

Four years after graduation The class of 1993

by Tiffany T. Stringer

our years after earning their bachelor's degrees, members of the class of 1993 were more settled in the labor force than they were 1 year after graduation. By 1997, a larger proportion was employed full time and had jobs requiring a bachelor's degree, fewer were enrolled full time in graduate school, and most had earned at least one-third more than they had in 1994.

These findings are results from 1994 and 1997 surveys of the college graduating class of 1993. Conducted by the U.S. Department of Education's National Center for Education Statistics, the latest survey is the second in a series of followup studies planned for the class of 1993. The 1997 survey also examines in more detail the class of 1993's continuing enrollment status. Class of 1993 graduates will continue to be surveyed over a 12-year period to provide information on academic enrollment, degree completion, employment, and the correlation between academic performance and success in the job market.

U.S. colleges and universities awarded nearly 1.2 million bachelor's degrees in 1993. This article describes the April 1997 employment status, postbaccalaureate education status, effects of academic performance, and earnings of those graduates. Some comparisons also are made between results from the 1994 and 1997 surveys.

The Bureau of Labor Statistics (BLS) has analyzed these data for the graduates as a whole and for each of the following 11 major fields of undergraduate study and 9 fields of graduate study:

Undergraduate fields

- ◆ Biological sciences
- ♦ Business and management
- ◆ Education
- ◆ Engineering
- ◆ Health professions
- **♦** History
- **♦** Humanities
- ◆ Mathematics, computer sciences, and physical sciences
- ◆ Psychology
- ◆ Public affairs and social services
- ◆ Social sciences

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Graduate fields

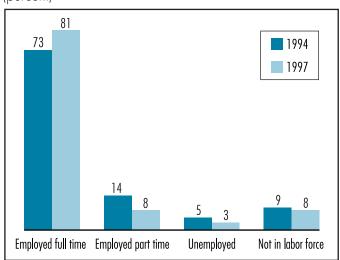
- ◆ Arts and humanities
- ◆ Business and management
- ◆ Education
- Engineering, mathematics, and computer science
- ◆ Law
- ◆ Life and physical sciences
- Medicine and dentistry
- ◆ Other health sciences
- ◆ Social and behavioral sciences

Employment status

Four years after graduation, the class of 1993's labor force participataion rate—the proportion of those graduates employed full or part time or seeking work—was 92 percent, nearly identical to its rate 1 year after graduation. However, a higher proportion was employed full time, and lower proportions were employed part time and unemployed 4 years after graduation. (See chart 1.)

Labor force participation varied by field. Graduates who majored in professional fields-business and management, education, engineering, health professions, and public affairs

Class of 1993 labor force status, 1994 and 1997 (percent)



Note: Percents may not sum to 100 because of rounding.

and social services-found entry-level work related to their major more readily than did graduates in arts and sciences fields—biological sciences; history; humanities; mathematics, computer sciences, and physical sciences; psychology; and social sciences. Entry-level jobs in a number of arts and sciences fields require at least a master's degree. As a result, graduates with a bachelor's degree in professional fields had a higher labor force participation rate (94 percent) than did those with a degree in arts and sciences (87 percent).

Employment rates for the class of 1993 were high overall, but they varied by major. In the professional fields, 93 percent were employed; in arts and sciences, 83 percent. Table 1 shows the breakdown in employment status by major. Engineering majors had the highest full-time employment rate (92 percent) and lowest unemployment rate (1 percent) of graduates in all majors surveyed. Biological sciences majors, conversely, had the lowest full-time employment rate (57 percent) and the highest proportions of graduates unemployed (5 percent) and not in the labor force (28 percent). Less than 3 percent of engineering graduates worked part time, compared to 14 percent of humanities graduates.

Class of 1993 graduates were asked whether they felt their jobs required a degree, were related to their major, and had career potential. (See table 2.) Responses to these questions show a change in graduates' attitudes toward their jobs between 1 and 4 years after earning their degree. Sixty-two percent overall were in jobs in 1997 that they felt required a bachelor's degree, compared to 56 percent in 1994. In 1997, more than half of all graduates felt that their jobs were related to their major and had career potential; 3 years earlier, however, roughly three-fourths felt that way about their jobs. In both survey years, graduates who majored in professional fields responded more positively to these questions than did arts and sciences graduates. Between 1994 and 1997, however, the change in attitudes toward their jobs was more positive for arts and sciences majors.

Postbaccalaureate education status

Twenty-two percent of all class of 1993 graduates were enrolled full time in postbaccalaureate education 4 years after receiving their bachelor's degree. As chart 2 shows, enrollment levels differed among graduates of professional fields and of arts and sciences fields both 1 and 4 years after graduation. In 1997, about 5 percent of graduates who had majored in professional fields were enrolled full time, while the proportion for arts and sciences graduates was more than triple that (17 percent)—a larger disparity than the 9 percent of professional fields graduates and 18 percent of arts and sciences graduates enrolled full time in 1994.

Chart 2 Class of 1993 full-time enrollment in postbaccalaureate education, by undergraduate major, 1994 and 1997 (percent)

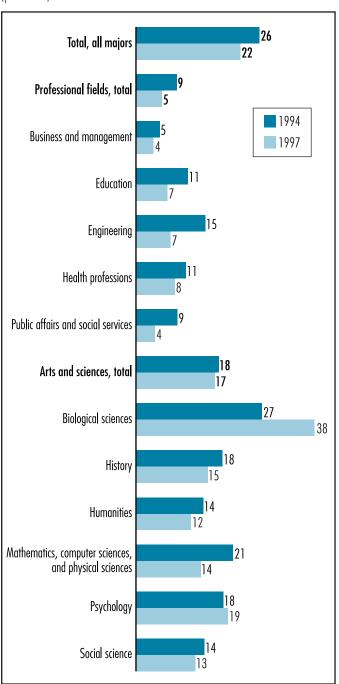




Table 1 Class of 1993 employment status, by undergraduate major, 1997

(percent)			Not working		
	Wor			Not in	
	Full time	Part time	Unemployed	labor force	
All graduates	81	8	3	8	
Professional fields	85	8	2	6	
Business and management	89	4	2	5	
Education	81	10	2	7	
Engineering	92	3	1	5	
Health professions	77	13	3	8	
Public affairs and social services	85	8	2	5	
Arts and sciences	73	10	4	13	
Biological sciences	57	10	5	28	
History	78	7	4	11	
Humanities	71	14	4	11	
Mathematics, computer sciences,					
and physical sciences	81	8	2	10	
Psychology	72	11	4	13	
Social sciences	80	9	3	9	

Table 2 Current job's relationship to major, degree requirement, and career potential, class of 1993, by undergraduate major, 1994 and 1997

(percent)

Attributes of current job

		71111100		o 1015		
	Bachelor's deç	elor's degree required		to major	Career potent	
	1994	1997	1994	1997	1994	1997
All graduates	56	62	75	55	72	55
Professional fields	64	68	83	65	76	55
Business and management	51	57	85	57	77	60
Education	66	69	79	67	75	50
Engineering	79	79	87	60	82	64
Health professions	73	80	91	82	80	55
Public affairs and social service	ces 49	55	72	58	68	47
Arts and sciences	49	60	60	45	64	51
Biological sciences	49	63	64	51	57	45
History	41	57	42	34	67	52
Humanities	45	50	58	40	66	50
Mathematics, computer science	ces,					
and physical sciences	68	71	82	63	75	62
Psychology	45	64	57	48	53	48
Social sciences	47	57	57	33	68	53

Many arts and sciences graduates had been in preprofessional programs, such as prelaw and premedicine, or had planned to enter occupations for which a master's or doctoral degree is usually required.

Combining full- and part-time students, 29 percent of graduates from the class of 1993 were continuing their education. Of these, 66 percent were seeking a master's degree other than a master of business administration (MBA); 10 percent were MBA candidates; another 10 percent were enrolled in a doctoral program; and 14 percent were enrolled in a first-professional degree program. (See table 3.)

Among all class of 1993 graduates who were pursuing an advanced degree, business and management and education were the two fields most studied. (See table 4.) In a number of fields, a strong correlation existed between students' undergraduate major and their field of graduate study. The students most likely to study law were undergraduate social sciences majors (19 percent). Among graduates in this undergraduate major who were pursuing another degree, 23 percent entered social and behavioral sciences, another 23 percent went into business and management, and 15 percent went into education. Sixty-seven percent of undergraduate education majors pursued an advanced degree in education, and 54 percent of business majors enrolled in a graduate program pursued a degree in business. Health professions majors were more likely to pursue a graduate degree in health sciences (61 percent), while a smaller proportion (7 percent) continued their education in medicine or dentistry.

Table 4 also shows the postbaccalaureate education program and field of study for enrolled class of 1993 graduates. Among students pursuing a master's degree other than an MBA, 31 percent were seeking a degree in education. Twenty-three percent of doctoral degree students were studying life and physical sciences; 19 percent were enrolled in social and behavioral sciences; and 10 percent or more were in each of several fields: arts and humanities; engineering, mathematics, and computer science; health sciences; and medicine or dentistry. Of students enrolled in a first-professional degree program, more than half (54) percent) were studying law, and nearly one-third (28 percent) were studying medicine or dentistry.

Among graduates who continued their education, 49 percent enrolled within 1 year of earning their bachelor's degree; an additional 23 percent enrolled within 2 years. MBA students were least likely to enroll within 1 year (28 percent). Over onethird of MBA candidates enrolled more than 3 years after graduation, reflecting the work experience required for admission to many business schools. However, enrollment within 1 year of

Table 3 Class of 1993 postbaccalaureate education enrollment, by undergraduate

(percent)		Enrollment status
	Total enrolled	Not enrolled
All graduates	29	52
Biological sciences	53	24
Business and management	16	69
Education	36	39
Engineering	34	53
Health professions	26	57
History	40	37
Humanities	31	50
Mathematics, computer sciences,		
and physical sciences	39	44
Psychology	42	39
Public affairs and social services	25	55
Social sciences	36	44
Other	24	58
Note: Percents may not sum to 100 becau	se of rounding.	

Table 4 Class of 1993 postbaccalaureate field of study, by undergraduate major and

(percent)				Postbaccalaureate
	Arts and humanities	Business and management	Education	Engineering, mathematics, and computer science
All enrolled graduates	8	17	23	9
Undergraduate major				
Biological sciences	<1	4	8	3
Business and management	t 4	54	11	5
Education	9	4	67	1
Engineering	1	21	2	63
Health professions	3	5	7	3
History	10	21	25	<1
Humanities	37	9	19	2
Mathematics, computer sciences,				
and physical sciences	3	10	10	36
Psychology	7	7	32	2
Public affairs and social services	3	25	9	2
Social sciences	5	23	15	2
Other	8	13	23	9
Graduate degree program	m			
Master's other than MBA	10	12	31	10
MBA	<1	92	1	1
First professional	2	<1	2	1
Doctoral degree	10	3	6	12

Note: Percents may not sum to 100 because of rounding.



major, 1997

Degree program of those enrolled

	Master's other	1484	First	Doctoral
Unknown	than MBA	MBA	professional	degree
19	66	10	14	10
24	29	1	41	28
14	54	36	9	1
25	88	3	4	4
14	68	16	4	11
16	80	4	11	6
23	70	2	21	7
20	73	6	13	9
17	55	6	12	26
19	76	2	11	11
21	85	6	9	<1
20	52	14	23	10
19	69	6	18	6

graduate degree program, 1997

field of study

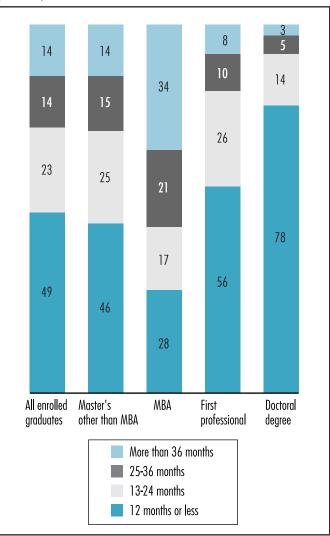
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Health sciences	Law	Life and physical sciences	Medicine and dentistry	Social and behavioral sciences	All others
11	7	5	4	9	7
27	2	20	32	4	1
7	7	1	<1	2	10
4	2	2	<1	5	5
1	2	4	2	1	3
61	1	3	7	2	8
5	14	1	3	17	6
8	7	2	3	8	6
4	3	22	4	4	5
11	4	3	2	28	6
5	7	<1	1	27	22
5	19	2	2	23	6
10	11	4	2	8	12
12	<1	5	<1	12	6
2	<1	<1	<1	2	2
9	54	1	28	<1	1
10	6	23	11	19	3

graduation was more likely for doctoral students (78 percent), first-professional degree students (56 percent), and those pursuing a master's degree other than an MBA (46 percent). (See chart 3.)

Other class of 1993 graduates who were not enrolled 4 years after earning their bachelor's degree still planned to continue their education later. Many graduates, for example, said they would delay additional study to gain work experience before

Chart 3

Class of 1993 enrollment in postbaccalaureate education program, by time between graduation and enrollment, 1997 (percent)



returning to school. The following tabulation shows the proportion of graduates with educational aspirations both 1 and 4 years after graduation:

Educational plans	1994	1997
None	16	14
Postbaccalaureate certificate	1	2
Pursue degree		
Master's	59	52
Doctoral	17	15
First professional	6	6
Other	1	11

Academic performance

Graduates' employment and enrollment status are also related to academic performance. (See table 5.) In both 1994 and 1997, graduates with the highest GPA had a slightly lower unemployment rate and were more likely to hold jobs related to their major. Additionally, graduates with a grade point average (GPA) of 3.5 or higher were more than twice as likely as those with a GPA of less than 3.0 to be enrolled full time in postbaccalaureate education and, as a result, twice as likely to be out of the labor force.

Earnings

Earnings varied by major and occupation. In both 1994 and 1997, graduates who majored in engineering and health professions had the highest average salaries of all graduates, while education and psychology graduates were the lowest earners. (See table 6.) Social sciences had the greatest percent increase in earnings (48 percent) among all fields of study between 1 and 4 years after graduation; biological sciences had the smallest percent change (17 percent).

Chart 4 reveals similar results from the 1997 survey for the occupations associated with those fields. The highest paid workers had jobs in engineering, computer science, and sales. The lowest earners were noncomputer technicians; mechanics, operators, and laborers; and teachers.

Limitations of the data

The information in this article should be helpful to individuals selecting an undergraduate major because it indicates the range of job possibilities for graduates with a degree in the fields discussed. However, the reader should be aware that the data are affected by the size of the sample, the time at which the survey was taken, and the qualifications of candidates other than their academic major-for example, minor fields of study, other courses, extracurricular activities, work experience, quality of the school, and personality traits.

The survey also combined fields of study into broad categories, as it did with occupations. The specific majors and occupations of respondents varied considerably. Salaries also varied within each major and occupation. The averages compiled in this study do not show the range of salaries respondents received. Each of the respondents had been surveyed immediately after graduation and again during the first followup survey 1 year after graduation.

The results of the survey are based on a nationally representative sample of 11,190 college graduates who received bachelor's degrees between July 1992 and June 1993. Data were collected by means of a Computer Assisted Telephone Interview (CATI) survey, as well as field interviewing when necessary, between April and July 1997. This sample represents about 1 percent of all 1993 bachelor's degree recipients during the same period. The results of a survey covering all graduates might differ.

Class of 1993 employment, career potential, and postbaccalaureate education status, by grade point average, 1997 (percent)

1		Employment status				tential	Postbaccalaureate education status		
Cumulative GPA	Wor	rking	ng Not working		Definite/ possible	Job related to			Not
Comounive of A	Full time	Part time	Unemployed	Not in labor force	potential	degree	full time	part time	enrolled
3.5 or higher	75	11	2	12	78	76	12	10	79
3.0 to 3.49	81	9	2	8	80	75	9	11	80
Under 3.0	85	6	3	6	80	70	5	8	87

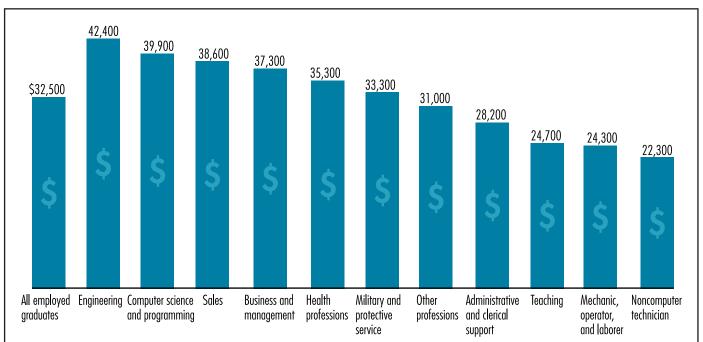
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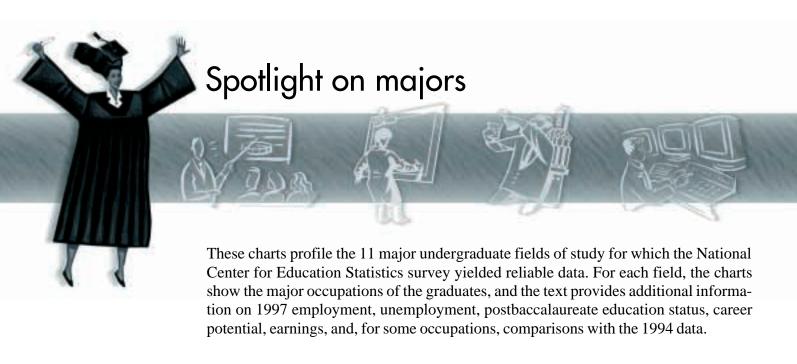


Table 6 Average salary of class of 1993 graduates employed full time, by undergraduate

major, 1994, 1997, and change, 199	94-97 _{Earl}	nings	Change, 1994-97		
	1994	1997	Numeric	Percent	
All graduates	\$24,200	\$32,500	\$8,300	34	
Biological sciences	22,800	26,700	3,900	17	
Business and management	27,100	36,500	9,400	35	
Education	19,300	24,900	5,600	29	
Engineering	30,900	43,800	12,900	42	
Health professions	31,300	37,300	6,000	19	
History	21,000	27,000	6,000	29	
Humanities	21,300	28,100	6,800	32	
Mathematics, computer sciences,					
and physical sciences	25,400	36,400	11,000	43	
Psychology	19,500	26,300	6,800	35	
Public affairs and social services	22,000	29,900	7,900	36	
Social sciences	22,100	32,800	10,700	48	

Chart 4 Average salary of class of 1993 graduates employed full time, by type of occupation, 1997





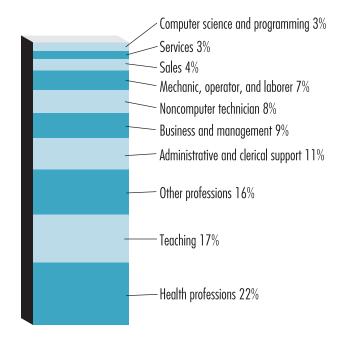
Biological sciences

The biological sciences include majors in zoology, botany, biochemistry, and biophysics. This field had the lowest percentage of graduates employed 4 years after graduation (67 percent). Of those employed, 57 percent worked full time and 10 percent worked part time. Four years after graduation, almost 5 percent were unemployed—the highest proportion of all class of 1993 graduates unemployed but about half the proportion of biological science majors unemployed 1 year after graduation.

Many professional jobs in biological sciences require an advanced degree, and the 53 percent of biological sciences majors enrolled in postbaccalaureate education 4 years after graduation is the largest proportion of any field surveyed. For biological sciences majors, full-time enrollment in postbaccalaureate education grew from 27 percent to 38 percent between 1994 and 1997. Biological sciences is one of only two fields that had increases over this period and the only field studied in which enrollment increased significantly.

Sixty-three percent reported a bachelor's degree was required for their job, 51 percent reported their jobs were related to biological sciences, and 45 percent said their jobs had career potential, the lowest proportion of any field surveyed. With respect to occupation, the largest proportion of biological sciences graduates held jobs in health professions (22 percent), teaching (17 percent), and other professions (16 percent),

including scientists. Other bachelor's degree holders worked as health technicians. Biological sciences majors employed full time 4 years after graduation averaged \$26,700 a year, compared with the \$22,800 they averaged 1 year after. That 17-percent increase in earnings is the smallest change for all fields surveyed.

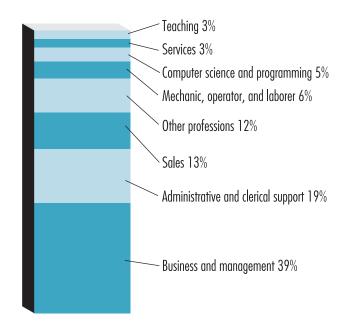




Business and management

Ninety-three percent of business and management graduates were employed 4 years after graduation; 89 percent were employed full time, 4 percent part time. Two percent of business and management majors were unemployed. The 16 percent enrolled in postbaccalaureate education—4 percent full time—was the lowest proportion for all fields surveyed. Fifty-seven percent of graduates said that a bachelor's degree was required for their job, 57 percent also reported holding jobs that were related to business and management, and 60 percent said their jobs had career potential.

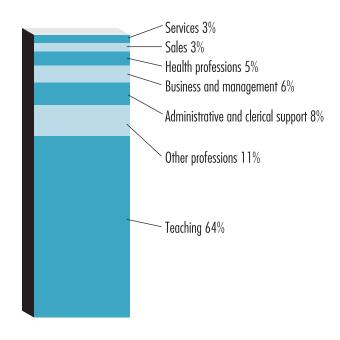
Nearly 4 out of 10 (39 percent) graduates were working in business and management occupations; 19 percent worked in administrative and clerical support; and another 13 percent worked in sales. Business and management majors working full time averaged \$36,500 a year.



Education

Graduates in education had a relatively high employment rate (91 percent) 4 years after graduation, with 81 percent employed full time and 10 percent employed part time; 2 percent were unemployed. Many States require a master's degree for teaching certification. Consequently, about 36 percent of education graduates were enrolled in postbaccalaureate education 4 years after graduation.

Sixty-nine percent of graduates said a bachelor's degree was required for their job, 67 percent reported being in jobs related to education, and 50 percent said their jobs had career potential. Nearly 2 out of 3 education graduates (64 percent) were employed as teachers, some in substitute teaching jobs. The average annual salary of education majors employed full time was \$24,900, the lowest salary of all fields studied; however, most full-time teachers work a 10-month year.



Engineering

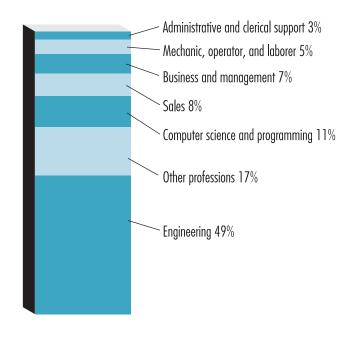
The engineering field had the highest proportion of graduates employed 4 years after graduation (95 percent). Ninety-two percent were employed full time and 3 percent were employed part time. These graduates had the lowest proportion unemployed of all fields (1) percent). Thirty-four percent were enrolled in postbaccalaureate education 4 years after graduation. Only 7 percent were enrolled full time 4 years after graduation, fewer than half the 15 percent enrolled full time just 1 year after.

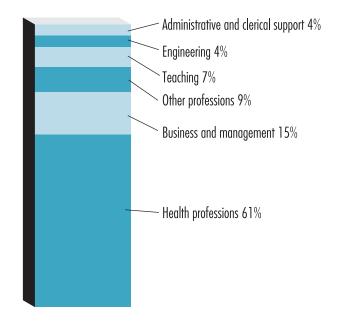
Seventy-nine percent said a bachelor's degree was required for their job, and 60 percent reported their jobs were related to their major. The 64 percent who said their jobs had career potential was still the highest proportion among all graduates, though down significantly from the 82 percent responding positively in 1997. Nearly half of engineering graduates (49 percent) were employed in engineering jobs. Other graduates worked in computer science and programming (11 percent) and sales (8 percent). Engineering graduates employed full time earned \$43,800, the highest salary of all fields studied.

Health professions

Health professions include audiology, dentistry, medicine, nursing, health or hospital administration, and dietetics. Also included are allied health fields-such as dental or medical technician, community or mental health, and nurse assisting—and physical education or recreation. Ninety percent of health professions graduates were employed 4 years after graduation, 77 percent full time and 13 percent part time; 61 percent of those working were employed in health professions. Three percent were unemployed. Twenty-six percent of graduates were enrolled in postbaccalaureate education.

Eighty percent of health professions graduates said a bachelor's degree was required for their job, the highest proportion among all fields studied; 82 percent reported their jobs were related to their major, still the highest proportion of all fields studied; and 55 percent said their jobs had career potential. Health professions graduates working full time in 1997 averaged \$37,300, the second highest of all fields, but posted the second lowest percent change in earnings compared to 1 year after graduation.



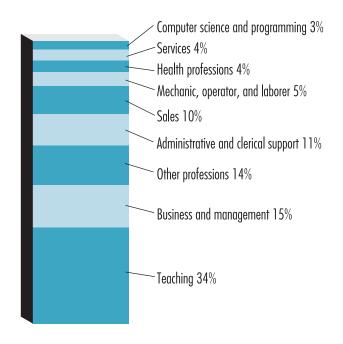




History

Eighty-five percent of all history graduates were employed 4 years after graduation, 78 percent of them full time and 7 percent part time. Four percent of these graduates were unemployed. Forty percent of history graduates were enrolled in postbaccalaureate education after graduation. An advanced degree is usually required to work in this field.

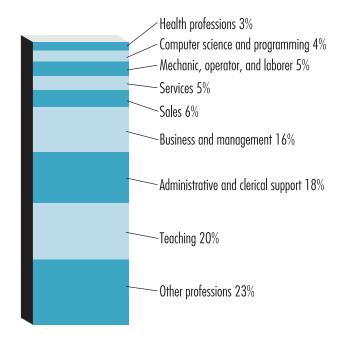
More than half (57 percent) of history graduates reported that a bachelor's degree was required for their job; 34 percent of graduates reported having a job related to history, the second lowest proportion of all fields; and 52 percent reported their jobs had career potential. Jobs of history graduates were widely distributed. Thirty-four percent were employed as teachers. History graduates working full time earned \$27,000 a year.



Humanities

The humanities field includes letters, philosophy, theology, foreign languages, and the arts. Eighty-five percent of humanities majors were employed 4 years after graduation; 71 percent worked full time and 14 percent part time, the highest proportion of part-time workers among all graduates. Four percent were unemployed. Almost one-third (31 percent) of humanities graduates were enrolled in postbaccalaureate education 4 years after graduation.

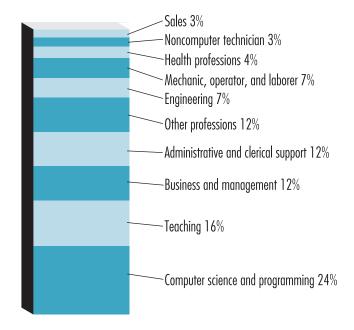
Fifty percent reported a bachelor's degree was required for their job, the lowest proportion for all fields studied; 40 percent said they worked in jobs related to their major field; and 50 percent said their jobs had career potential. Jobs for humanities majors were widely dispersed. Most graduates were employed in teaching (20 percent), administrative and clerical support (18 percent), and business and management (16 percent), as well as in other professions (23 percent). The average salary of humanities graduates working full time was \$28,100.



Mathematics, computer sciences, and physical sciences

A large proportion (89 percent) of mathematics, computer sciences, and physical sciences graduates was employed 4 years after graduation, 81 percent of them full time and 8 percent part time. The proportion unemployed was 2 percent. Thirty-nine percent of mathematics, computer sciences, and physical sciences majors were enrolled in postbaccalaureate education 4 years after graduation. Of these, 26 percent were pursuing a doctoral degree, a concentration second only to biological sciences majors.

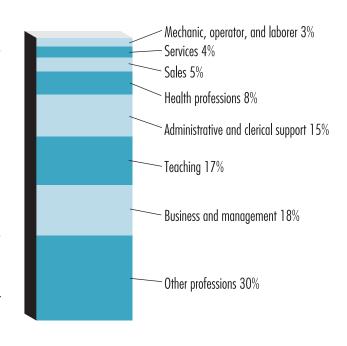
Seventy-one percent of graduates said a bachelor's degree was required for their job, 63 percent reported that their jobs were related to their major, and 62 percent said their jobs had career potential, second only to engineering graduates in that category. Graduates worked in a wide range of occupations. The largest group, nearly a quarter (24 percent), was employed in computer sciences and programming occupations. Across all occupations, the average salary of these graduates working full time was \$36,400 in 1997. This 43-percent change from the \$25,400 they averaged in 1994 is the second largest increase of all fields surveyed.



Psychology

Among psychology majors, 83 percent were employed 4 years after graduation, with 72 percent working full time and 11 percent working part time; 4 percent were unemployed. As expected, psychology had a high rate of graduate school enrollment (42 percent) because a graduate degree is required for most jobs in this field.

Sixty-four percent said a bachelor's degree was required for their job; 48 percent said their jobs were related to psychology, and 48 percent also said their jobs had career potential. Jobs in business and management (18 percent) and teaching (17 percent) accounted for more than 1 out of 3 graduates, and jobs in other professions accounted for nearly one-third more (30 percent). The average salary of psychology graduates working full time was \$26,300, the second lowest of all fields studied.

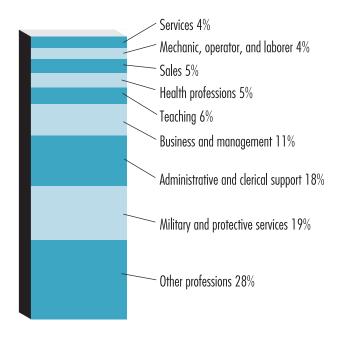




Public affairs and social services

The public affairs and social services field includes protective services, social work, and public administration. About 93 percent of graduates were employed 4 years after graduation, 85 percent full time and 8 percent part time. Two percent were unemployed. Twenty-five percent of graduates were enrolled in postbaccalaureate education 4 years after graduation.

Fifty-five percent reported a bachelor's degree was required for their job, 58 percent reported their jobs were related to their major, and 47 percent said their jobs had career potential, the second lowest proportion of all fields studied. Graduates were fairly widely dispersed by occupation. The largest concentrations were in military and protective services (19 percent), administrative support (18 percent), and business and management (11 percent), with workers in other professions accounting for more than one-fourth (28 percent). Public affairs and social services graduates working full time averaged \$29,900 a year.



Social sciences

The social sciences field includes anthropology, archaeology, economics, geography, sociology, political science, and international relations. About 89 percent of graduates were employed 4 years after graduation, 80 percent full time and 9 percent part time; 3 percent were unemployed. About 36 percent were enrolled in postbaccalaureate education 4 years after graduation.

Fifty-seven percent of social science graduates said a bachelor's degree was required for their job; 33 percent reported that their jobs were related to their major, the lowest proportion of all fields studied; and 53 percent said their jobs had career potential. About onefourth (24 percent) of these graduates held jobs in business and management. The average annual salary of social science majors working full time was \$32,800 4 years after graduation, compared with \$22,100 1 year after graduation—a 48-percent increase, the largest of all fields surveyed.

