presenting data from both four-year colleges and universities and two-year colleges when available. In addition, historical data from previous CBMS surveys are included where pertinent. The commentary accompanying the tables gives references to the tables in subsequent chapters, which give more detailed information. Chapter 2 presents detailed enrollment information for four-year colleges and universities, while chapter 3 presents faculty counts for these institutions. Chapter 4 focuses on a detailed look at six first-year courses at four-year colleges and universities: mainstream and non-mainstream Calculus I and II, elementary statistics and elementary probability and statistics. Chapter 5 concludes the four-year and university data with information on advising practices for mathematics and statistics departmental majors and computer access for mathematics and statistics faculty. Chapters 6 and 7 are devoted to two-year mathematics program data with chapter 6 concentrating on enrollment numbers and chapter 7 on faculty data.

Except for enrollment numbers, the data in this report are in good agreement with the Fall 1995 data

presented by the Joint American Mathematical Society, Institute of Mathematical Statistics, and Mathematical Association of America Data Committee. The CBMS enrollment numbers are substantially lower than the numbers given in the data committee reports for the same period, Fall 1995. The data committee surveys use less precise statistical techniques than does the CBMS survey.

Separate departments of computer science were not included in this 1995 CBMS survey and report but were included in the 1990 survey and report. For the most part, detailed information on PhD computer science departments is presented annually in the "Taulbee" survey conducted by these departments.

The descriptor "mathematical sciences department", as used in CBMS reports prior to 1985, included computer science. When the National Science Foundation changed its taxonomy to no longer include computer science within the mathematical sciences, the CBMS surveys followed this change. In presenting data in this report from previous CBMS surveys, data from separate computer science departments were excised where possible; if this was not possible, then these data were not used. The only exception is data from the 1970 CBMS report; at that time the contributions from separate departments of computer science were small compared to the contributions from mathematical sciences departments.

Don O. Loftsgaarden was the vice-chair of the survey committee and the consulting statistician. Ann E. Watkins was in charge of the two-year survey and subsequent report, assisted by Stephen Rodi. Donald C. Rung was in charge of the four-year and university survey and its report and was the chair of the survey committee and director of the survey.