A Survey of Four-Year and University Mathematics in Fall 1995: A Hiatus in Both Enrollment and Faculty Increases

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Every five years the Conference Board of the Mathematical Sciences (CBMS) conducts a survey of four-year and university departments of mathematics and statistics and two-year college programs in mathematics, with the first survey in 1965 and the latest survey in 1995. Since 1970 these surveys have been supported by the National Science Foundation. The present survey was conducted in fall 1995 with a stratified random sample of 649 departments distributed among 30 different strata; two-thirds responded. Projections were made using standard procedures for stratified random samples. The responding units were distributed across the different strata, insuring a good confidence level for the results.

The survey forms were extensive and generated a plethora of data, which are reported in full in the formal report of this survey, Statistical Abstract of Undergraduate Programs in the Mathematical Sciences in the United States, Fall 1995 CBMS Survey, by Don O. Loftsgaarden, Donald C. Rung, and Ann E. Watkins (1997), published in the MAA Notes Series and available from the Mathematics Association of America. A digest of the important results for four-year college and university departments of mathematics and statistics is given in this article by selecting nine of the most important tables from among the sixty-four tables of data in the survey report. Topics include enrollment in all courses taught by these departments, with special emphasis on first-year calculus data; faculty, including gender and tenure status; and advising practices for departmental majors. A synopsis analyzing the data on the teaching of statistics appears in a separate article by Loftsgaarden and Watkins appearing in *The American Statistician*.

The phrase "mathematics departments" includes traditional departments of mathematics as well as all multititled departments which feature mathematics together with other related disciplines. Statistics departments are separate departments and are almost entirely departments with Ph.D. programs. The data are presented both in summary form and by type of institution as determined by the highest mathematics degree offered by the institution. Thus a Ph.D. mathematics department is one which offers the Ph.D. degree, an M.A. mathematics department is one which offers as its highest degree a master's degree in mathematics, and a B.A. department of mathematics offers only a bachelor's degree. While departments of statistics are classified by the institution's classification, only two of the responding statistics departments in Ph.D. institutions did not offer a Ph.D. in statistics.

Mathematics courses are aggregated by level: remedial, precalculus, calculus, and advanced. Statistics course levels are elementary and upper, while computer science course levels are lower, middle, and upper. Precalculus-level mathematics courses include both traditional precalculus algebra and trigonometry courses along with courses for nonscience majors, finite mathematics, noncalculus-based business mathematics, and mathematics for prospective elementary school teachers. Calculus-level courses include the traditional

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calculus sequence through differential equations together with linear/matrix algebra and discrete mathematics. Advanced mathematics courses are the remaining undergraduate courses not included in the three other categories. Enrollment for each course is given in Appendix 1 of the survey report. This appendix includes historical data as well. Enrollment includes all students regardless of their status: part-time, full-time, adjunct, graduate, etc.

Instructional faculty are separated into tenured and tenure-eligible, other full-time, part-time, and graduate teaching assistants. Other full-time faculty include all full-time faculty not tenured or tenure-eligible. This category includes postdoctoral appointments, fixed-term instructors, visitors, and so on. Part-time faculty are those with less than full-time appointments within the mathematics or statistics department, regardless of whether they have or do not have other appointments within the institution.

Table 1 shows that while total enrollment in collegiate mathematics courses was little changed from 1990—2,853,000 in fall 1995 as compared to 2,860,000 in 1990—the proportion of mathematics enrollment in two-year colleges continued to climb, so that in fall 1995 two-year colleges had 49% of the mathematics enrollment as compared to 43% in fall 1990. The enrollment for mathematics courses in four-year colleges and universities declined substantially, 9%, from the high-water marks of 1985 and 1990. The largest decline was in the calculus-level courses. Statistics enrollments, both within mathematical sciences departments as well as within separate departments of statistics, recorded substantial gains. (It should be noted that the 63 Ph.D. statistics departments in the 1995 CBMS survey population was 10 more than the 1990 CBMS survey population of 53, which may account for some of the enrollment increase.)

Enrollment in statistics and computer science courses within mathematics departments includes only that enrollment in courses under the direction of the department. The same is true for non-statistics courses taught by statistics departments. Separate computer science departments, while included in the 1990 CBMS survey, were not included

TABLE 1 Enrollment (in thousands) by level in undergraduate mathematics, statistics and computer science courses in departments of mathematics at four-year colleges and universities, in departments of statistics at universities, and in mathematics programs at two-year colleges: Fall 1970, 1980, 1985, 1990, 1995.

	Fall Enrollment (thousands)												
	Four-Year College and University Mathematics Depts					University Statistics Depts			Two-Year College Mathematics Programs				
Course Level	1970	1980	1985	1990	1995	1970	1990	1995	1970	1980	1985	1990	1995
Math Courses													
Remedial	101	242	251	261	222	0	0	0	191	441	482	724	800
Precalculus	538	602	593	592	613	0	0	1	134	180	188	245	295
Calculus	414	590	637	647	538	0	1	1	59	86	97	128	129
Advanced	135	91	138	119	96	0	1	0	0	0	0	0	0
Other (2-year)									171	218	133	144	160
Total Math	**1188**	**1525**	**1619**	**1619**	**1469**	**0**	**2**	**2**	**555**	**925**	**900**	**1241**	**1384**
Stat Courses													
Elementary	na	na	na	87	115	na	30	49	16	28	36	54	72
Upper	na	na	na	38	28	na	14	16	0	0	0	0	0
Total Stat	**60**	**na**	**na**	**125**	**143**	**32**	**44**	**65**	**16**	**28**	**36**	**54**	**72**
CS Courses													
Lower	na	na	na	134	74	0	0	1	13	95	98	98	43*
Middle	na	na	na	12	13	0	0	0	0	0	0	0	0
Upper	na	na	na	34	12	0	0	0	0	0	0	0	0
Total CS	**60**	**na**	**na**	**180**	**99**	**0**	**0**	**1**	**13**	**95**	**98**	**98**	**43***
Grand Total	**1308**	**na**	**na**	**1924**	**1711**	**32**	**46**	**68**	**584**	**1048**	**1034**	**1393**	**1498**

* The computer science enrollment for 1995 includes only courses taught within mathematics programs. For earlier years it includes estimates of computer science courses taught outside mathematics programs.

in this survey, and these departments' contributions to enrollment totals in past CBMS reports have been excised when it was possible to identify these separate contributions.

Enrollment in all courses offered by mathematics departments fell by 11% from 1990 levels, whereas both statistics department enrollment and two-year college mathematics programs increased, the former by nearly 50% and the latter by almost 8%. In fall 1995 two-year college mathematics programs had 46% of the total mathematical sciences enrollment of 3,277,000.

Table 2 amplifies the enrollment in courses offered by both mathematics and statistics departments in four-year colleges and universities, reporting numbers for fall 1990 and fall 1995 both by level of course and type of institution. During this five-year period calculus-level enrollment fell by 17%, with the largest decline at the Ph.D. universities, 22%. Whether this decline in calculus enrollment is partly the result of the changing gender ratio of undergraduate students is an interesting question. In 1978 undergraduate collegiate enrollment was about 9,800,000, divided 51% female, 49% male. By 1993 overall enrollment had increased by 27% and was now 56% female, 44% male. During this same period, while the number of white males in the undergraduate collegiate population remained nearly constant, their percentage of the total enrollment fell from 40% in 1978 to 33% in 1993.

The increase in precalculus enrollment was largely due to a 20% increase in enrollment in mathematics courses designed primarily for liberal arts students.

Table 3 gives the number of bachelor's degrees awarded to majors within the departments of mathematics and statistics during the period July 1, 1989, to June 30, 1990. From 1989–90 to 1994–95 the overall number of degrees fell by 1,560, or 6%. The largest decline was in the number of computer science degrees, including joint degrees, with a decrease of 2,841. However, this decline was offset somewhat by increased mathematics education degrees within mathematics departments as well as a healthy increase in statistics degrees.

The percentage of mathematics and statistics degrees awarded to women was 45%, little changed from the 46% figure of 1989–90.

Table 4 presents an analysis of mathematics department faculty in fall 1995 by type of appointment, gender, and type of institution. Comparable numbers from the 1990 CBMS report are included when available. While the total number of full-

TABLE 2 Enrollment (thousands) in undergraduate mathematics, statistics and computer science courses in departments of mathematics and in departments of statistics by level of course and type of school: Fall 1995. Also full-time faculty: Fall 1995. (Numbers in parentheses are 1990 enrollments.)

	Fall 1995 (1990) Enrollments (thousands)						
	Math Depts				Stat Depts		
	Univ (PhD)	Univ (MA)	Coll (BA)	**Total Math Depts**	Univ (PhD)	Univ (MA)	**Total Stat Depts**
Number of Full-Time Faculty 1995	6221	4765	7262	**18248**	876	112	**988**
Math Courses							
Remedial	60	84	78	**222**			**0**
	(68)	(93)	(100)	**(261)**			**(0)**
Precalculus	222	193	198	**613**	1		**1**
	(205)	(202)	(185)	**(592)**	(0)		**(0)**
Calculus	264	124	150	**538**	1		**1**
	(337)	(122)	(188)	**(647)**	(1)		**(1)**
Adv Math	41	25	30	**96**	0		**0**
	(58)	(29)	(32)	**(119)**	(1)		**(1)**
Total Math Courses	**587**	**426**	**456**	**1469**	**2**		**2**
	(668)	**(446)**	**(505)**	**(1619)**	**(2)**		**(2)**
Stat Courses							
Elem Stat	23	35	57	**115**	46	3	**49**
	(14)	(27)	(46)	**(87)**	(25)	(5)	**(30)**
Upper-Level Stat	10	7	11	**28**	16		**16**
	(18)	(12)	(8)	**(38)**	(14)		**(14)**
Total Stat Courses	**33**	**42**	**68**	**143**	**62**	**3**	**65**
	(32)	**(39)**	**(54)**	**(125)**	**(39)**	**(5)**	**(44)**
CS Courses							
Lower CS	4	18	52	**74**		1	**1**
	(9)	(42)	(83)	**(134)**		(0)	**(0)**
Middle CS	0	3	10	**13**			**0**
	(1)	(4)	(7)	**(12)**			**(0)**
Upper CS	2	4	6	**12**			**0**
	(6)	(12)	(16)	**(34)**			**(0)**
Total CS Courses	**6**	**25**	**68**	**99**		**1**	**1**
	(16)	**(58)**	**(106)**	**(180)**		**(0)**	**(0)**
Total All Courses	**626**	**493**	**592**	**1711**	**64**	**4**	**68**
	(716)	**(543)**	**(665)**	**(1924)**	**(41)**	**(5)**	**(46)**

TABLE 3 Number of bachelor's degrees in departments of mathematics at four-year colleges and universities and in departments of statistics at universities (combined) between July 1 and June 30 in 1974–75, 1979–80, 1984–85, 1989–90, and 1994–95 by selected majors and by gender for totals in 1989–90 and 1994–95.

Major	1974–75	1979–80	1984–85	1989–90	1994–95
Math (except as reported below)	18833	11541	13171	13303	12456
Math Ed	4778	1752	2567	3116	4829
Statistics	570	467	538	618	1031
Actuarial Math	na	146	na	245	620
Operations Research	na	na	312	220	75
Joint CS & Math	na	na	2519	960	453
Joint Math & Stat	na	na	121	124	188
Other	0	0	9	794	502
Subtotal Math, Stat & Joint Degrees	**24181**	**13906**	**19237**	**19380**	**20154**
Number of Women	**na**	**na**	**na**	**8847**	**9061**
Computer Science Degrees	na	na	8691	5075	2741
Number of Women	na	na	na	1584	532
Total Degrees	**na**	**na**	**27928**	**24455**	**22895**
Number of Women	**na**	**na**	**na**	**10431**	**9593**

TABLE 4 Number of tenured, tenure-eligible, other full-time, and part-time faculty in departments of mathematics by gender and by type of school: Fall 1995. Also some 1990 data.

	Univ (PhD)				Univ (MA)				College (BA)				Totals				
	Tenured	Tenure elig	Other full-time	Part-time	Tenured	Tenure elig	Other full-time	Part-time	Tenured	Tenure elig	Other full-time	Part-time	Tenured	Tenure elig	Other full-time	Part-time	**Total**
Men	4356	614	491	673	2719	577	352	766	3874	997	388	1721	10949	2188	1231	3160	**17528**
Women	335	158	267	392	501	235	381	690	994	748	261	1047	1830	1141	909	2129	**6009**
Total 1995	**4691**	**772**	**758**	**1065**	**3220**	**812**	**733**	**1456**	**4868**	**1745**	**649**	**2768**	**12779**	**3329**	**2140**	**5289**	**23537**
Total 1990	**4781**	**1646***		**1129**	**3079**	**1979***		**2052**	**4828**	**3098***		**3605**	**12688**	**6723***		**6786**	**26197**
Women 1990		662**		na		1148**		na		2045**		na		3855**		na	

*This number is the total of tenure-eligible and other full-time.

**This number is the total of tenured, tenure-eligible, and other full-time.

time faculty declined by about 1,150, it appears that the decline was mostly in the number of faculty who are full-time but not tenured. This can be inferred from the slight increase in tenured faculty reported in this survey as well as other data available from the annual surveys conducted by the joint AMS-IMS-MAA Data Committee. The number of full-time women faculty was nearly the same in 1995, 3,880, as it was in 1990, when it was 3,855. In fall 1995 tenured and tenure-eligible women were 8% of the full-time faculty in Ph.D. mathematics departments as compared to 15% for M.A.

mathematics departments and 24% for B.A. mathematics departments. Combining all three types of mathematics departments shows that tenured and tenure-eligible women were 16% of the 18,248 full-time mathematics faculty and 18% of the 16,108 tenured and tenure-eligible mathematics faculty.

According to figures from the annual reports of the joint AMS-IMS-MAA Data Committee, the percentage of women among Ph.D.s awarded from July 1, 1980, to June 30, 1995, from United States mathematics and statistics departments was 19%; for the period July 1, 1990, to June 30, 1995, the percentage of women Ph.D.'s was 22%.

Table 5 shows that the distribution of minorities among the full-time faculty differs between the university departments of mathematics and the four-year college departments of mathematics. While this particular table does not contain data from the 1990 CBMS survey, other data from the 1990 CBMS report indicate that there was little change over this five-year period in either the gender or the racial/ethnic distribution of college and university mathematics faculty. (The percentages of women faculty given in Table 5 are slightly smaller than the comparable percentages com-

TABLE 5 Percentage of gender and of racial/ethnic groups among tenured, tenure-eligible, and other full-time faculty in departments of mathematics by type of school: Fall 1995.

	Percentage of Faculty						Number of
	American Indian/ Alaskan	Asian/ Pacific Islander	Black, not Hispanic	Mexican American, Puerto Rican, Other Hispanic	White, not Hispanic	Not Known	tenured/ tenure-eligible and other full-time faculty
Univ(PhD)							
Tenured men	0	7	1	1	61	1	
Tenured women	0	1	0	0	4	0	
Tenure-eligible men	0	3	0	0	6	0	**100%**
Tenure-eligible women	0	0	0	0	2	0	**6221***
Other full-time men	0	1	0	0	6	0	
Other full-time women	0	1	0	0	4	0	
Total full-time men	**0**	**11**	**1**	**2**	**73**	**1**	**100%**
Total full-time women	**0**	**1**	**0**	**0**	**10**	**0**	**6221****
Univ(MA)							
Tenured men	0	6	1	1	48	1	
Tenured women	0	1	0	0	9	0	
Tenure-eligible men	0	3	1	1	9	0	**100%**
Tenure-eligible women	0	1	0	0	4	0	**4765***
Other full-time men	0	0	1	0	6	0	
Other full-time women	0	0	1	0	7	0	
Total full-time men	**0**	**9**	**2**	**1**	**62**	**2**	**100%**
Total full-time women	**0**	**2**	**1**	**0**	**20**	**1**	**4765****
Coll(BA)							
Tenured men	0	1	0	0	52	1	
Tenured women	0	0	2	0	12	0	
Tenure-eligible men	0	1	0	0	14	0	**100%**
Tenure-eligible women	0	0	0	0	7	0	**7262***
Other full-time men	0	0	0	0	5	0	
Other full-time women	0	0	0	0	3	0	
Total full-time men	**0**	**3**	**1**	**0**	**70**	**1**	**100%**
Total full-time women	**0**	**1**	**2**	**0**	**23**	**1**	**7262****

0 means less than half of 1%.

*Total for all 6 rows in this block.

**Total for both rows in this block.

puted from Table 3 because of rounding errors in Table 3.)

Table 6 gives the percentage of sections of all courses taught by mathematics and statistics departments by kind of instructor and by type of institution. The total number of sections for each percentage given is also included, which produces the total number of sections taught by tenured and tenure-eligible faculty by type of institution. For example, tenured and tenure-eligible faculty at Ph.D. mathematics departments taught 6,981 sections (=.45x15,513) of undergraduate mathematics courses, 608 sections (=.61x997) of undergraduate statistics courses, and 222 sections (=.81x274) of undergraduate computer science courses, for a total of 7,811 sections. According to figures obtained from the AMS-IMS-MAA Data Committee's annual report, Ph.D. mathematics departments taught 2,800 sections of graduate mathematics. Thus the total number of sections taught by tenured/tenure-eligible faculty in Ph.D. departments is 10,611. When divided by the 4,989 tenured and tenure-eligible faculty not on leave (obtained from another part of the CBMS survey), the fall 1995 semester (or term) averages 2.13 sections per tenure/tenure-eligible faculty in Ph.D. mathematics departments.

A similar analysis for M.A. departments of mathematics, using an estimate of 1,800 graduate sections from the same joint AMS-IMS-MAA committee report, gives a ratio of 3.08. For the B.A. departments of mathematics the ratio is 3.14.

These numbers can be used to give full-time equivalent (fte) estimates for the sections taught by each of the various types of instructors. In particular, it is possible to obtain an fte estimate for the part-time faculty in mathematics departments. Dividing the number of sections taught by part-time faculty in Ph.D. mathematics departments by the average sections taught by tenure/tenured-eligible

TABLE 6 Percentage of sections of undergraduate mathematics, statistics, and computer science courses taught by tenured and tenure-eligible, other full-time, part-time, and graduate teaching assistants in departments of mathematics and departments of statistics by type of school: Fall 1995.

	Percentage of sections of math courses taught by					Percentage of sections of stat courses taught by					Percentage of sections of CS courses taught by				
	Tenured/ tenure-eligible	Other full-time	Part-time	Grad TAs	**No. of Math Sections**	Tenured/ tenure-eligible	Other full-time	Part-time	Grad TAs	**No. of Stat Sections**	Tenured/ tenure-eligible	Other full-time	Part-time	Grad TAs	**No. of CS Sections**
Math Depts															
Univ (PhD)	45	11	12	31	**100% 15513**	61	3	8	28	**100% 997**	81	7	12	0	**100% 274**
Univ (MA)	54	15	20	10	**100% 14509**	79	8	10	3	**100% 1511**	67	15	17	1	**100% 1271**
Coll (BA)	70	9	21	0	**100% 20521**	82	3	16	0	**100% 2719**	73	10	17	0	**100% 3734**
Total	**58**	**11**	**18**	**12**	**100% 50543**	**77**	**4**	**13**	**6**	**100% 5227**	**72**	**11**	**17**	**0**	**100% 5279**
Stat Depts															
Univ (PhD)	Too few cases in the sample to make reliable estimates				**100% 60**	64	10	5	21	**100% 1324**	Too few cases in the sample to make reliable estimates				**100% 7**
Univ (MA)					**100% 4**	79	13	8	0	**100% 120**					**100% 44**
Total						**65**	**10**	**5**	**19**	**100% 1444**					

faculty of 2.13 obtained above gives a part-time fte number of 919 for Ph.D. mathematics departments. Using a similar division for M.A. departments of mathematics gives a part-time fte number of 1,075. For B.A. departments of mathematics the part-time fte number is 1,691. This gives a total fall 1995 part-time faculty fte number of 3,685 for all mathematics departments. Hearkening to the actual number of part-time faculty employed, 5,289, gives a conversion ratio from the actual part-time faculty number to its fte equivalent of 3,685/5,289=.697. This suggests that instead of the traditional multiplier, 1/2, used to convert part-time faculty numbers to an fte equivalent number, the proper conversion is logarithmic in nature, in that minus ln(1/2)=.693... is a more reasonable multiplier to use when converting number of part-time faculty to its fte equivalent. This calculation can be used to give fte-equivalent numbers to other full-time faculty as well.

Table 7 gives a detailed analysis of the various ways that mainstream Calculus I and II were taught in fall 1995, along with the kind of faculty who taught this course. (A calculus course is mainstream if it leads to the usual upper-division mathematical science courses. Otherwise it is classified as non-mainstream calculus.) Together with Table 8 these two tables give a rather complete view of how mainstream Calculus I and II were presented by the three different types of mathematics departments.

It should be noted that the row percentages for each separate type of department can be aggregated to obtain 100%. For example, in the first row of data in Table 7, in fall 1995 Ph.D. mathematics departments had a total enrollment of 40,500 in the mainstream Calculus I taught in the large lecture-with-recitation format, with 76% of the enrollment taught by tenure/tenure-eligible faculty, 17% by other full-time faculty, 5% by part-time faculty, and 2% by graduate teaching assistants; these percentages total 100% of the 40,500 enrollment.

Attention should be paid to the different sizes of enrollment when comparing the various percentages. To cite an example from Table 7, in Ph.D. departments of mathematics 35% of the 15,500 enrollment in regular sections of mainstream Calculus I, each with less than 30 students, were taught by graduate teaching assistants, while 22% of the 28,000 students enrolled in regular sections with 30 or more students were taught by graduate teaching assistants. Yet the actual number of such

TABLE 7 Percentage of enrollment in mainstream Calculus I and mainstream Calculus II taught by tenured/tenure-eligible, other full-time, part-time, and graduate teaching assistants in departments of mathematics by size of sections and type of school: Fall 1995. Also total enrollments (in thousands) and average section sizes.

Course	Percentage of enrollment taught by												Enrollment (thousands)			Avg. section size		
	Tenured/ tenure-eligible			Other full-time			Part-time			Graduate teaching assistants								
	Univ (PhD)	Univ (MA)	Coll (BA)	Univ (PhD)	Univ (MA)	Coll (BA)	Univ (PhD)	Univ (MA)	Coll (BA)	Univ (PhD)	Univ (MA)	Coll (BA)	Univ (PhD)	Univ (MA)	Coll (BA)	Univ (PhD)	Univ (MA)	Coll (BA)
Mainstream Calculus I																		
Large lecture with recitation	76	100	0	17	0	0	5	0	0	2	0	0	100% 40.5	100% 2	100% 0	100	84	–
Regular section <30	42	83	83	14	10	7	9	6	10	35	1	0	100% 15.5	100% 20	100% 48	24	26	23
Regular section ≥30	53	70	88	16	16	2	10	12	9	22	3	0	100% 28	100% 20	100% 18	38	35	35
Course Total	**62**	**77**	**84**	**16**	**12**	**6**	**7**	**9**	**10**	**15**	**2**	**0**	**100% 84**	**100% 42**	**100% 66**	**47**	**30**	**25**
Mainstream Calculus II																		
Large lecture with recitation	68	0	0	15	0	0	5	0	0	12	0	0	100% 18	100% 0	100% 0	84	–	–
Regular section <30	58	84	88	7	11	11	9	6	1	26	0	0	100% 10	100% 10	100% 20	25	24	18
Regular section ≥30	50	83	88	16	11	6	7	5	6	27	0	0	100% 14	100% 16	100% 5	39	35	34
Course Total	**59**	**84**	**88**	**13**	**11**	**10**	**7**	**5**	**2**	**20**	**0**	**0**	**100% 42**	**100% 16**	**100% 25**	**43**	**28**	**20**
Total Mainstream Calculus I & II	**61**	**79**	**85**	**15**	**12**	**7**	**7**	**8**	**8**	**17**	**0**	**0**	**100% 126**	**100% 58**	**100% 91**	**46**	**29**	**23**

students with graduate assistant instructors was slightly more in the larger sections, 6,160, than in the smaller classes, 5,425.

Table 8 contains comparable data from the 1990 CBMS survey, demonstrating the dramatic increase in pedagogical innovations that have been adopted since 1990. (No information was collected in the 1990 survey on use of "reform" texts.) Again, care should be taken in interpreting the percentages given in this table. As an example of this phenomenon, there were more students enrolled in smaller sections of mainstream Calculus I in B.A. departments of mathematics using a "reform" text—23% of 48,000 or about 11,000 students—than in the larger regular sections—40% of 18,000, or about 7,200 students.

From this table, as well as from other data in the 1995 CBMS report, the total number of four-year and university students in mainstream Calculus I and II and non-mainstream Calculus I using a "reform" text is 81,200 out of a total enrollment of 372,000, or about 22%. The two-year survey did not specifically ask about use of a "reform" text but did ask a somewhat related question about the number of sections which were assigned group projects. Using this as a measure of the use of a "reform" text gives an estimate for these three courses of 22,000 students out of a total enrollment of 117,000, or 19%. Thus, for fall 1995 the total collegiate enrollment using a "reform" text was 103,200 out of a total enrollment of 489,000, or 21%.

For the four-year and university mathematics and statistics departments, both the 1990 and 1995 CBMS four-year and university survey found that their total fall undergraduate enrollment in the previous fall was almost exactly half of the total of the corresponding academic-year undergraduate enrollment. (This question was not asked in the two-year college program survey either in 1990 or 1995.) The usual decline in second-semester enrollment for those departments on a two-semester calendar was exactly offset by the 23% of departments with a different academic calendar. For these departments fall enrollment usually is quite a bit less than their total academic-year enrollment. Using this doubling gives an estimate of 162,400 for the total number of students in four-year and university departments of mathematics using a "reform" text in these three courses during the academic year 1995–96.

Table 9 gives information about advising policies and practices for mathematics departments majors. (Information about advising within statistics departments is available in the CBMS report but is not reported in this article.) This was a "one-time" question, and so no comparative data is available from previous CBMS reports. It should be

TABLE 8 Percentage of enrollment in mainstream Calculus I and mainstream Calculus II taught using various reform methods in departments of mathematics by size of sections and type of school: Fall 1995. Also total enrollments (thousands) and average section sizes.

Course	Percentage of enrollment															Enrollment (thousands)			Avg. section size		
	Taught from a "reform" text*			Using graphing calculators			Having writing assignments			Having required computer assignments			Having assigned group projects								
	Univ (PhD)	Univ (MA)	Coll (BA)	Univ (PhD)	Univ (MA)	Coll (BA)	Univ (PhD)	Univ (MA)	Coll (BA)	Univ (PhD)	Univ (MA)	Coll (BA)	Univ (PhD)	Univ (MA)	Coll (BA)	Univ (PhD)	Univ (MA)	Coll (BA)	Univ (PhD)	Univ (MA)	Coll (BA)
Mainstream Calculus I																					
Large lecture with recitation	30	20	0	25	20	0	23	20	0	18	20	0	28	20	0	40.5	2	0	100	84	–
Regular section <30	44	39	23	60	52	29	37	16	19	17	23	13	25	21	23	15.5	20	48	24	26	23
Regular section ≥30	13	24	44	30	37	63	8	14	45	8	19	38	9	10	40	28	20	18	38	35	35
Course Total	**27**	**31**	**29**	**33**	**44**	**39**	**21**	**16**	**27**	**15**	**21**	**20**	**21**	**16**	**28**	**84**	**42**	**66**	**47**	**30**	**25**
1990 percent. of sections	na	na	na	3	3	2	2	2	21	5	8	14	1	2	5						
Mainstream Calculus II																					
Large lecture with recitation	15	0	0	18	0	0	14	0	0	18	0	0	21	0	0	18	0	0	84	–	–
Regular section <30	18	22	25	30	33	36	20	16	46	14	19	21	7	14	34	10	10	20	25	24	18
Regular section ≥30	18	18	8	37	31	12	12	4	25	11	18	17	12	10	20	14	16	5	39	35	34
Course Total	**17**	**20**	**22**	**27**	**32**	**32**	**17**	**11**	**42**	**15**	**18**	**20**	**15**	**12**	**31**	**42**	**16**	**25**	**43**	**28**	**20**
1990 percent. of sections	na	na	na	3	1	2	2	1	23	3	7	10	1	1	3						
Total Mainstream Calculus I & II	**24**	**28**	**27**	**31**	**41**	**37**	**20**	**15**	**31**	**15**	**20**	**20**	**19**	**15**	**29**	**126**	**58**	**91**	**46**	**29**	**23**

*The primary text (or set of notes, etc.) generally reflects the pedagogical principles of the reform calculus movement.

noted that while the percentage of tenured and tenure-eligible faculty in Ph.D. mathematics departments assigned to advise departmental majors is substantially lower than the comparable percentage for the other two types of mathematics departments, faculty in Ph.D. departments have substantial graduate advising which is not included in this survey.

At some institutions students do not declare an official major until sometime in their second year. The survey did ask for information on advising practices and policies for all departmental majors whether intended or declared.

TABLE 9 Percentage of departments of mathematics assigning departmental advisors by level of departmental majors, frequency of meetings, and type of school. Also percentage of tenured and tenure-eligible faculty assigned to advise departmental majors: Fall 1995.

Departments	Univ (PhD)	Univ (MA)	Coll (BA)
	Percentage of departments where	Percentage of departments where	Percentage of departments where
Departmental majors are assigned a departmental advisor each year	67	75	53
Departmental majors are assigned a departmental advisor in their 1st and 2nd years only	5	5	8
Departmental majors are assigned a departmental advisor in their 3rd and 4th years only	16	11	35
Other methods are used to advise departmental majors	12	9	5
Number of Departments	**100% 169**	**100% 242**	**100% 985**
Meetings with departmental advisor:			
No meetings are required	36	45	45
There is at least one required	49	48	48
There is at least one required meeting in students' 3rd and 4th years only	16	8	8
Number of Departments	**100% 169**	**100% 242**	**100% 985**
Number of tenured and tenure-eligible faculty	5463	4032	6613
Percentage of tenured and tenure-eligible faculty assigned to advise undergraduate departmental majors in fall 1995	27	67	68