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ABSTRACT

This report presents data on the occupational and educational experiences of graduates approximately 1 year following graduation based on a nationally representative sample of 16,172 bachelor's degree recipients during the during the 1989-90 academic year. The report is divided into two sections. The first section presents an overview of principal occupational and educational outcomes, and the second section focuses on outcomes for specific major fields of study. Among the study's highlights are the following: (1) 84 percent of the graduates were employed, the rest being unemployed or not in the labor market due to school or other reasons; (2) employment rates were higher among graduates in the professional fields; (3) the unemployment rate at 4.5 percent for graduates was 2 percent less than the general labor force as of April 1991; (4) one-third of the graduates reenrolled for further education within 1 year of graduation; (5) mean annual salaries for full-time employees were higher among professional field majors than among arts and sciences majors; and (6) among graduates employed full time, the mean salary for women was 87 percent of the mean salary for men. Appendices provide detailed tables with standard errors, study technical notes, and definitions. (GLR)

NATIONAL CENTER FOR EDUCATION STATISTICS



Statistical Analysis Report April 1993

# Occupational and Educational Outcomes of Recent College Graduates 1 Year After Graduation: 1991

Contractor Report





U.S. Department of Education
Office of Educational Research and Improvement NCES 93-162

NATIONAL CENTER FOR EDUCATION STATISTICS

Statistical Analysis Report April 1993

# Occupational and Educational Outcomes of Recent College Graduates 1 Year After Graduation: 1991

## Contractor Report

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April 1993

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## HIGHLIGHTS

These highlights reflect the status of 1989-90 bachelor's degree recipients 1 year after graduation, in April of 1991.

- Among the total graduates 1 year after graduation, 84 percent were employed (73.8 percent full time and 10.5 percent part time), 4 percent were unemployed, and 12 percent were not in the labor force because of school or other reasons.

- Employment rates were higher among graduates who majored in the professional fields than among arts and sciences majors (90 percent compared with 76 percent).

- Among graduates in the labor force (employed or both looking and available for work), the unemployment rate was 4.5 percent. (In April of 1991 the unemployment rate for the entire U.S. population over 16 and in the labor force was 6.5 percent.)

- Among graduates in the labor force, unemployment rates ranged from 1.0 percent for majors in the health professions to 8.2 percent for history majors.

- Over one-third (35 percent) of the graduates had enrolled in further education within 1 year of graduation. This is the highest rate of enrollment reported in the six cycles of the RCG study (conducted since 1976). Twenty-four percent had enrolled in degree programs beyond the bachelor's degree.

- Of the 16 percent of graduates not employed, 68 percent had enrolled in further education.

- The enrollment rate 1 year after graduation was higher for arts and sciences majors than for professional field majors (46 percent compared to 28 percent).

- The mean salary for full-time employed bachelor's recipients 1 year after graduation was $23,600, and the median salary was $21,000. In constant dollars, this reflects a decline of about 2.6 percent in the mean salary since the 1987 RCG study.

- Mean annual salaries for full-time employees were higher among professional field majors than among arts and sciences majors ($25,300 compared to $21,700).

- Mean full-time annual salaries were highest for majors in the health professions ($31,500) and engineering ($30,900) and lowest for majors in education and humanities ($19,100).

- Among recent graduates employed full time, the mean salary for women was 87 percent of the mean salary for men ($22,000 for women compared to $25,400 for men). Ten years earlier, in the 1981 RCG survey, women's salaries were 79 percent of men's salaries.

- Over three-fourths (76 percent) of the full- and part-time employed graduates reported having jobs related to their major field of study, and 79 percent reported that their job had some career potential.

- Many graduates were in jobs that they reported do not require a 4-year college degree. Forty-four percent of all employed graduates (full and part time) and 40 percent of those employed full time reported that a 4-year college degree was not required for their principal job.

## ACKNOWLEDGMENTS

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The survey was performed under contract with Westat, Inc. The Westat project team included Margaret Cahalan, project director; Lucinda Gray, survey manager; Mike Brick, senior statistician; Jacqueline Severynse, statistician; Peter Ha, Gail Wisan, and Steven Schweinfurth, analysis and sampling programming; Susan Hein, graphics; Sylvie Warren, word processing; Carol Litman, editor; Jacque Wernimont, Royce Gibson, and Nancy Hopper, CATI development; Karen Molloy, Telephone Research Center coodinator; and Stephanie Campbell and Dotty Pike, data preparation. The study benefited from the corporate support and encouragement of Westat vice president Lance Hodes.

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We especially acknowledge with gratitude the 400 higher education institutions that provided the information necessary to draw the sample of graduates and the 14,000 graduates who took time to respond to the survey and to provide the information upon which this report is based.

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# Introduction

The number of bachelor's degrees awarded by U.S. colleges and universities in 1990 rose for the thirteenth straight year, to a record total of 1,049,657.[1] About 53 percent of bachelor's degrees were awarded to women and 47 percent to men. Degrees for women increased by 9.7 percent between 1986 (the year of the last RCG study) and 1990. In 1990, over one-third of bachelor's degrees were awarded to those over 25 years of age.

Traditionally in the United States a baccalaureate degree has been viewed as a prerequisite for professional and management jobs, higher than average paying jobs, high career potential, and lower risk of unemployment in times of recession. The Recent College Graduate (RCG) series is designed to explore this perspective, and to provide information on the occupational and educational experiences of graduates approximately 1 year after graduation. Specifically, the following questions were addressed by the study:

- What was the employment status of recent graduates?
- What was the unemployment rate of college graduates 1 year after graduation?
- To what extent were graduates enrolled in further education and what were their educational aspirations?
- What were graduates' comparative average annual salaries?
- To what extent were graduates in jobs related to their major fields of study?
- What did graduates see as the career potential of their jobs?
- To what extent were graduates in jobs not requiring a college degree and to what extent were they underemployed?

**Past Studies in Series.** Previous RCG studies were conducted by the National Center for Education Statistics (NCES) in 1976, 1978, 1981, 1985, and 1987. Throughout this report, selected summary statistics are given for previous years. The reader is referred to previous reports (listed in the bibliography) for detailed information on these years. Data files for further analysis are available from the National Center for Education Statistics for RCG studies conducted in the years 1976, 1978, 1981, 1985, 1987, and 1991.[2]

**Methodology.** Results are based on a nationally representative sample of 16,172 bachelor's degree recipients receiving degrees between July 1989 and June 1990.[3] The weighted response rate for bachelor's recipients was 83.6 percent.[4] Data were collected over the phone by means of a Computer Assisted Telephone Interview (CATI) survey conducted between July and December 1991. Respondents answered employment-related questions for the week of April 22, 1991, approximately 1 year after their graduation. All differences cited among the 1991 RCG data are significant at the 95 percent level of significance with pair-wise t tests using a Bonferroni adjustment to the critical value for multiple comparisons (see Appendix B for a more detailed discussion of the survey methodology).[5]

**Classifications Used in this Report.** Data are reported and discussed by gender, race/ethnicity, type of major (professional, arts and sciences, and other), and major field of study. Data are reported by age in the detailed tables in Appendix A, but are not discussed in the text.

In previous RCG reports, major fields of study have been grouped for certain analyses into three broad categories: professional fields, arts and sciences fields, and other fields. In this classification, professional fields include the disciplines of business and management, education, engineering, health professions, and public affairs/social services. Arts and sciences include the major fields of biological sciences,

math, computer sciences and physical sciences, social sciences, history, humanities, and psychology. About 51 percent of graduates are in the professional fields, 36 percent in the arts and sciences, and 12 percent in other fields[6] (appendix table A-1). Throughout this report majors are discussed in terms of this grouping and as separate major fields. For descriptions of fields included under separate major field categories, see Appendix C.

This report is divided into two main sections. The first presents an overview of principal occupational and educational outcomes. The second section focuses on outcomes for specific major fields of study.

# Principal Findings

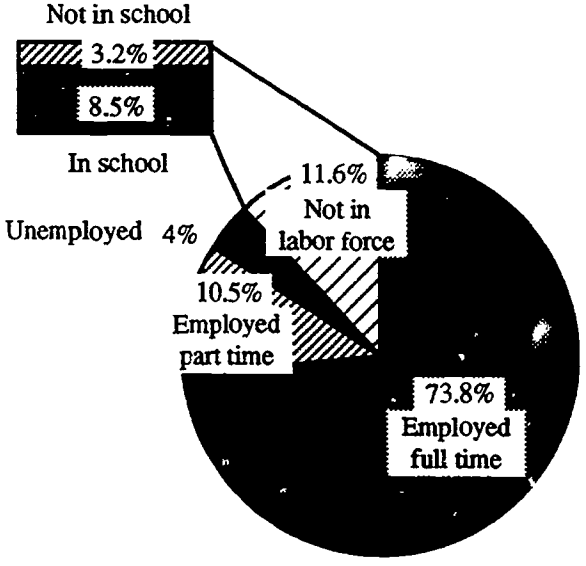
## Overview of Labor Force and Enrollment Status

Figure 1a summarizes the labor force and enrollment status of 1990 graduates 1 year after graduation. Overall, 88 percent of graduates were in the labor force (defined as either employed or unemployed) and only 12 percent were not in the labor force. Most of those not in the labor force were in school. Only 3 percent of the total were both not in the labor force and not in school (appendix table A-2a).

Overall 35 percent of graduates had enrolled in additional education since receipt of the 1989-90 degree (figure 1b). Seventeen percent of graduates had enrolled full time and 18 percent part time. Of the total graduates 24 percent had enrolled in graduate degree programs beyond the bachelor's at some time since graduation (appendix table A-5).

The next sections present detailed discussion of the 1990 graduates' employment and enrollment status by graduate characteristics and major field of study.

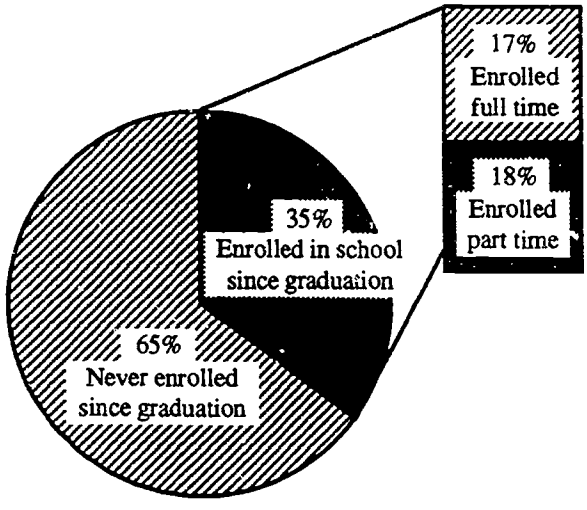
**Figure 1a. Labor force status of bachelor's degree recipients 1 year after graduation: 1991**




NOTE: Percentages may not add to 100 and details may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

**Figure 1b. Percentage of 1989-90 bachelor's degree recipients enrolling in additional education at some time since receipt of degree: 1991**




NOTE: Percentages may not add to 100 and details may not add to totals due to rounding.

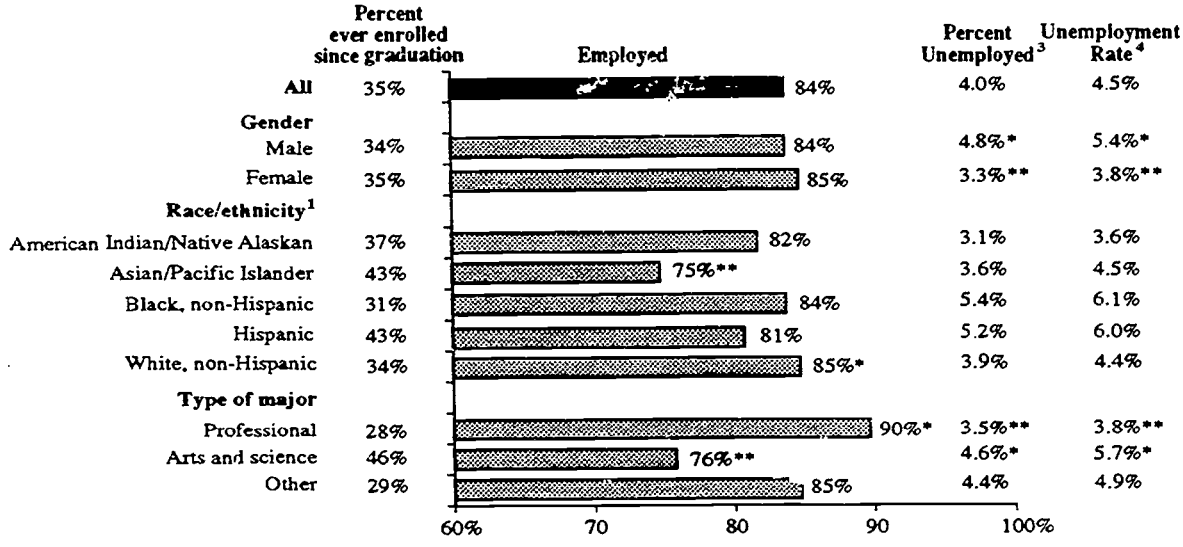
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

## Employment

One year after graduation (April 1991), 84 percent of 1989-90 college graduates were employed (74 percent full time and 11 percent part time; figure 2a and table 1). The definition of employment used in 1991 RCG excluded those whose only work was a graduate assistantship or work study. There were an additional 3 percent of total graduates who had assistantships or work study and no other work.[7] If these are considered employed, the percent employed would be 87 percent (appendix table A-14). Nationwide the employment rate for the civilian population was lower (74 percent for those aged 20 to 64, and 78 percent for those aged 25 to 29).[8]

**Employment by Gender and Race/ethnicity.** Among recent college graduates in 1991, little difference existed between the employment rates for men and women (84 percent for men and 85 percent for women; figure 2a). However, a larger percentage of women than men were employed part time (13 percent of women compared with 8 percent of men; table 2). Employment rates differ more by gender among the U.S. population as a whole than they do among recent college graduates. For the total U.S. civilian population aged 20 to 64, employment rates in April of 1991 were 74 percent for men and 66 percent for women, and for those aged 25 to 29, employment rates were 86 percent for men and 70 percent for women. Part-time employment rates for the total U.S. population aged 20 to 54 were 15 percent for women and 6 percent for men.[9]

**Figure 2a. Employment and enrollment after graduation status of 1989-90 bachelor's degree recipients, by gender, race/ethnicity, and type of major: 1991**




Results from past and current RCG

| Year | Not working, looking[2] | Percent Unemployed[3] |
|---|---|---|
| 1976 | 7% | 5.1% |
| 1978 | 6% | 4.5% |
| 1985 | NA | 3% |
| 1987 | 5% | NA |
| 1991 | 5% | 4.0% |

*Significantly higher than average for total graduates. See Appendix B for a discussion of tests of significance.
**Significantly lower than average for total graduates.
NA - not available.
[1]Nonresident aliens are included in appropriate race/ethnicity category.
[2]Includes those unemployed and those looking for work but not available for work in the reference week.
[3]Includes those both looking and available for work in the reference week as a percent of total graduates.
[4]Includes those both looking and available for work in reference week as a percent of the total graduates in the labor force.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey*, and U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, May 1991, table A-3.

## Table 1.--Mean salaries, employment status, job characteristics, and enrollment after graduation status of 1989-90 bachelor's degree recipients 1 year after graduation, by major fields of study: 1991

| Major fields of study[1] | Employed | | | | | | Not employed | | | | Ever enrolled in further education | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean annual salary of full-time employed | Full time | Part time | Job related to field of study | Some career potential of job | Four-year degree not required for job | Total looking for work | Looking and available for work (Unemployed)[3] | | Not looking for work | Total enrolled | Employed | Not employed |
| | | | | | | | | Percent[4] | Rate[5] | | | | |
| | (Dollars) | (Percent) | | | | | | | | | | | |
| All majors | $23,600 | 74% | 11% | 76% | 79% | 44% | 5% | 4.0% | 4.5% | 11% | 35% | 24% | 11% |
| Professional fields | 25,300 | 82 | 8 | 85 | 85 | 39 | 4 | 3.5 | 3.8 | 6 | 28 | 22 | 6 |
| Business/management | 24,700 | 83 | 6 | 81 | 83 | 47 | 6 | 4.9 | 5.2 | 5 | 21 | 16 | 5 |
| Education | 19,100 | 77 | 15 | 87 | 84 | 24 | 3 | 2.0 | 2.2 | 5 | 38 | 33 | 5 |
| Engineering | 30,900 | 85 | 3 | 89 | 90 | 19 | 4 | 3.1 | 3.4 | 8 | 32 | 23 | 9 |
| Health professions | 31,500 | 81 | 11 | 95 | 92 | 49 | 2 | 0.9 | 1.0 | 6 | 27 | 22 | 5 |
| Public affairs/social services | 20,800 | 77 | 11 | 71 | 71 | 52 | 5 | 4.3 | 4.6 | 7 | 35 | 28 | 7 |
| Arts and sciences fields | 21,700 | 62 | 14 | 61 | 71 | 50 | 6 | 4.6 | 5.7 | 17 | 46 | 28 | 18 |
| Biological sciences | 21,100 | 51 | 12 | 73 | 67 | 42 | 5 | 2.7 | 4.2 | 32 | 64 | 30 | 34 |
| Math, computer sciences, physical sciences | 27,200 | 71 | 8 | 86 | 85 | 33 | 5 | 4.2 | 5.1 | 15 | 40 | 24 | 16 |
| Social sciences | 22,200 | 68 | 12 | 53 | 72 | 52 | 6 | 4.2 | 4.9 | 13 | 42 | 28 | 14 |
| Humanities | 19,100 | 59 | 19 | 57 | 66 | 57 | 6 | 5.1 | 6.2 | 15 | 43 | 28 | 15 |
| Psychology | 19,200 | 60 | 14 | 65 | 69 | 53 | 8 | 5.3 | 6.7 | 18 | 50 | 31 | 20 |
| History | 21,300 | 58 | 15 | 30 | 60 | 63 | 9 | 6.5 | 8.2 | 18 | 50 | 30 | 21 |
| Other[2] | 20,800 | 74 | 11 | 74 | 78 | 51 | 5 | 4.4 | 4.9 | 10 | 29 | 21 | 9 |

[1]See Appendix C for description of majors included under each major field category.

[2]Includes agriculture and natural resources, architecture and environmental design, area studies and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.

[3]This is a subset of the "total looking." Includes graduates not employed and both looking for work and available for work.

[4]Represents percent of total graduates who are unemployed.

[5]Represents percent of graduates in the labor force who are unemployed. The labor force is the sum of those employed and unemployed.

NOTE: Data may not add to totals reported in figures due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

With the exception of Asian employment rates, only small differences exist between employment rates of recent graduates by race/ethnicity. Employment rates for Asians were significantly lower than for all graduates (75 percent compared with 84 percent; figure 2a). However, as can be seen from figure 2a, Asians also have higher than the average enrollment after graduation rates (43 percent compared with 35 percent for the total).

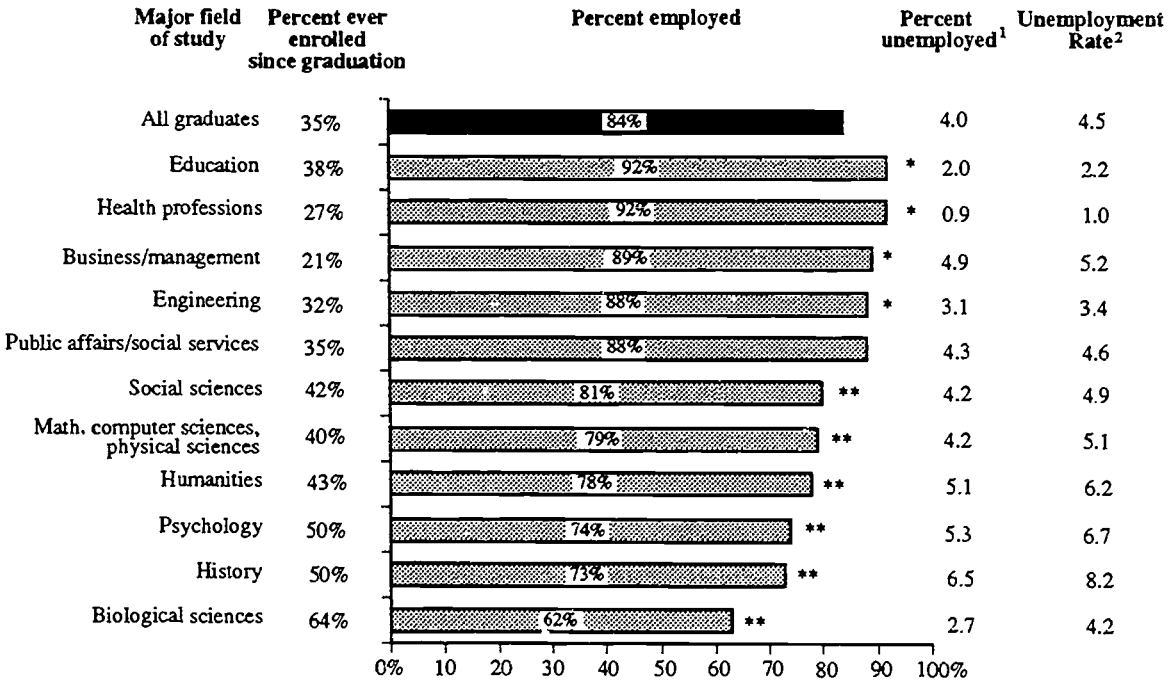
**Employment and Major Field of Study.** Employment rates are higher among those who majored in the professional fields than among those in the arts and sciences (90 percent compared with 76 percent). However, as will be discussed below, majors in the arts and sciences had higher rates of enrolling in further education since graduation (table 1 and figure 2b).

By specific major field of study, total employment rates ranged from 62 percent of the biological sciences majors, the field with the highest school enrollment after graduation, to 92 percent of education and health profession majors (figure 2b). Full-time employment ranged from 51 percent of biological sciences majors to 85 percent of engineering majors (table 1).

**Unemployment**

Unemployed as defined by the U.S. Department of Labor includes those persons who do not have jobs and are both looking and available for work in the reference weeks. This report uses the above definition for unemployed and gives two statistics with regard to unemployment: (1) the percent of the total graduates unemployed and (2) the percent of graduates in the labor force that are unemployed. (The labor force is the sum of those employed and unemployed.) This latter statistic is referred to as the unemployment rate and is

**Figure 2b. Employment and enrollment status of recent college graduates 1 year after graduation, by major field of study: 1991**




*Significantly higher than average for total graduates. See Appendix B for discussion of tests of significance.
**Significantly lower than average for total graduates.
[1]Those not employed and looking and available for work as percent of total graduates.
[2]Those not employed and looking and available for work as percent of graduates in labor force.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

comparable with other government statistics reporting unemployment rates. Tables 1 and 2 and figures 2a and 2b give both the percent unemployed and the unemployment rate. The text discussion focuses on the unemployment rates rather than percent unemployed.

Rates of unemployment in the United States for the total population aged 16 and over and in the labor force have ranged from 3.4 to 6.5 percent in the 1960's; from 4.8 to 8.3 percent in the 1970's; and from 5.2 to 9.5 percent in the 1980's.

In 1990, the unemployment rate in the United States for those aged 16 and over was 5.4 percent, but by April of 1991 the rate had risen to 6.5 percent.[10] Among the recent college graduates in April of 1991, the rate of unemployment (defined as not working and both looking for work and available for work) was lower, 4.5 percent.[11]

**Unemployment Rates by Gender and Race/ ethnicity.** Among recent graduates, rates of unemployment were higher for males than females (5.4 percent compared with 3.8 percent; table 2 and figure 2a). Among the total population in the labor force aged 16 and over in the same time period (April 1991), the unemployment rate for men was 7.0 percent and for women was 5.8 percent.[12]

Among recent graduates the unemployment rate for Asians was 4.5 percent, for blacks 6.1 percent, for Hispanics 6.0 percent, and for whites 4.4 percent (table 2 and figure 2a). (These differences were not significant.) Among the total population in the labor force aged 16 and older, the unemployment rate for blacks was 12.6 percent, for Hispanics 9.0 percent, and for white non-Hispanics 5.8 percent.[13]

**Unemployment by Major Field of Study.** By major, unemployment rates among graduates 1 year after graduation ranged from 1.0 percent for those graduating in the health professions to 8.2 percent for those graduating in history (table 1). The health professions and education had unemployment rates significantly below the average for all graduates.

**Table 2.--Mean salaries, employment status, job characteristics, and enrollment after graduation status of 1989-90 bachelor's degree recipients 1 year after graduation, by graduate characteristics: 1991**

| Graduate characteristics | Employed | | | | | | Not employed | | | | Ever enrolled in further education | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean annual salary of full-time employed | Full time | Part time | Job related to field of study | Some career potential of job | 4-year degree not required for job | Total looking for work | Looking and available for work (unemployed)[1] | | Not looking for work | Employed | Not employed |
| | | | | | | | | Percent[2] | Rate[3] | | | |
| | (Dollars) | (Percent) | | | | | | | | | | |
| All graduates | $23,600 | 74% | 11% | 76% | 79% | 44% | 5% | 4.0% | 4.5% | 11% | 24% | 11% |
| Gender | | | | | | | | | | | | |
| Male | 25,400 | 75 | 8 | 74 | 81 | 45 | 6 | 4.8 | 5.4 | 10 | 22 | 12 |
| Female | 22,000 | 72 | 13 | 77 | 78 | 43 | 4 | 3.3 | 3.8 | 11 | 25 | 10 |
| Race/ethnicity | | | | | | | | | | | | |
| American Indian/ Native Alaskan | 21,200 | 72 | 10 | 84 | 74 | 55 | 3 | 3.1 | 3.6 | 15 | 27 | 10 |
| Asian/Pacific Islander | 25,900 | 67 | 8 | 80 | 81 | 31 | 5 | 3.6 | 4.5 | 20 | 23 | 20 |
| Black, non-Hispanic | 22,600 | 75 | 10 | 75 | 76 | 49 | 6 | 5.4 | 6.1 | 9 | 22 | 9 |
| Hispanic | 23,900 | 72 | 10 | 74 | 76 | 41 | 6 | 5.2 | 6.0 | 13 | 30 | 13 |
| White, non-Hispanic | 23,600 | 74 | 11 | 76 | 80 | 44 | 5 | 3.9 | 4.4 | 10 | 24 | 10 |

[1]This is a subset of "total looking to work." Includes graduates not employed and both looking for work and available for work.
[2]Represents percent of total graduates who are unemployed.
[3]Represents percent of graduates in the labor force who are unemployed. The labor force is the sum of those employed and unemployed.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

## Enrollment in Additional Education

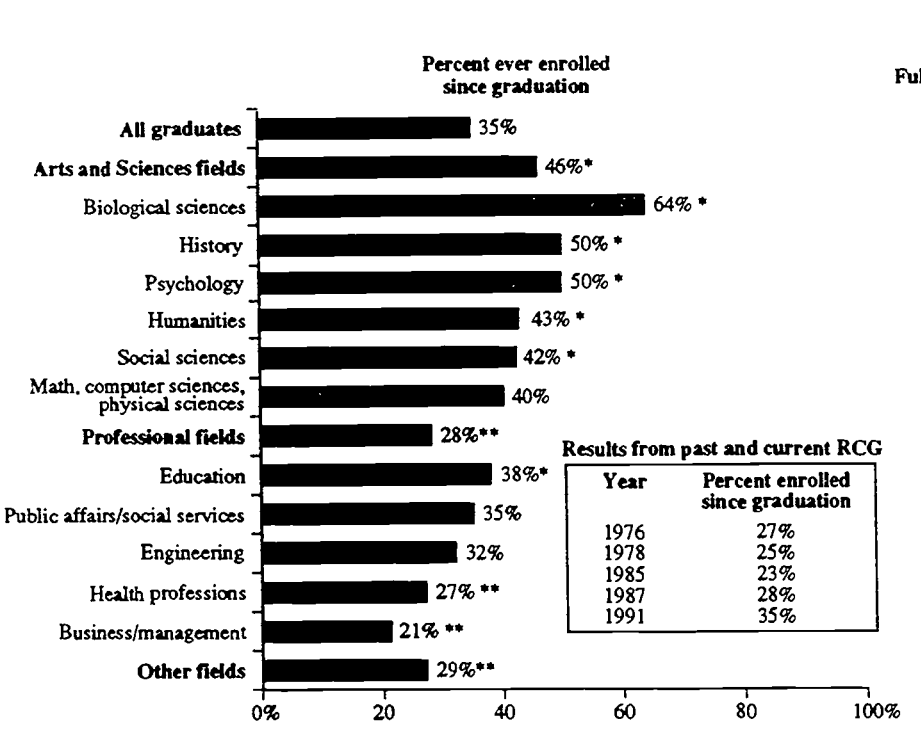
Over one-third (35 percent) of 1989-90 bachelor's graduates had enrolled in some type of additional education within 1 year of graduation (table 1 and figure 3). Most of those ever enrolled (24 percent of the total graduates) were enrolled and working. Eleven percent were enrolled and not working (table 1). In 1991, of the total graduates, 24 percent had enrolled in degree programs beyond the bachelor's (figure 3).

The percent enrolling in some type of additional education in previous RCG studies was considerably lower than the 35 percent enrolling in 1991, ranging from 23 percent in 1985 to 28 percent in 1987 (Figure 3). Some of this difference may be due to slight wording changes in the question and increased reporting of nondegree enrollment due to the CATI format of the question. The increase may also be due to difficulty in finding suitable employment. In 1991, an increase was also found in the percentage of graduates reporting that a 4-year college degree was not required for their job (see figure 10).

**Enrollment by Type of Major.** Majors in the arts and sciences had higher enrollment rates than those in the professional fields (46 percent for arts and sciences compared with 28 percent for professional fields; figure 3).

**Enrollment by Specific Major.** Enrollment rates ranged from 21 percent for business and management majors to 64 percent for those majoring in the biological sciences (figure 3). The health professions and business and management had enrollment rates below the average of all graduates (27 percent and 21

**Figure 3. Enrollment status of 1989-90 bachelor's degree recipients 1 year after graduation: 1991**



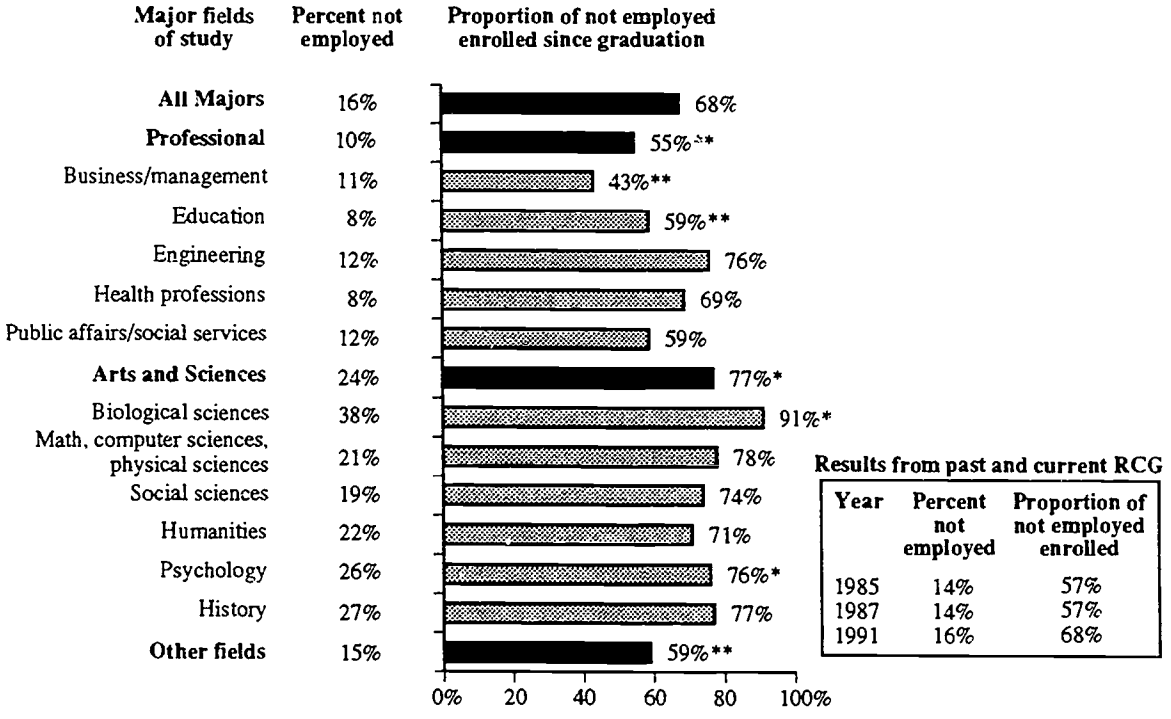

*Significantly higher than average for total graduates. See Appendix B for discussion of tests of significance.
**Significantly lower than average for total graduates.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

percent, respectively). The biological sciences, history, psychology, social sciences, and math, computer sciences, and physical sciences had enrollment rates above the average for the total graduates.

**Full-time Enrollment.** Seventeen percent of the graduates had ever enrolled in school full time since graduation (figure 3). Rates of full-time enrollment showed less and somewhat different variation by major than total enrollment, ranging from 13 percent for business and management, and for public affairs/social services, to 27 percent for education.

**Not Employed Enrollment Rates.** A question of interest concerns the extent to which those graduates who were not employed were enrolled in further education. Of the 16 percent of recent college graduates not working 1 year after graduation, over two-thirds, 68 percent, reported they had enrolled in further education since graduation (figure 4). The 1985 and 1987 RCG studies both found that 14 percent of graduates were not working and that 57 percent of those not working were enrolled. In 1991, among the 10 percent having majors in professional fields and not working, 55 percent had ever enrolled, and among the 24 percent not working in arts and sciences fields, 77 percent had ever enrolled (figure 4). By major, the proportion of graduates who were not working and had enrolled ranged from 43 percent for business and management to 91 percent for the biological sciences.

**Figure 4. Percentage of 1989-90 bachelor's degree recipients not employed and proportion of not employed enrolled since graduation: 1991**




*Significantly higher than average for total graduates. The estimate for the proportion of not employed psychology majors that are enrolled (76 percent) is significantly higher than the average for the total graduates; while the same estimate (76 percent) for engineering majors is not significantly higher than the average due to differences in the standard errors of the two estimates. See Appendix B for discussion of tests of significance and table A-4 for relevant standard errors.

**Significantly lower than average for total graduates.

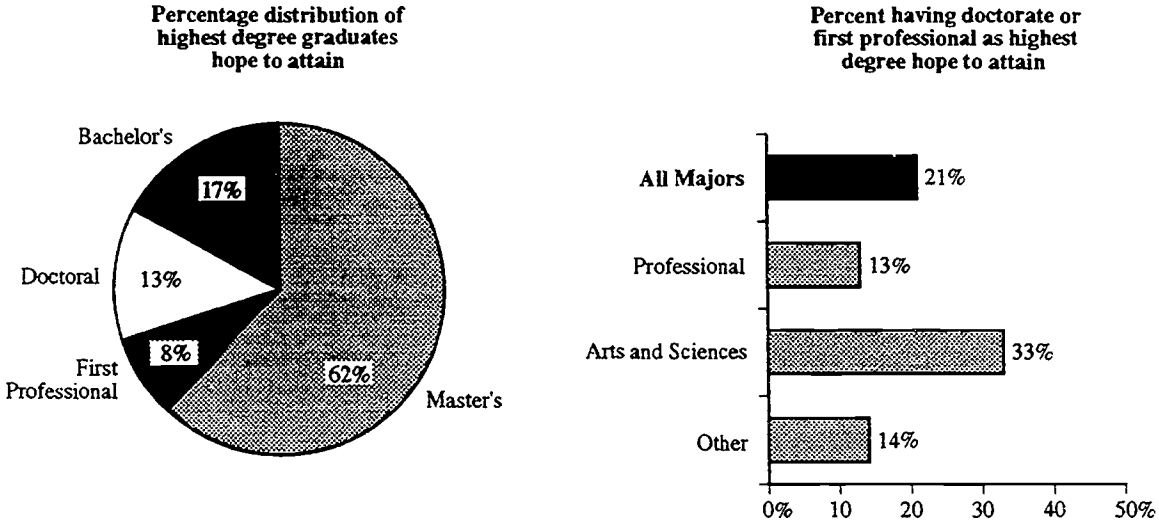
NOTE: Data in figure do not add to totals in table 1 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

**Educational Aspirations.** While just over one-third (35 percent) of graduates had ever enrolled in further education within 1 year after graduation, most recent college graduates hoped to obtain a degree beyond the bachelor's (figure 5). Only about 17 percent of recent bachelor's degree recipients indicated that a bachelor's degree was the highest degree they hoped to obtain. Almost two-thirds (62 percent) indicated that they hoped to obtain a master's degree, 13 percent a doctorate, and 8 percent a first professional degree (figure 5).

Majors in the arts and sciences had higher educational aspirations than those in the professional fields. Thirty-three percent of those in the arts and sciences fields hoped to obtain a doctorate or first professional degree compared with 13 percent in professional fields (figure 5).

**Figure 5. Educational aspirations of 1989-90 bachelor's degree recipients 1 year after graduation: 1991**




SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

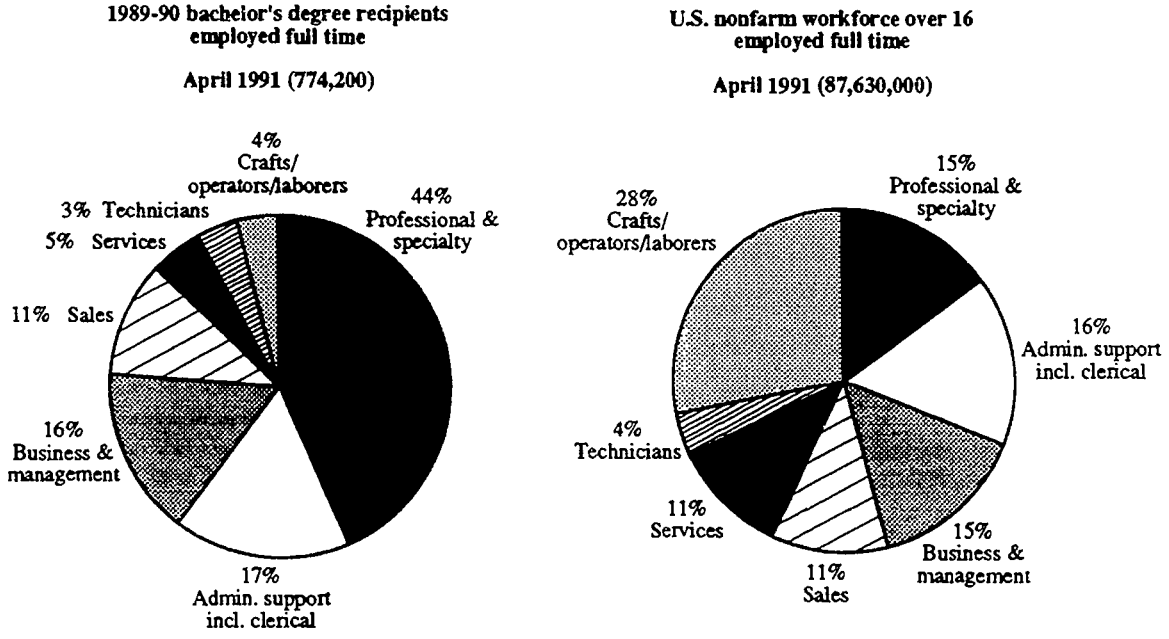
### Types of Employment of Recent College Graduates Employed Full Time

In considering the occupational outcomes of a college degree, it is useful to compare the occupations of recent graduates to the U.S. work force as a whole, by broad categories. Among the U.S. population, an estimated 88 million people were employed full time in April of 1991 in non-farm occupations.[14] Of these, an estimated 774,200 were those who had graduated from college during 1989-90 with bachelor's degrees.

Among recent graduates employed full time, 44 percent were in professional and specialty occupations, 16 percent were in business/ management positions, 3 percent were technicians, 11 percent were in sales, 17 percent were in administrative support including clerical, 5 percent were in services, and 4 percent were in the categories of crafts, operators, and laborers (figure 6).[15]

Recent college graduates differed from the population as a whole in the larger percentage of professional and specialty workers, and in the smaller percentage of workers in the crafts, operators, and laborers category, and in the services category. Percentages similar to those of the total population were found in the categories of sales, technicians, and administrative support. Among the population as a whole 15 percent were in the professional and specialty occupations, 15 percent were in business and management, 4 percent were technicians, 11 percent were in sales, 16 percent were in administrative support including clerical, 11 percent were in services, and 28 percent were in the crafts, operators, and labor category.

**Figure 6. Percentage distribution of broad occupational categories of 1989-90 bachelor's degree recipients employed full time and of U.S. workforce employed full time: 1991**




SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey*, and U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, May 1991, table A-31.

### Average Salaries for Full-Time Employed Recent Graduates

The mean salary for 1989-90 bachelor's degree recipients who were full-time employed at the end of April of 1991, about 1 year after graduation, was $23,600 (table 3).[16] The median was $21,000. In 1991 the median salary for all U.S. workers over 16 who were employed full time was $22,300; the mean salary for this group was $26,600.[17]

Table 3 presents the mean annual income for the previous RCG studies in current and constant dollars. In constant dollars the data reflect a decline of about 2.6 percent in the annual income of full-time employed graduates since the 1987 study.

Recent analyses of Bureau of Labor Statistics Employment Cost Index and Current Population Survey data have concluded that for the total U.S. workforce the average hourly inflation-adjusted compensation fell 6 percent since 1987. Among all college educated workers, compensation fell about 3.1 percent.[18]

**Table 3.--Mean annual salary of bachelor's degree recipients employed full time 1 year after graduation: RCG selected years 1976-91 (in current and constant dollars)**

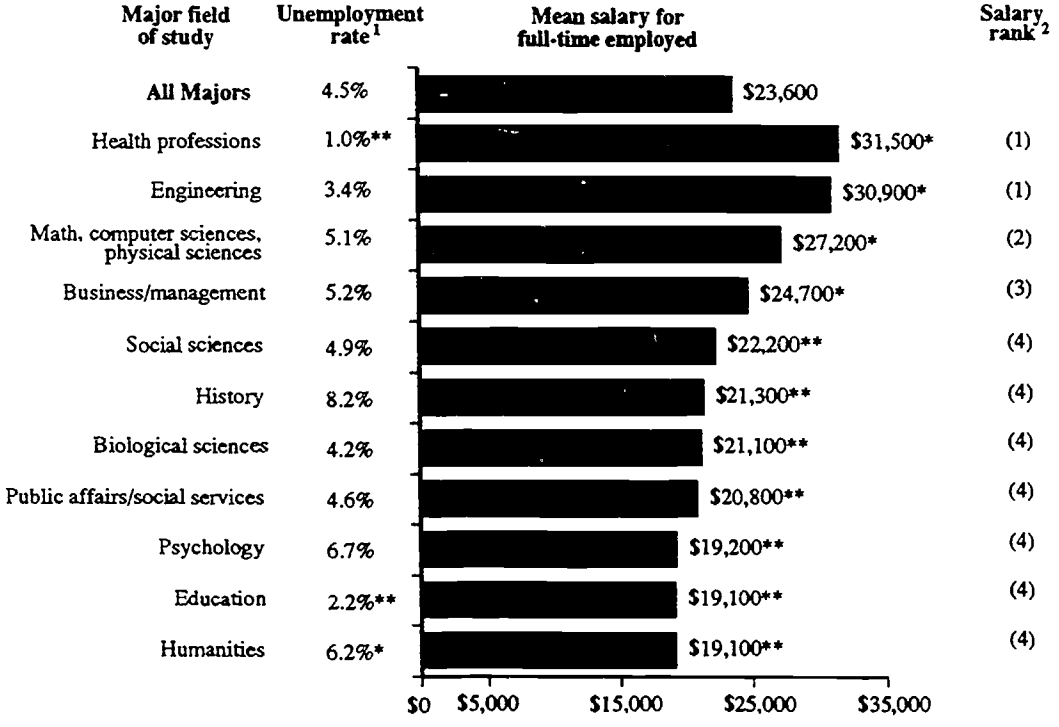
| Year | Percent employed full time | Mean annual salary | | Percent change |
|---|---|---|---|---|
| | | (current dollars) | (constant 1990 dollars) | |
| 1976 . . . . . | 66% | $9,400 | $21,600 | - |
| 1978 . . . . . | 68 | 11,500 | 23,000 | 6.5% |
| 1981 . . . . . | NA | 15,200 | 21,900 | -4.8 |
| 1985 . . . . . | 74 | 18,300 | 22,100 | .9 |
| 1987 . . . . . | 75 | 20,300 | 23,300 | 4.1 |
| 1991 . . . . . | 74 | 23,600 | 22,700 | -2.6 |

NA - Not available.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *Recent College Graduate Surveys*, 1976, 1978, 1981, 1985, 1987, and 1991.

**Salary by Major Field of Study.** Average salaries were higher among graduates in the professional fields than in the arts and sciences ($25,300 compared with $21,700; table 1). The average salary for 1989-90 graduates in April of 1991, 1 year after graduation, ranged from just over $19,000 for humanities, education, and psychology graduates to about $30,900 for engineering and $31,500 for health professions graduates (figure 7). Salaries of graduates majoring in the health professions, engineering, math, computer sciences, and physical sciences, and business and management majors were above the average for the total graduates.

Majors in the health professions and engineering ranked first in terms of average annual salary. In both the 1985 and 1987 RCG studies health professions majors ranked second in salary rather than first. The results of the 1991 RCG study reflect the recent gains that have been made in the health occupations relative to other occupations. As noted by the Commission on Manpower in Science and Technology, "Salary increases among nurses exceed those in most fields, as requirements for health care grow faster than the supply of nurses."[19]

**Figure 7. Mean annual salary of full-time employed and unemployment rate of 1989-90 bachelor's degree recipients 1 year after graduation, by major field of study: 1991**




*Significantly higher than average for total graduates. See Appendix B for discussion of tests of significance.
**Significantly lower than average for total graduates.
[1]Unemployment rate is defined as not working and both looking and available for work in reference week as a percent of graduates in labor force.
[2]Equal ranks indicate no significant difference between major and the next higher major using tests at 95 percent significance level with Bonferroni adjustment for multiple comparisons.
SOURCE: U.S. Department of Education, National Center for Education Statistics. *1991 Recent College Graduates Survey.*

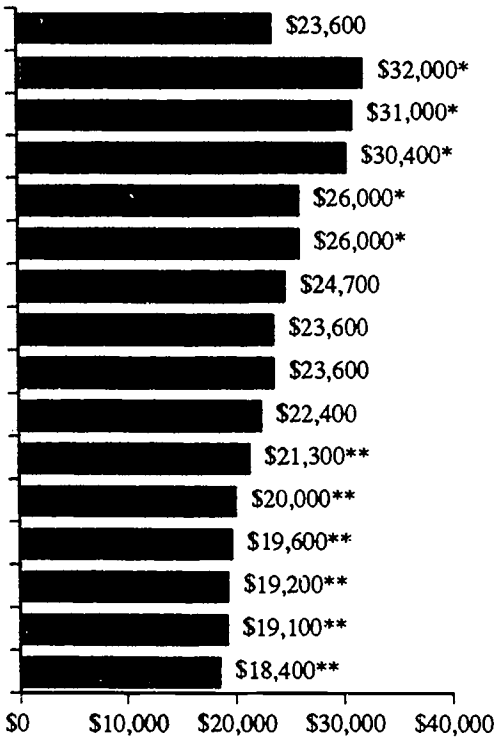
**Salaries by Occupation.** Figure 8 gives the distribution of occupations, and mean and median salary by occupational category. Annual salaries of recent graduates employed full time ranged from $18,400 for those in service jobs and $19,100 for those in education, to $31,000 for health professionals and $32,000 for engineers (figure 8).

### Occupation and Salaries by Gender

Table 4 gives the occupational distribution and the annual salary overall and by gender of recent graduates employed full time. The most frequent occupational categories for male graduates were business and management (17 percent), sales (13 percent) administrative support including clerical (13 percent), and engineering (12 percent). The most frequent categories for female graduates were administrative support including clerical (22 percent), education (18 percent, down from 31 percent in 1981 RCG), business and management (15 percent), and health professions (11 percent).

**Figure 8. Mean and median salary for 1989-90 bachelor's degree recipients working full time 1 year after graduation, by occupation: 1991**

| Median | Occupation | Percent of graduates in occupation[1] | Mean salary for full time employed |
|---|---|---|---|
| $21,000 | **All occupations** | 100% | $23,600 |
| $32,000 | Engineers | 7% | $32,000* |
| $30,000 | Health professionals | 7% | $31,000* |
| $29,000 | Computer scientists & programmers | 4% | $30,400* |
| $25,500 | Math & physical scientists | 1% | $26,000* |
| $24,000 | Business/management | 16% | $26,000* |
| $23,500 | Technicians | 3% | $24,700 |
| $20,800 | Crafts/operators/laborers | 4% | $23,600 |
| $21,800 | Sales | 11% | $23,600 |
| $20,000 | Writers and artists | 2% | $22,400 |
| $20,600 | Biological scientists | 2% | $21,300** |
| $18,600 | Admin. support incl. clerical | 17% | $20,000** |
| $18,000 | Communications | 2% | $19,600** |
| $18,700 | Public affairs/ social services | 4% | $19,200** |
| $19,800 | Educators | 13% | $19,100** |
| $16,500 | Services | 5% | $18,400** |




*Significantly higher than average for total graduates. See Appendix B for discussion of tests of significance.
**Significantly lower than average for total graduates.
[1]In addition to categories listed, 2 percent were employed in "other" occupations.
NOTE: Salaries have been rounded to nearest 100. Percentages may not add to 100 due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

**Salary by Gender.** The overall mean salary for male recent graduates employed full time was significantly higher than for female graduates ($25,400 for men compared with $22,000 for women; table 4). For the 1991 RCG, women's full-time salaries were 87 percent of men's full-time salaries (table 4). Ten years earlier, in the 1981 RCG survey, women's salaries were 79 percent of those of men (table 4).

Overall in the U.S. among all full-time employed workers, women's mean weekly salaries were 74 percent of men's salaries in 1991 (table 4). Among those employed full time with 4 years of college, women's mean, weekly salaries were 81 percent of those of men.[20]

**Salary by Occupation and Gender.** Males had significantly higher salaries than females for the occupations of business and managers, educators, technicians, administrative support including clerical, crafts/operators/laborers, sales, and services (table 4).

**Table 4.--Percentage distribution and mean annual salary of 1989-90 bachelor's degree recipients employed full time, by occupation and by gender: 1991**

| Occupation | Full-time employees | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total | | Male | | Female | | Female as percent of male |
| | Percent | Mean annual salary | Percent | Mean annual salary | Percent | Mean annual salary | |
| All occupations* | 100 | $23,600 | 100 | $25,400 | 100 | $22,000 | 87 |
| Business/managers* | 16 | 26,000 | 17 | 26,900 | 15 | 25,000 | 93 |
| Educators* | 13 | 19,100 | 7 | 20,300 | 18 | 18,700 | 92 |
| Engineers | 7 | 32,000 | 12 | 32,200 | 1 | 30,300 | 94 |
| Health professionals | 7 | 31,000 | 3 | 32,300 | 11 | 30,700 | 95 |
| Public affairs/social services | 4 | 19,200 | 2 | 19,300 | 5 | 19,200 | 99 |
| Biological scientists | 2 | 21,300 | 3 | 20,600 | 2 | 22,300 | 108 |
| Math and physical scientists | 1 | 26,000 | 2 | 26,400 | 1 | 25,500 | 97 |
| Computer scientists and programmers | 4 | 30,400 | 7 | 31,000 | 2 | 28,800 | 93 |
| Communications | 2 | 19,600 | 2 | 19,900 | 3 | 19,400 | 97 |
| Writers, artists | 2 | 22,400 | 2 | 22,300 | 2 | 22,400 | 100 |
| Technicians* | 3 | 24,700 | 4 | 25,800 | 3 | 23,200 | 90 |
| Administrative support/ clerical* | 17 | 19,900 | 13 | 21,200 | 22 | 19,300 | 91 |
| Crafts, operators, laborers* | 4 | 23,600 | 7 | 24,300 | 1 | 18,500 | 76 |
| Sales personnel* | 11 | 23,600 | 13 | 25,600 | 9 | 20,900 | 82 |
| Service personnel* | 5 | 18,400 | 5 | 20,200 | 4 | 16,300 | 81 |
| Other | 2 | 24,100 | 2 | 24,500 | 1 | 23,000 | 94 |

| Females' salaries as a percent of males' salaries | |
|---|---|
| RCG 1981 | 79% |
| RCG 1991 | 87% |
| Total US 1991 (mean weekly, full time) | 74% |
| Total 4 years of college 1991(mean weekly, full time) | 81% |

*Differences in male and female salaries are statistically significant at the 95 percent significance level with Bonferroni adjustment for multiple comparisons.
NOTE: Percentages may not add to 100 due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduate Survey*, and U.S. Department of Labor, Bureau of Labor Statistics, unpublished tabulations from the Current Population Survey: 1991 Annual Averages, table 17.

**Salary by Major Field of Study and Gender.** Differences in male and female salaries persist among men and women having the same majors. By major field of study, men's full-time salaries were significantly higher than women's full-time salaries for the fields of business and management, education, math, computer sciences and physical sciences, social sciences, humanities, and the category "other fields."

**Table 5.--Average annual salary of 1989-90 bachelor's degree recipients employed full time, by major fields by gender: 1991**

| Major field | Mean annual salary | | | Female salary as percent of male |
|---|---|---|---|---|
| | Total | Male | Female | |
| All majors* | $23,600 | $25,400 | $22,000 | 87 |
| Professional fields* | 25,300 | 27,100 | 23,600 | 87 |
| Business/management* | 24,700 | 26,000 | 23,300 | 90 |
| Education* | 19,100 | 21,000 | 18,600 | 89 |
| Engineering | 30,900 | 31,000 | 30,200 | 97 |
| Health professions | 31,500 | 33,900 | 30,900 | 91 |
| Public affairs/social services | 20,800 | 21,600 | 20,200 | 94 |
| Arts and sciences fields* | 21,700 | 23,500 | 20,000 | 85 |
| Biological sciences | 21,100 | 21,800 | 20,400 | 93 |
| Math, computer sciences, physical sciences* | 27,200 | 28,000 | 25,500 | 91 |
| Social sciences* | 22,200 | 24,200 | 20,000 | 83 |
| History | 21,300 | 21,000 | 22,100 | 105 |
| Humanities* | 19,100 | 20,300 | 18,300 | 90 |
| Psychology | 19,200 | 19,700 | 18,900 | 96 |
| Other fields* | 20,800 | 22,100 | 19,700 | 89 |

*Male and female mean salaries differ significantly from each other at the 95 percent level of significance with Bonferroni adjustment for multiple comparisons.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

### Relationship of Job to Major Field of Study

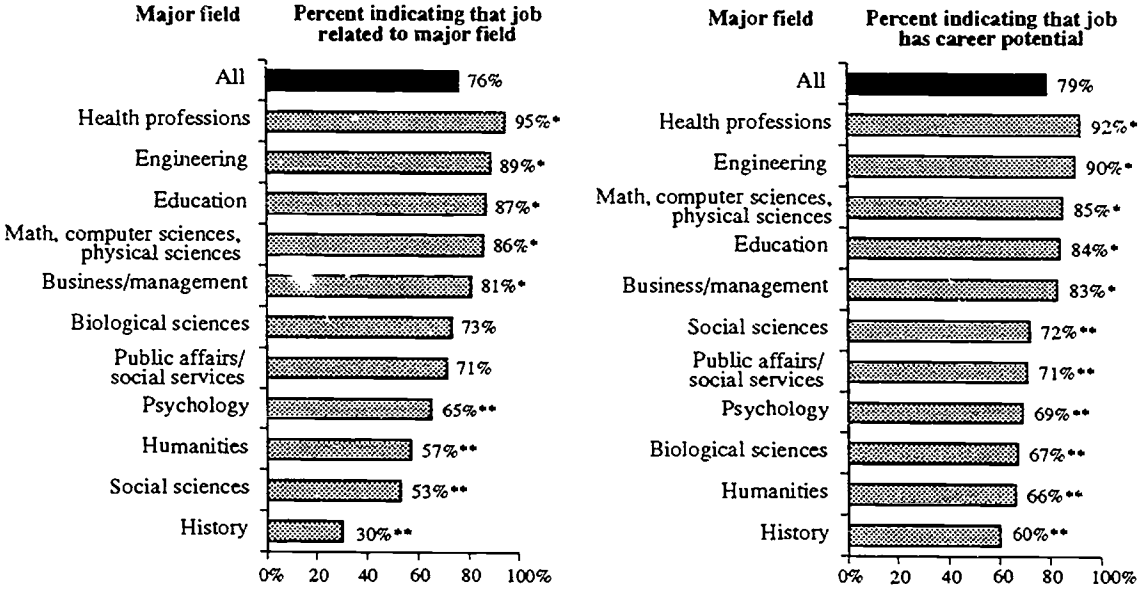
Over three-fourths (76 percent) of the total employed 1989-90 graduates (employed full and part time) indicated that they had jobs that were related to their major field of study (table 1 and figure 9). This figure is very similar to the percent in previous RCG studies (78 percent in 1985 and 1987; figure 9).

Obtaining a job related to major field of study was more frequent among graduates having majors in professional fields than among those in the arts and sciences or the other fields. Eighty-five percent of those having majors in professional fields obtained jobs that they reported were related to their field, compared with 61 percent in the arts and sciences, and 74 percent in the category of other fields (table 1). Among the specific majors, the percent of graduates obtaining jobs that they reported were in their field ranged from only 30 percent for history majors to 95 percent for majors in the health professions.

### Career Potential of Job

Overall, 79 percent of all employed recent college graduates indicated that their job had some career potential. There was somewhat less difference by major field in perception of career potential than of the relationship of job to major field. By specific major, the percentage indicating that their job had career potential ranged from 60 percent for history majors to 92 percent for health profession majors (table 1 and figure 9). Eighty-five percent of graduates in the professional fields and 71 percent of majors in the arts and sciences reported their job had career potential (table 1).

**Figure 9. Graduates' evaluation of relationship of job to major field and career potential of job, by major field: 1991**




**Results from past and current RCG**

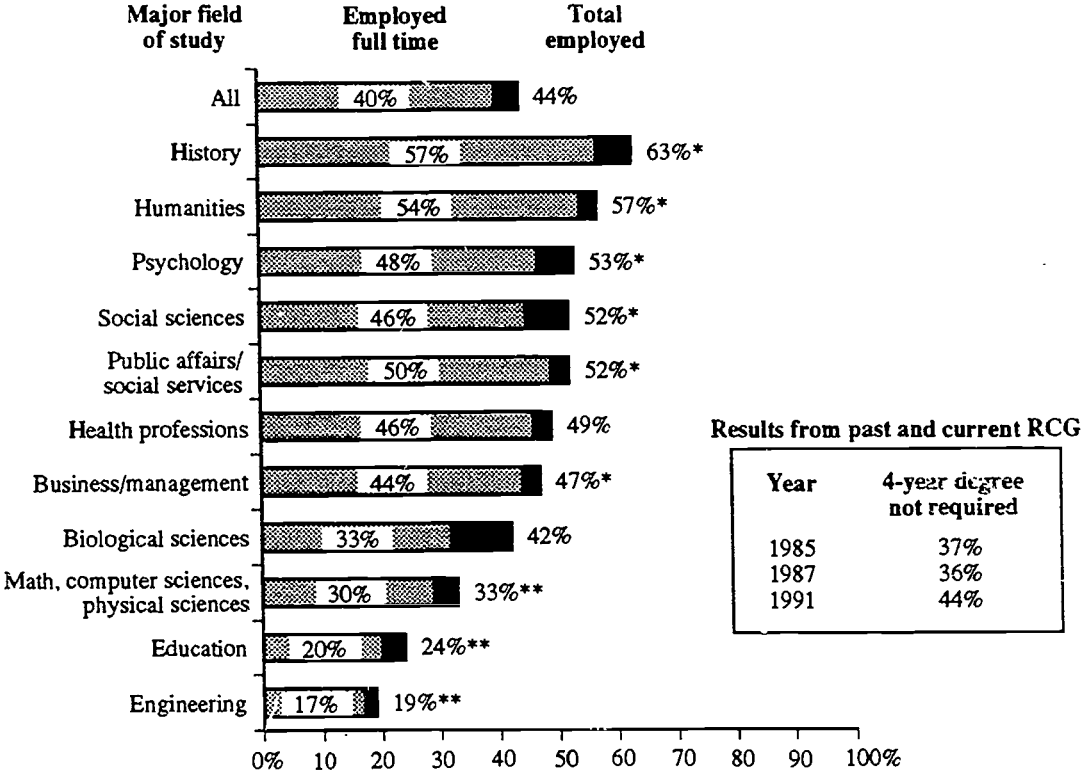
| Year | Job related to major field | Some career potential |
|---|---|---|
| 1985 | 78 | 57 |
| 1987 | 78 | 78 |
| 1991 | 76 | 79 |

*Significantly higher than average for total graduates. See Appendix B for discussion of tests of significance.
**Significantly lower than average for total graduates.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

### College Degree Required

The occupational distribution of recent graduates indicates that a substantial proportion of graduates employed full time were in jobs not traditionally considered to require a 4-year college degree (figure 6 and figure 8).[21] When employed graduates in the 1991 RCG survey were specifically asked whether a 4-year college degree was required for their job, 44 percent indicated that a degree was not required (table 1 and figure 10).[22] Among those employed full time, 40 percent indicated that a 4-year degree was not required. Among the specific majors the percentage indicating that a degree was not required ranged from 19 percent among engineering graduates to 63 percent among history graduates. Among those employed full time the percentage ranged from 17 percent for engineering majors to 57 percent for history majors (figure 10).

**Figure 10. Percentage of 1989-90 bachelor's degree recipients indicating that a 4-year college degree was not required for their job: 1991**

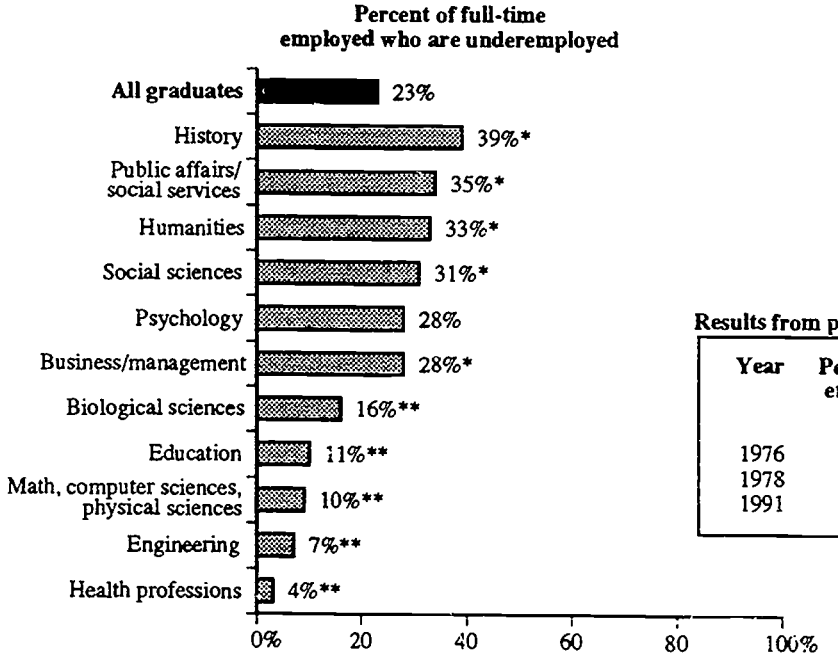



*Significantly higher than average for total graduates. See Appendix B for discussion of tests of significance.
**Significantly lower than average for total graduates.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

## Underemployment

In RCG, underemployment has been defined as being employed in the jobs of sales, service, administrative support, crafts, laborers, and operators, and also reporting on the survey that a college degree was not required for the job held during the reference week. About one-quarter (23 percent) of the full-time employed graduates in the 1991 RCG study were found to be underemployed (figure 11). This figure is similar to the 24 percent found to be underemployed in 1976 RCG and the 23 percent underemployed in 1978 RCG. By major field of study, underemployment ranged from 4 percent for graduates in the health professions to 39 percent for graduates of history (figure 11).

**Figure 11. Percentage of 1989-90 bachelor's degree recipients employed full time who are underemployed: 1991**




Results from past and current RCG

| Year | Percent of full-time employed who are underemployed |
|---|---|
| 1976 | 24% |
| 1978 | 23% |
| 1991 | 23% |

*Significantly higher than average for total graduates. See Appendix B for discussion of tests of significance.
**Significantly lower than average for total graduates.
NOTE: Underemployed are those graduates who are employed full time in the jobs of sales, service, administrative support, crafts, operators, and laborers, and who indicated a college degree was not required for job.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

# Profile of Major Fields of Study

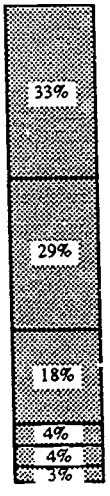
This section provides individual profiles of each of the majors separately categorized under the professional fields and arts and sciences fields.

## Professional Fields

**Business and Management.** Almost 90 percent of business and management majors were employed (83 percent full time and 6 percent part time; figure 12). Over 80 percent indicated that their job was related to their major field and that their job had career potential. However, almost half (47 percent) indicated that a 4-year college degree was not required for their job. About one-third had jobs as business/managers; 29 percent had jobs in administrative support occupations; and 18 percent had jobs in sales. The percent of business and management majors who are women has risen over the last 10 years. In the 1981 RCG, 34 percent of the business and management majors employed full-time were women, and the corresponding figure for the 1991 RCG is 46 percent (data not shown). In salary, business and management majors working full time ranked third with an average salary of $24,700 (figure 7). The unemployment rate was 5.2 percent. School enrollment since graduation was the lowest among the majors, at 21 percent.

**Figure 12. Status of 1989-90 bachelor's degree recipients majoring in BUSINESS AND MANAGEMENT: 1991**

| Employment status | |
|---|---|
| **Employed** | 89% |
| Employed full time | 83% |
| Employed part time | 6% |
| **Not working** | 11% |
| Looking for work | 6% |
| Not looking for work | 5% |
| **Unemployment rate** | 5.2% |
| **Percent unemployed** | 4.9% |
| **Enrollment status** | |
| **Total enrolled** | 21% |
| Enrolled working | 16% |
| Enrolled not working | 5% |




| Occupations of employed (full and part time) [1] | Percent of employed reporting: Job related to major field | Job has career potential | 4-yr degree not req'd | Mean annual salary: All employed [2] | Employed full time |
|---|---|---|---|---|---|
| Business/managers | 92% | 91% | 31% | $26,500 | $26,700 |
| Admin. support incl. clerical | 78% | 77% | 58% | $20,000 | $21,200 |
| Sales personnel | 86% | 84% | 46% | $23,900 | $24,700 |
| Comp. scientists/prog. | 86% | 94% | 35% | $29,700 | $30,100 |
| Crafts/operators/laborers | 48% | 68% | 78% | $24,000 | $26,500 |
| Service personnel | 44% | 54% | 86% | $17,900 | $21,300 |
| **All business and management majors** | **81%** | **83%** | **47%** | **$23,800** | **$24,700** |

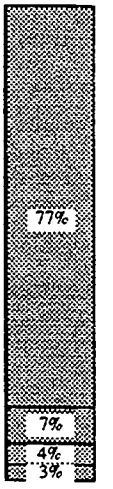
[1]Figure lists only occupations in which at least 3 percent of graduates were employed.
[2]Includes both full- and part-time employed.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

**Education.** Graduates in education had an employment rate above the average for the total graduates (92 percent, with 77 percent employed full time and 15 percent part time; figure 13). However, about 15 percent of those employed as teachers were employed in substitute teaching jobs (data not shown).

Almost 90 percent of education majors (87 percent) indicated they had jobs related to their major field of study, and 84 percent indicated that their job had career potential. Over three-fourths (77 percent) had obtained jobs as educators. The next largest category of occupations for education majors was administrative support, in which 7 percent of education majors were employed. About one-fourth (24 percent) indicated that a college degree was not required for their job. Unemployment among education majors (2.2 percent) was below the average for total majors. While near the average for the total graduates in percent enrolling in further education after graduation (38 percent; table 1), education majors had the highest percentage of ever enrolling in school *full time* since graduation (27 percent). The average salary for education majors employed full time was $19,100.

**Figure 13. Status of 1989-90 bachelor's degree recipients majoring in EDUCATION: 1991**

| Employment status | |
|---|---|
| **Employed** | 92% |
| Employed full time | 77% |
| Employed part time | 15% |
| **Not working** | 8% |
| Looking for work | 3% |
| Not looking for work | 5% |
| **Unemployment rate** | 2.2% |
| **Percent unemployed** | 2.0% |
| **Enrollment status** | |
| **Total enrolled** | 38% |
| Enrolled working | 33% |
| Enrolled not working | 5% |




Occupations of employed (full and part time)[1]

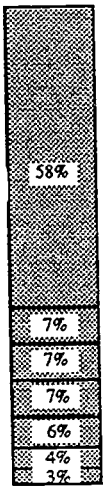
| | Percent of employed reporting | | | Mean annual salary | |
|---|---|---|---|---|---|
| | Job related to major field | Job has career potential | 4-yr degree not req'd | All employed[2] | Employed full time |
| Educators | 99% | 90% | 10% | $17,600 | $19,100 |
| Admin. support incl.cler. | 42% | 67% | 80% | $16,200 | $18,200 |
| Service personnel | 50% | 28% | 83% | $12,000 | $14,300 |
| Sales personnel | 28% | 56% | 81% | $19,300 | $18,900 |
| **All education majors** | **87%** | **84%** | **24%** | **$17,500** | **$19,100** |

[1]Figure lists only occupations in which at least 3 percent of graduates were employed.
[2]Includes both full- and part-time employed.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

**Engineering.** Engineering majors employed full time had among the highest salaries of all majors, $30,900. Eighty-eight percent of engineering graduates were employed (85 percent full time and 3 percent part time; figure 14). Of the 12 percent not working, over three-fourths (76 percent) had enrolled in school (figure 4). Overall, about one-third of engineering graduates had ever enrolled since graduation (figure 14). Almost 60 percent (58 percent) of those employed were employed as engineers. About 7 percent of engineering graduates were employed as business/managers, 7 percent in the crafts/operators/laborers category, 7 percent in the technician category, and 6 percent as computer scientists/programmers. About 90 percent of engineering graduates indicated they had jobs related to their major field and that their job had career potential. Only 19 percent indicated that a college degree was not required. The unemployment rate for engineers was 3.4 percent.

**Figure 14. Status of 1989-90 bachelor's degree recipients majoring in ENGINEERING: 1991**

| Employment status | |
|---|---|
| **Employed** | 88% |
| Employed full time | 85% |
| Employed part time | 3% |
| **Not working** | 12% |
| Looking for work | 4% |
| Not looking for work | 8% |
| **Unemployment rate** | 3.4% |
| **Percent unemployed** | 3.1% |
| **Enrollment status** | |
| **Total enrolled** | 32% |
| Enrolled working | 23% |
| Enrolled not working | 9% |



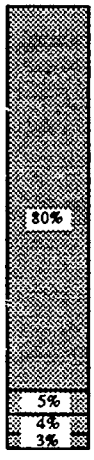

| Occupations of employed (full and part time)[1] | Percent of employed reporting: Job related to major field | Job has career potential | 4-yr degree not req'd | Mean annual salary: All employed[2] | Employed full time |
|---|---|---|---|---|---|
| Engineers | 98% | 96% | 7% | $32,200 | $32,300 |
| Business/managers | 84% | 91% | 30% | $28,900 | $29,300 |
| Crafts/operators/laborers | 71% | 60% | 67% | $25,200 | $26,100 |
| Technicians | 86% | 93% | 24% | $31,400 | $32,300 |
| Comp. scientists/progr. | 91% | 89% | 19% | $30,600 | $31,700 |
| Adm. support incl. cler. | 62% | 72% | 51% | $25,900 | $31,200 |
| Sales personnel | 76% | 91% | 19% | $30,000 | $30,000 |
| **All engineering majors** | **89%** | **90%** | **19%** | **$30,300** | **$30,900** |

[1]Figure lists only occupations in which at least 3 percent of graduates were employed.
[2]Includes both full- and part-time employed.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

**Health Professions.** Graduates in the health professions had the lowest unemployment rate (1.0 percent; figure 15) and ranked first in salary (along with engineering). The average full-time salary was $31,500. Over 90 percent (92 percent) of health professions graduates were employed (81 percent full time and 11 percent part time). Eighty percent of the employed were employed as health professionals, 5 percent in administrative support, 4 percent as business/managers, and 3 percent in the biological sciences. Ninety-five percent reported that their job was related to their major field and 92 percent that the job had career potential. About half (49 percent) reported that a 4-year degree was not required. Just over one-fourth had ever enrolled since graduation.

Figure 15. Status of 1989-90 bachelor's degree recipients majoring in the HEALTH PROFESSIONS: 1991

| Employment status | |
|---|---|
| **Employed** | 92% |
| Employed full time | 81% |
| Employed part time | 11% |
| **Not working** | 8% |
| Looking for work | 2% |
| Not looking for work | 6% |
| **Unemployment rate** | 1.0% |
| **Percent unemployed** | 0.9% |
| **Enrollment status** | |
| **Total enrolled** | 27% |
| Enrolled working | 22% |
| Enrolled not working | 5% |



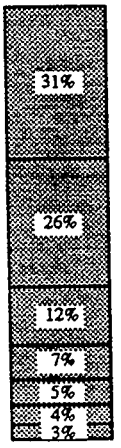

| Occupations of employed (full and part time)[1] | Percent of employed reporting | | | Mean annual salary | |
|---|---|---|---|---|---|
| | Job related to major field | Job has career potential | 4-yr degree not req'd | All employed[2] | Employed full time |
| Health professionals | 99% | 95% | 48% | $31,500 | $32,700 |
| Adm. support incl. cler. | 44% | 49% | 77% | $16,900 | $22,800 |
| Business/managers | 89% | 100% | 62% | $29,700 | $32,700 |
| Biological scientists | 93% | 93% | 30% | $24,600 | $26,800 |
| **All health profession majors** | **95%** | **92%** | **49%** | **$29,600** | **$31,500** |

[1]Figure lists only occupations in which at least 3 percent of graduates were employed.
[2]Includes both full- and part-time employed.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

**Public Affairs.** Eighty-eight percent of public affairs/social services majors were employed (77 percent full time and 11 percent part time; figure 16). About one-third (31 percent) obtained jobs in public affairs/social services, about one-fourth (26 percent) obtained jobs as service personnel, and 12 percent were employed in administrative support including clerical. About 71 percent indicated that their job was related to their major field, and 71 percent that the job had career potential. Just over half (52 percent) indicated that a 4-year college degree was not required. About one-third (35 percent) had ever enrolled since graduation. The average full-time salary was $20,800. The unemployment rate was 4.6 percent.

**Figure 16. Status of 1989-90 bachelor's degree recipients majoring in PUBLIC AFFAIRS: 1991**

| Employment status | |
|---|---|
| **Employed** | 88% |
| Employed full time | 77% |
| Employed part time | 11% |
| **Not working** | 12% |
| Looking for work | 5% |
| Not looking for work | 7% |
| **Unemployment rate** | 4.6% |
| **Percent unemployed** | 4.3% |
| **Enrollment status** | |
| **Total enrolled** | 35% |
| Enrolled working | 28% |
| Enrolled not working | 7% |




Occupations of employed (full and part time)[1]

| Percent of employed reporting | | | Mean annual salary | |
|---|---|---|---|---|
| Job related to major field | Job has career potential | 4-yr degree not req'd | All employed[2] | Employed full time |
| 98% | 82% | 15% | $18,200 | $19,300 |
| 78% | 74% | 76% | $19,200 | $21,600 |
| 58% | 72% | 73% | $16,900 | $17,400 |
| 53% | 67% | 69% | $23,600 | $26,900 |
| 14% | 58% | 86% | $21,600 | $22,200 |
| 67% | 48% | 36% | $12,900 | $16,600 |
| 15% | 60% | 54% | $21,600 | $21,600 |

Public affairs
Service personnel
Admin. support incl. cler.
Business/managers
Crafts/operators/laborers
Educators
Sales personnel

| | | | | | |
|---|---|---|---|---|---|
| **All public affairs majors** | **71%** | **71%** | **52%** | **$19,200** | **$20,800** |

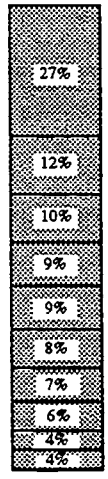
[1]Figure lists only occupations in which at least 3 percent of graduates were employed.
[2]Includes both full- and part-time employed.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

## Arts and Sciences Fields

**Biological Sciences.** The biological sciences have the highest percentage of graduates ever enrolled since graduation (64 percent), and just over one-third (34 percent) of biological science majors were enrolled and not working (figure 17). About 62 percent of biological science majors were working (51 percent full time and 12 percent part time). Among those employed, 27 percent had jobs as biological scientists. Other employed graduates were widely dispersed in related and unrelated occupations. Among those employed in occupations related to the biological sciences, 10 percent were employed as technicians, 9 percent as educators, 7 percent in the health professions, and 4 percent as physical scientists. About three-fourths (73 percent) reported having jobs related to their major field of study, and two-thirds indicated that their job had career potential. About 42 percent were in jobs not requiring a 4-year degree, and the mean salary for full-time employed was $21,100. Unemployment among biological science majors was 4.2 percent.

**Figure 17. Status of 1989-90 bachelor's degree recipients majoring in the BIOLOGICAL SCIENCES: 1991**

| Employment status | |
|---|---|
| Employed | 62% |
| Employed full time | 51% |
| Employed part time | 12% |
| Not working | 38% |
| Looking for work | 5% |
| Not looking for work | 32% |
| Unemployment rate | 4.2% |
| Percent unemployed | 2.7% |
| **Enrollment status** | |
| Total enrolled | 64% |
| Enrolled working | 30% |
| Enrolled not working | 34% |



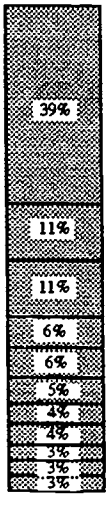

| Occupations of employed (full and part time)[1] | Percent of employed reporting: Job related to major field | Job has career potential | 4-yr degree not req'd | Mean annual salary: All employed[2] | Employed full time |
|---|---|---|---|---|---|
| Biological scientists | 95% | 75% | 21% | $19,900 | $21,100 |
| Admin. support incl. cler. | 42% | 39% | 78% | $13,800 | $17,600 |
| Technicians | 92% | 71% | 28% | $18,400 | $20,000 |
| Educators | 96% | 72% | 26% | $15,800 | $18,500 |
| Sales | 37% | 64% | 55% | $18,000 | $20,800 |
| Business/managers | 75% | 76% | 39% | $24,200 | $24,600 |
| Health professionals | 79% | 66% | 67% | $17,600 | $21,100 |
| Service personnel | 60% | 74% | 64% | $13,600 | $19,600 |
| Math/physical scientists | 91% | 82% | 9% | $22,100 | $22,100 |
| Crafts/operators/laborers | 45% | 37% | 75% | $18,900 | $23,700 |
| **All biological science majors** | **73%** | **67%** | **42%** | **$18,400** | **$21,100** |

[1]Figure lists only occupations in which at least 3 percent of graduates were employed.
[2]Includes both full- and part-time employed.
NOTE: Details may not add to totals due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

**Math, Computer Sciences, and Physical Sciences.** About 80 percent of math, computer science, and physical sciences majors were employed (71 percent full time and 8 percent part time; figure 18). Almost 40 percent were employed as computer scientists/programmers and 6 percent were employed in math/physical sciences. Others graduating in these fields were widely dispersed among the occupational categories. Eleven percent were educators and the same percentage were in administrative support occupations. Five percent were employed as engineers, 4 percent as technicians, and 3 percent in the biological sciences. Eighty-six percent indicated that their job was related to their major field, and 85 percent that it had career potential. One-third indicated that a 4-year degree was not required for the job. About 40 percent had ever enrolled since graduation, and 16 percent were enrolled and not working. The mean salary for full-time employed was $27,200, and the unemployment rate was 5.1 percent.

**Figure 18. Status of 1989-90 bachelor's degree recipients majoring in MATH, COMPUTER SCIENCES, and PHYSICAL SCIENCES: 1991**

| Employment status | |
|---|---|
| **Employed** | 79% |
| Employed full time | 71% |
| Employed part time | 8% |
| **Not working** | 21% |
| Looking for work | 5% |
| Not looking for work | 15% |
| **Unemployment rate** | 5.1% |
| **Percent unemployed** | 4.2% |
| **Enrollment status** | |
| **Total enrolled** | 40% |
| Enrolled working | 24% |
| Enrolled not working | 16% |



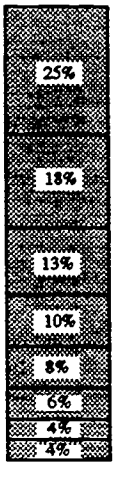

| Occupations of employed (full and part time)[1] | Percent of employed reporting: Job related to major field | Job has career potential | 4-yr degree not req'd | Mean annual salary: All employed[2] | Employed full time |
|---|---|---|---|---|---|
| Computer scientists/ programmers | 98% | 97% | 24% | $30,300 | $30,500 |
| Educators | 88% | 77% | 19% | $17,500 | $20,200 |
| Admin. support incl. cler. | 71% | 60% | 50% | $19,400 | $21,800 |
| Math/physical scientists | 97% | 95% | 10% | $26,700 | $27,300 |
| Business/managers | 82% | 93% | 47% | $25,800 | $26,900 |
| Engineers | 90% | 100% | 20% | $32,600 | $33,000 |
| Technicians | 95% | 83% | 35% | $20,800 | $23,600 |
| Sales personnel | 46% | 59% | 73% | $21,200 | $25,500 |
| Service personnel | 19% | 33% | 85% | $15,300 | $19,000 |
| Crafts/operators/laborers | 47% | 65% | 63% | $26,500 | $30,800 |
| Biological scientists | 90% | 87% | 21% | $25,000 | $26,100 |
| **All math, computer sciences, and physical sciences majors** | **86%** | **85%** | **33%** | **$25,400** | **$27,200** |

[1]Figure lists only occupations in which at least 3 percent of graduates were employed.
[2]Includes both full- and part-time employed.
NOTE: Details may not add to totals due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

**Social Sciences.** About 81 percent of graduates in the social sciences were employed (68 percent full time and 12 percent part time; figure 19). Over 40 percent had ever enrolled in school since graduation, and 14 percent were enrolled and not working. Occupations were widely distributed with the largest category being administrative support, in which 25 percent were employed. The next largest categories were business/managers with 18 percent, and sales with 13 percent. Unemployment was 4.9 percent. Only about half of the graduates (53 percent) indicated that their job was related to their major field, but almost three-fourths (72 percent) indicated that their job had some career potential. About half (52 percent) indicated that a 4-year degree was not required for their job, and the average salary for full-time employed was $22,200.

**Figure 19. Status of 1989-90 bachelor's degree recipients majoring in the SOCIAL SCIENCES: 1991**

| Employment status | |
|---|---|
| **Employed** | 81% |
| Employed full time | 68% |
| Employed part time | 12% |
| **Not working** | 19% |
| Looking for work | 6% |
| Not looking for work | 13% |
| **Unemployment rate** | 4.9% |
| **Percent unemployed** | 4.2% |
| **Enrollment status** | |
| **Total enrolled** | 42% |
| Enrolled working | 28% |
| Enrolled not working | 14% |




| Occupations of employed (full and part time) [1] | Percent of employed reporting | | | Mean annual salary | |
|---|---|---|---|---|---|
| | Job related to major field | Job has career potential | 4-yr degree not req'd | All employed [2] | Employed full time |
| Admin. support incl. cler. | 49% | 68% | 68% | $17,400 | $19,200 |
| Business/managers | 64% | 89% | 31% | $25,000 | $25,800 |
| Sales personnel | 48% | 77% | 50% | $21,600 | $23,800 |
| Service personnel | 32% | 44% | 89% | $16,800 | $20,400 |
| Public affairs/social serv. | 89% | 77% | 22% | $19,100 | $19,500 |
| Educators | 67% | 68% | 31% | $15,600 | $18,400 |
| Technicians | 52% | 67% | 36% | $21,400 | $24,500 |
| Crafts/operators/laborers | 18% | 61% | 83% | $19,700 | $22,600 |
| **All social science majors** | **53%** | **72%** | **52%** | **$20,300** | **$22,200** |

[1]Figure lists only occupations in which at least 3 percent of graduates were employed.
[2]Includes both full- and part-time employed.
NOTE: Details may not add to totals due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

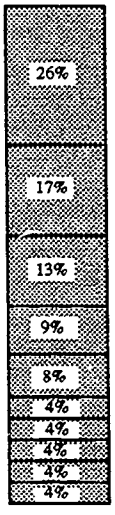
**History**. About 73 percent of history majors were employed (58 percent full time and 15 percent part time; figure 20). Fifty percent had ever enrolled since graduation, and 21 percent were enrolled and not working. History majors had an unemployment rate of 8.2 percent.

The occupations of employed history majors were widely dispersed. About one-quarter (26 percent) had administrative support occupations.

The next largest occupational categories were educators, in which 17 percent of history majors were employed, and sales personnel in which 13 percent were employed. Only about one-third (30 percent) of history majors reported that their job was related to their major field, and 60 percent indicated that the job had career potential. About two-thirds (63 percent) indicated that a 4-year degree was not required, and the average salary was $21,300.

**Figure 20. Status of 1989-90 bachelor's degree recipients majoring in HISTORY: 1991**

| Employment status | |
|---|---|
| **Employed** | 73% |
| Employed full time | 58% |
| Employed part time | 15% |
| **Not working** | 27% |
| Looking for work | 9% |
| Not looking for work | 18% |
| **Unemployment rate** | 8.2% |
| **Percent unemployed** | 6.5% |
| **Enrollment status** | |
| **Total enrolled** | 50% |
| Enrolled working | 30% |
| Enrolled not working | 21% |



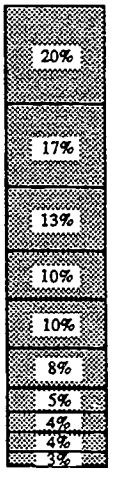

| Occupations of employed (full and part time)[1] | Percent of employed reporting | | | Mean annual salary | |
|---|---|---|---|---|---|
| | Job related to major field | Job has career potential | 4-yr degree not req'd | All employed[2] | Employed full time |
| Admin. support incl. cler. | 22% | 43% | 86% | $15,500 | $18,200 |
| Educators | 71% | 63% | 13% | $16,200 | $18,600 |
| Sales personnel | 24% | 73% | 67% | $25,500 | $26,700 |
| Service personnel | 6% | 26% | 100% | $9,000 | $13,800 |
| Business/managers | 15% | 92% | 42% | $28,400 | $28,400 |
| Public affairs/soc. serv. | 64% | 78% | 60% | $18,100 | $20,900 |
| Biological scientists | -- | 67% | 100% | $14,100 | $18,700 |
| Communications | 40% | 60% | 40% | $11,700 | $14,600 |
| Technicians | 50% | 51% | 44% | $20,100 | $20,100 |
| Crafts/operators/laborers | -- | 51% | 100% | $18,200 | $18,200 |
| **All history majors** | **30%** | **60%** | **63%** | **$18,400** | **$21,300** |

--Less than .05 percent.
[1]Figure lists only occupations in which at least 3 percent of graduates were employed.
[2]Includes both full- and part-time employed.
NOTE: Details may not add to totals due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

**Humanities.** About 78 percent of graduates in the humanities were employed (59 percent full time and 19 percent part time; figure 21). Forty-three percent were ever enrolled since graduation, and 15 percent were enrolled and not working. Occupations of the employed were dispersed, with the largest categories being administrative support (20 percent), educators (17 percent) and writers/artists (13 percent). Unemployment was 6.2 percent. Over half (57 percent) reported that their job was related to their major field, and 66 percent that the job had career potential. The majority (57 percent) were in jobs for which they reported a 4-year degree was not required. The average salary for full-time employed was $19,100.

**Figure 21. Status of 1989-90 bachelor's degree recipients majoring in HUMANITIES: 1991**

| Employment status | |
|---|---|
| **Employed** | 78% |
| Employed full time | 59% |
| Employed part time | 19% |
| **Not working** | 22% |
| Looking for work | 6% |
| Not looking for work | 15% |
| **Unemployment rate** | 6.2% |
| **Percent unemployed** | 5.1% |
| **Enrollment status** | |
| **Total enrolled** | 43% |
| Enrolled working | 28% |
| Enrolled not working | 15% |



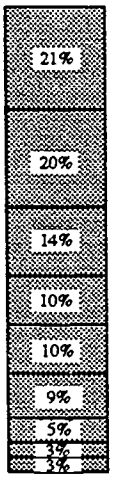

| Occupations of employed (full and part time)[1] | Percent of employed reporting: Job related to major field | Job has career potential | 4-yr degree not req'd | Mean annual salary: All employed[2] | Employed full time |
|---|---|---|---|---|---|
| Admin. support incl. cler. | 37% | 50% | 72% | $16,100 | $17,700 |
| Educators | 86% | 83% | 18% | $15,000 | $19,200 |
| Writers/artists | 95% | 83% | 60% | $17,700 | $20,800 |
| Sales personnel | 47% | 64% | 73% | $14,700 | $17,400 |
| Service personnel | 19% | 35% | 91% | $12,500 | $13,400 |
| Business/managers | 48% | 72% | 49% | $20,800 | $21,700 |
| Communications | 81% | 84% | 31% | $19,000 | $20,400 |
| Technicians | 66% | 76% | 50% | $23,000 | $23,900 |
| Crafts/operators/laborers | 29% | 45% | 87% | $15,200 | $16,900 |
| Public affairs/ social services | 68% | 86% | 40% | $16,800 | $18,400 |
| **All humanities majors** | **57%** | **66%** | **57%** | **$16,600** | **$19,100** |

[1]Figure lists only occupations in which at least 3 percent of graduates were employed.
[2]Includes both full- and part-time employed.
NOTE: Details may not add to totals due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

**Psychology.** Among psychology majors, 74 percent were employed (60 percent full time and 14 percent part time; figure 22). About half (50 percent) had enrolled in school since graduation, and 20 percent were enrolled and not working. Frequent occupations of employed psychology majors included administrative support (21 percent), public affairs/social services (20 percent), educators (14 percent), business/ managers (10 percent), and sales (10 percent). Some were also employed as health professionals (5 percent), biological scientists (3 percent), and computer scientists (3 percent). Almost two-thirds (65 percent) indicated that their job was related to their major, and 69 percent indicated that the job had career potential. Just over half (53 percent) indicated that a 4-year degree was not required. The average salary was $19,200, and unemployment was 6.7 percent.

**Figure 22. Status of 1989-90 bachelor's degree recipients majoring in PSYCHOLOGY: 1991**

| Employment status | |
|---|---|
| **Employed** | 74% |
| Employed full time | 60% |
| Employed part time | 14% |
| **Not working** | 26% |
| Looking for work | 8% |
| Not looking for work | 18% |
| **Unemployment rate** | 6.7% |
| **Percent unemployed** | 5.3% |
| **Enrollment status** | |
| **Total enrolled** | 50% |
| Enrolled working | 31% |
| Enrolled not working | 20% |




| Occupations of employed (full and part time)[1] | Percent of employed reporting: Job related to major field | Job has career potential | 4-yr degree not req'd | Mean annual salary: All employed[2] | Employed full time |
|---|---|---|---|---|---|
| Admin. support incl. cler. | 41% | 58% | 74% | $15,800 | $18,900 |
| Public affairs/ social services | 100% | 83% | 23% | $17,800 | $18,800 |
| Educators | 91% | 74% | 26% | $16,100 | $17,600 |
| Business/managers | 73% | 83% | 41% | $21,100 | $22,700 |
| Sales personnel | 38% | 58% | 66% | $14,500 | $17,000 |
| Service personnel | 47% | 36% | 94% | $13,800 | $15,700 |
| Health professionals | 80% | 76% | 69% | $19,100 | $19,300 |
| Biological scientists | 60% | 100% | 39% | $23,600 | $27,500 |
| Comp. Sci./progr. | 31% | 80% | 70% | $22,300 | $24,400 |
| **All psychology majors** | **65%** | **69%** | **53%** | **$17,100** | **$19,200** |

[1]Figure lists only occupations in which at least 3 percent of graduates were employed.
[2]Includes both full- and part-time employed.
NOTE: Details may not add to totals due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey.*

# ENDNOTES

[1] The number represents a 1-year increase of 3.1 percent and a 4-year increase (since 1986) of 4.9 percent. Increases have not occurred in all fields. Within the natural sciences and engineering there was a drop of 3.9 percent since 1989 and 19.6 percent since 1986. U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Completions" survey.

[2] Copies of previous RCG data tapes are available from Peter Stowe, U.S. Department of Education, National Center for Education Statistics, 555 New Jersey Avenue, NW, Room 321, Washington, DC 20208-5652.

[3] The total RCG sample also included 1,963 master's degree recipients for a total sample of 18,135. Master's degree recipients are not included in this report.

[4] The weighted response rate is the weighted number of completed surveys divided by the sum of the weighted number of completed surveys and nonrespondents.

[5] Comparisons of 1991 RCG with previous RCG studies and with U.S. national totals from the Current Population Survey are also made in this report. Differences cited are significant at the 95 percent confidence level using a Bonferroni t-test.

[6] The "other" category includes the following majors: agriculture and natural resources, architecture and environmental design, area studies and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.

[7] By major, the percent whose only work was a graduate assistantship or work study ranged from 1 percent for those in business and management to 7 to 8 percent for biological sciences and math, computer sciences, and physical sciences graduates, fields with high graduate school enrollment (see appendix table A-14).

[8] Bureau of Labor Statistics, *Employment and Earnings*, Vol. 38, No. 5, May 1991, table a-4.

[9] Bureau of Labor Statistics, *Employment and Earnings*, Vol. 38, No. 5, May 1991, table a-9.

[10] Bureau of Labor Statistics, *Employment and Earnings*, Vol. 38, No. 5, May 1991, table a-1.

[11] A comparable unemployment statistic for April 1991, from the Bureau of Labor Statistics, for those aged 16-24 with 4 years of college and not enrolled in school was 4.1 percent. Bureau of Labor Statistics, *Employment and Earnings*, Vol. 38, No. 5, May 1991, table a-7.

[12] Bureau of Labor Statistics, *Employment and Earnings*, Vol. 38, No. 5, May 1991, table a-4.

[13] Bureau of Labor Statistics, *Employment and Earnings*, Vol. 38, No. 5, May 1991, table a-34.

[14] Bureau of Labor Statistics, *Employment and Earnings*, Vol. 38, No. 5. May 1991, table a-31.

[15] In the 1987 RCG study the term "clerk" was used for the "administrative support including clerical" category.

[16] A small percentage of graduates (3 percent) were both employed full time and enrolled in school full time during the April 1991 employment reference week (appendix table A-11). If these graduates are excluded from the tabulation, the average salary for full-time employed graduates changed little, going from $23,600 to $23,700 for the total (appendix table A-12). The distribution by major field does not change significantly by this exclusion.

[17] Bureau of Labor Statistics, *Employment and Earnings*, Vol. 38, No. 5, May 1991, table a-31.

[18] Lawrence Mishel and Jared Bernstein, *Declining Wages for High School and College Graduates, Pay and Benefits by Education, Gender, Occupation and State, 1979-1991*, Economic Policy Institute, Briefing Paper, May 1992. Mishel and Bernstein note that while the declines have been most severe among the high school educated, both high school and college educated groups have experienced a decline in real wages since 1987. The decline for college educated males was 4.9 percent and for women was 1.9 percent for an overall decline of 3.1 percent compared with 6.0 percent for the total population. Among men, only those with advanced degrees (beyond bachelor's) had growing wages. They conclude, "Having a college degree no longer affords protection against falling wage trends."

[19] Commission on Manpower in Science and Technology, *Manpower Comments*, April/May 1992, page 17. The average salary reported by the publication *Graduating Nurse* for an RN level 1 in 1991 was the same as that found for health professions in RCG, $31,500. *Graduating Nurse* reported increases in nursing salaries for 1991 from the previous year of about 7 to 10 percent depending on level.

[20] Bureau of Labor Statistics, *Unpublished Tabulations from the Current Population Survey; 1991 Annual Averages*, table 17.

[21] This includes jobs such as administrative support including clerical, sales, services, crafts, operators, and laborers.

[22] The 1985 and 1987 RCG surveys asked "if a *college degree* was required" and found that about 36-37 percent indicated that a degree was not required. The 1991 survey had a question worded slightly differently, that asked "if a *4-year college degree* was required" and found 44 percent indicated that a degree was not required.

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U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics, Elementary and Secondary Education Statistics Division, Joanell Porter, *Occupational and Educational Outcomes of 1985-86 Bachelor's Degree Recipients.* Washington, DC, August 1989.

U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics, Martin Frankel and Peter Stowe, *New Teachers in the Job Market, 1987 Update.* Washington, DC, July 1990.

# APPENDIX A

# DETAILED TABLES WITH STANDARD ERRORS

Table A-1.--Unweighted and weighted number of 1989-90 bachelor's degree graduates, by graduate characteristics: 1991

| Characteristic | Unweighted number | Weighted estimate | | | |
|---|---|---|---|---|---|
| | | Weighted number | Standard error | Weighted percent | Standard error |
| All bachelor's graduate | 12,888 | 1,049,657 | -- | 100.0 | -- |
| Gender | | | | | |
| Male | 5,564 | 491,488 | -- | 46.8 | -- |
| Female | 7,324 | 558,169 | -- | 53.2 | -- |
| Race/ethnicity | | | | | |
| American Indian/Native Alaskan | 63 | 5,532 | 658 | .5 | .06 |
| Asian/Pacific Islander | 392 | 37,269 | 1,556 | 3.6 | .15 |
| Black, non-Hispanic | 1,379 | 64,221 | 4,145 | 6.1 | .39 |
| Hispanic | 753 | 39,573 | 2,273 | 3.8 | .22 |
| White, non-Hispanic | 10,301 | 903,063 | 5,467 | 86.0 | .52 |
| Type of major field of study | | | | | |
| Professional fields | 7,009 | 538,960 | 8,014 | 51.3 | .76 |
| Arts and sciences fields | 4,476 | 380,666 | 7,789 | 36.3 | .74 |
| Other fields* | 1,403 | 130,030 | 3,842 | 12.4 | .37 |
| Major field of study | | | | | |
| Business/management | 2,682 | 252,976 | 7,186 | 24.1 | .68 |
| Education | 2.361 | 104,715 | -- | 10.0 | -- |
| Engineering | 849 | 81,747 | 6,981 | 7.8 | .67 |
| Health professions | 754 | 67,238 | 6,024 | 6.4 | .57 |
| Public affairs/social services | 363 | 32,285 | 2,116 | 3.1 | .20 |
| Biological sciences | 490 | 44,684 | 1,830 | 4.3 | .17 |
| Math, computer sciences, physical sciences | 984 | 58,644 | 3,710 | 5.6 | .35 |
| Social sciences | 1,102 | 101,003 | 3,665 | 9.6 | .35 |
| History | 237 | 22,997 | 1,323 | 2.1 | .12 |
| Humanities | 1,069 | 98,355 | 4,895 | 9.4 | .47 |
| Psychology | 594 | 54,982 | 2,329 | 5.2 | .22 |
| Other fields* | 1,403 | 130,030 | 3,842 | 12.4 | .37 |
| Age in December 1991 | | | | | |
| 20-23 | 3,331 | 282,769 | 8,474 | 26.9 | .81 |
| 24-25 | 5,043 | 408,315 | 6,109 | 38.9 | .58 |
| 26 and older | 4,514 | 358,573 | 10,219 | 34.2 | .97 |
| Highest degree graduate expects to obtain | | | | | |
| Bachelor's degree | 1,987 | 180,529 | 3,714 | 17.2 | .35 |
| Master's degree | 8,147 | 647,334 | 4,639 | 61.7 | .44 |
| Doctoral degree | 1,830 | 139,832 | 3,399 | 13.3 | .32 |
| First-professional degree | 924 | 81,962 | 2,989 | 7.8 | .28 |

Other fields includes agriculture and natural resources, architecture and environmental design, area and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library and archival sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.

-- Zero standard error due to post-stratification.

NOTE: Details may not add to totals due to rounding.

Table A-2e.—Labor force status of bachelor's degree recipients 1 year after graduation, by graduate characteristics: 1991

| Characteristic | Employed full time | | Employed part time | | Unemployed[2] | | Not in labor force[3] | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | In school | | Not in school | |
| | Percent | Standard error | Percent | Standard error | Percent | Standard error | Percent | Standard error | Percent | Standard error |
| All bachelor's graduates | 74 | .36 | 11 | .27 | 4.0 | .15 | 9 | .23 | 3 | .13 |
| Gender | | | | | | | | | | |
| Male | 75 | .54 | 8 | .35 | 4.8 | .29 | 10 | .34 | 2 | .16 |
| Female | 72 | .42 | 13 | .35 | 3.3 | .17 | 8 | .26 | 4 | .22 |
| Race/ethnicity | | | | | | | | | | |
| American Indian/Native Alaskan | 72 | 4.59 | 10 | 2.91 | 3.1 | 1.25 | 8 | 3.95 | 7 | 2.14 |
| Asian/Pacific Islander | 67 | 1.58 | 8 | .75 | 3.6 | .56 | 17 | 1.59 | 4 | .91 |
| Black, non-Hispanic | 75 | .99 | 10 | .60 | 5.4 | .60 | 7 | .56 | 3 | .30 |
| Hispanic | 72 | 1.95 | 10 | 1.05 | 5.2 | .84 | 10 | 1.01 | 3 | .63 |
| White, non-Hispanic | 74 | .38 | 11 | .30 | 3.9 | .17 | 8 | .23 | 3 | .13 |
| Type of major field of study | | | | | | | | | | |
| Professional fields | 82 | .44 | 8 | .29 | 3.5 | .16 | 4 | .22 | 3 | .17 |
| Arts and sciences fields | 62 | .64 | 14 | .48 | 4.6 | .27 | 15 | .46 | 4 | .24 |
| Other fields* | 74 | .72 | 11 | .50 | 4.4 | .48 | 6 | .37 | 4 | .40 |
| Major field of study | | | | | | | | | | |
| Business/management | 83 | .57 | 6 | .31 | 4.9 | .30 | 3 | .26 | 3 | .31 |
| Education | 77 | .74 | 15 | .71 | 2.0 | .23 | 3 | .33 | 3 | .28 |
| Engineering | 85 | .95 | 3 | .45 | 3.1 | .42 | 8 | .76 | 1 | .38 |
| Health professions | 81 | 1.35 | 11 | 1.26 | .9 | .25 | 4 | .60 | 2 | .45 |
| Public affairs/social services | 77 | 2.06 | 11 | 1.23 | 4.3 | .86 | 5 | .90 | 2 | .75 |
| Biological sciences | 51 | 1.72 | 12 | 1.00 | 2.7 | .74 | 32 | 1.81 | 3 | .55 |
| Math, computer sciences, physical sciences | 71 | 1.30 | 8 | .60 | 4.2 | .59 | 15 | 1.16 | 2 | .38 |
| Social sciences | 68 | .91 | 12 | .58 | 4.2 | .50 | 12 | .84 | 3 | .36 |
| History | 58 | 2.55 | 15 | 2.04 | 6.5 | 1.22 | 16 | 1.74 | 4 | 1.02 |
| Humanities | 59 | 1.32 | 19 | 1.22 | 5.1 | .52 | 11 | .86 | 5 | .54 |
| Psychology | 60 | 1.64 | 14 | 1.34 | 5.3 | .75 | 16 | 1.22 | 5 | .55 |
| Other fields[1] | 74 | .72 | 11 | .50 | 4.4 | .48 | 6 | .37 | 4 | .40 |
| Age in December 1991 | | | | | | | | | | |
| 20-23 | 68 | .85 | 11 | .55 | 3.3 | .32 | 16 | .62 | 3 | .23 |
| 24-25 | 76 | .47 | 10 | .37 | 4.0 | .24 | 7 | .21 | 2 | .17 |
| 26 and older | 75 | .60 | 10 | .49 | 4.6 | .24 | 5 | .24 | 5 | .23 |
| Highest degree graduate expects to obtain | | | | | | | | | | |
| Bachelor's degree | 81 | .63 | 9 | .51 | 4.9 | .44 | 1 | .17 | 4 | .40 |
| Master's degree | 79 | .41 | 10 | .32 | 4.0 | .18 | 4 | .17 | 3 | .14 |
| Doctoral degree | 60 | 1.07 | 14 | .83 | 3.9 | .49 | 19 | .60 | 3 | .36 |
| First-professional degree | 44 | 1.29 | 12 | .80 | 2.1 | .41 | 39 | 1.53 | 2 | .34 |

[1]Other fields includes agriculture and natural resources, architecture and environmental design, area and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library and archival sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.
[2]Includes those looking and available for work in April 1991 as a percent of total graduates.
[3]Includes those not employed who were not looking for work or were not available for work in April 1991.

Table A-2b.--Employment status and unemployment rate of 1989-90 bachelor's degree recipients 1 year after graduation, by graduate characteristics: 1991

| Characteristic | Employed | | Not employed | | Not in labor force[2] | | Unemployment rate[3] | |
|---|---|---|---|---|---|---|---|---|
| | Percent | Standard error | Percent | Standard error | Percent | Standard error | Percent | Standard error |
| All bachelor's graduates | 84 | .29 | 16 | .29 | 12 | .24 | 4.5 | .17 |
| Gender | | | | | | | | |
| Male | 84 | .42 | 16 | .42 | 12 | .34 | 5.4 | .32 |
| Female | 85 | .37 | 15 | .37 | 12 | .33 | 3.8 | .20 |
| Race/ethnicity | | | | | | | | |
| American Indian/Native Alaskan | 82 | 3.74 | 18 | 3.74 | 15 | 3.68 | 3.6 | 1.46 |
| Asian/Pacific Islander | 75 | 1.60 | 25 | 1.60 | 21 | 1.65 | 4.5 | .70 |
| Black, non-Hispanic | 84 | .76 | 16 | .78 | 10 | .64 | 6.1 | .67 |
| Hispanic | 81 | 1.52 | 19 | 1.52 | 14 | 1.19 | 6.0 | .98 |
| White, non-Hispanic | 85 | .28 | 15 | .28 | 11 | .24 | 4.4 | .19 |
| Type of major field of study | | | | | | | | |
| Professional fields | 90 | .29 | 10 | .29 | 7 | .24 | 3.8 | .17 |
| Arts and sciences fields | 76 | .63 | 24 | .63 | 19 | .50 | 5.7 | .35 |
| Other fields[1] | 85 | .52 | 15 | .52 | 10 | .51 | 4.9 | .52 |
| Major field of study | | | | | | | | |
| Business/management | 89 | .48 | 11 | .48 | 6 | .37 | 5.2 | .32 |
| Education | 92 | .48 | 8 | .48 | 6 | .46 | 2.2 | .25 |
| Engineering | 88 | .75 | 12 | .75 | 9 | .68 | 3.4 | .46 |
| Health professions | 92 | .82 | 8 | .82 | 7 | .75 | 1.0 | .27 |
| Public affairs/social services | 88 | 1.66 | 12 | 1.66 | 8 | 1.19 | 4.6 | .94 |
| Biological sciences | 62 | 1.64 | 38 | 1.64 | 35 | 1.68 | 4.2 | 1.11 |
| Math, computer sciences, physical sciences | 79 | 1.07 | 21 | 1.07 | 17 | 1.21 | 5.1 | .68 |
| Social sciences | 81 | .96 | 19 | .96 | 15 | .79 | 4.9 | .59 |
| History | 73 | 2.13 | 27 | 2.13 | 21 | 2.09 | 8.2 | 1.49 |
| Humanities | 78 | 1.29 | 22 | 1.29 | 17 | 1.16 | 6.2 | .63 |
| Psychology | 74 | 1.64 | 26 | 1.64 | 21 | 1.38 | 6.7 | .96 |
| Other fields[1] | 85 | .52 | 15 | .52 | 10 | .51 | 4.9 | .52 |
| Age in December 1991 | | | | | | | | |
| 20-23 | 79 | .66 | 21 | .66 | 18 | .61 | 4.0 | .39 |
| 24-25 | 87 | .35 | 13 | .35 | 9 | .24 | 4.5 | .27 |
| 26 and older | 86 | .43 | 14 | .43 | 9 | .29 | 5.1 | .27 |
| Highest degree graduate expects to obtain | | | | | | | | |
| Bachelor's degree | 90 | .59 | 10 | .59 | 5 | .42 | 5.2 | .47 |
| Master's degree | 88 | .29 | 12 | .29 | 8 | .22 | 4.4 | .19 |
| Doctoral degree | 74 | .82 | 26 | .82 | 22 | .71 | 5.0 | .62 |
| First-professional degree | 57 | 1.42 | 43 | 1.42 | 41 | 1.52 | 3.6 | .68 |

[1]Other fields includes agriculture and natural resources, architecture and environmental design, area and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library and archival sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.
[2]Includes those not employed who were not looking for work or were not available for work in April 1991.
[3]Includes those both looking and available for work in April 1991 as a percent of those in the labor force.

Table A-3.--Employment and looking for work status of 1989-90 bachelor's degree recipients 1 year after graduation, by graduate characteristics: 1991

| Characteristic | Employed full time | | Employed part time | | Not employed looking | | Not employed not looking | |
|---|---|---|---|---|---|---|---|---|
| | Percent | Standard error | Percent | Standard error | Percent | Standard error | Percent | Standard error |
| All bachelor's graduates | 74 | .36 | 11 | .27 | 5 | .19 | 11 | .22 |
| Gender | | | | | | | | |
| Male | 75 | .54 | 8 | .35 | 6 | .34 | 10 | .32 |
| Female | 72 | .42 | 13 | .35 | 4 | .20 | 11 | .30 |
| Race/ethnicity | | | | | | | | |
| American Indian/Native Alaskan | 72 | 4.59 | 10 | 2.91 | 3 | 1.25 | 15 | 3.68 |
| Asian/Pacific Islander | 67 | 1.58 | 8 | .75 | 5 | .87 | 20 | 1.58 |
| Black, non-Hispanic | 75 | .99 | 10 | .60 | 6 | .65 | 9 | .60 |
| Hispanic | 72 | 1.95 | 10 | 1.05 | 6 | .92 | 13 | 1.08 |
| White, non-Hispanic | 74 | .38 | 11 | .30 | 5 | .20 | 10 | .22 |
| Type of major field of study | | | | | | | | |
| Professional fields | 82 | .44 | 8 | .29 | 4 | .18 | 6 | .23 |
| Arts and sciences fields | 62 | .64 | 14 | .48 | 6 | .37 | 17 | .47 |
| Other fields* | 74 | .72 | 11 | .50 | 5 | .49 | 10 | .51 |
| Major field of study | | | | | | | | |
| Business/management | 83 | .57 | 6 | .31 | 6 | .34 | 5 | .37 |
| Education | 77 | .74 | 15 | .71 | 3 | .31 | 5 | .39 |
| Engineering | 85 | .95 | 3 | .45 | 4 | .48 | 8 | .60 |
| Health professions | 81 | 1.35 | 11 | 1.26 | 2 | .32 | 6 | .72 |
| Public affairs/social services | 77 | 2.06 | 11 | 1.23 | 5 | .91 | 7 | 1.15 |
| Biological sciences | 51 | 1.72 | 12 | 1.00 | 5 | 1.07 | 32 | 1.76 |
| Math, computer sciences, physical sciences | 71 | 1.30 | 8 | .60 | 5 | .69 | 15 | 1.26 |
| Social sciences | 68 | .91 | 12 | .58 | 6 | .64 | 13 | .67 |
| History | 58 | 2.55 | 15 | 2.04 | 9 | 1.45 | 18 | 1.94 |
| Humanities | 59 | 1.32 | 19 | 1.22 | 6 | .63 | 15 | 1.11 |
| Psychology | 60 | 1.64 | 14 | 1.34 | 8 | 1.06 | 18 | 1.21 |
| Other fields* | 74 | .72 | 11 | .50 | 5 | .49 | 10 | .51 |
| Age in December 1991 | | | | | | | | |
| 20-23 | 68 | .85 | 11 | .55 | 6 | .39 | 15 | .60 |
| 24-25 | 76 | .47 | 10 | .37 | 5 | .28 | 8 | .25 |
| 26 and older | 75 | .60 | 10 | .49 | 5 | .28 | 9 | .28 |
| Highest degree graduate expects to obtain | | | | | | | | |
| Bachelor's degree | 81 | .63 | 9 | .51 | 5 | .47 | 5 | .41 |
| Master's degree | 79 | .41 | 10 | .32 | 5 | .19 | 7 | .20 |
| Doctoral degree | 60 | 1.07 | 14 | .83 | 6 | .56 | 20 | .73 |
| First-professional degree | 44 | 1.29 | 12 | .80 | 8 | .72 | 36 | 1.53 |

*Other fields includes agriculture and natural resources, architecture and environmental design, area and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library and archival sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.
NOTE: Percentages across columns may not add to 100 due to rounding.

Table A-4.--Enrollment rates of nonemployed 1989-90 bachelor's degree recipients 1 year after graduation, by graduate characteristics: 1991

| Characteristic | Proportion not employed | | Enrollment rate of nonemployed bachelor's degree recipients | |
|---|---|---|---|---|
| | Percent | Standard error | Percent | Standard error |
| All bachelor's graduates | 16 | .29 | 68 | 1.09 |
| Gender | | | | |
| Male | 16 | .42 | 71 | 1.52 |
| Female | 15 | .37 | 65 | 1.22 |
| Race/ethnicity | | | | |
| American Indian/Native Alaskan | 18 | 3.74 | 54 | 13.96 |
| Asian/Pacific Islander | 25 | 1.60 | 80 | 3.28 |
| Black, non-Hispanic | 16 | .78 | 59 | 3.03 |
| Hispanic | 19 | 1.52 | 71 | 3.42 |
| White, non-Hispanic | 15 | .28 | 67 | 1.24 |
| Type of major field of study | | | | |
| Professional fields | 10 | .29 | 55 | 1.70 |
| Arts and sciences fields | 24 | .63 | 77 | 1.23 |
| Other fields* | 15 | .52 | 59 | 2.35 |
| Major field of study | | | | |
| Business/management | 11 | .48 | 43 | 2.45 |
| Education | 8 | .48 | 59 | 2.76 |
| Engineering | 12 | .75 | 76 | 3.51 |
| Health professions | 8 | .82 | 69 | 4.92 |
| Public affairs/social services | 12 | 1.66 | 59 | 5.65 |
| Biological sciences | 38 | 1.64 | 91 | 2.08 |
| Math, computer sciences, physical sciences | 21 | 1.07 | 78 | 3.64 |
| Social sciences | 19 | .96 | 74 | 2.90 |
| History | 27 | 2.13 | 77 | 3.92 |
| Humanities | 22 | 1.29 | 71 | 2.42 |
| Psychology | 26 | 1.64 | 76 | 2.49 |
| Other fields* | 15 | .52 | 59 | 2.35 |
| Age in December 1991 | | | | |
| 20-23 | 21 | .66 | 83 | 1.26 |
| 24-25 | 13 | .35 | 65 | 1.72 |
| 26 and older | 14 | .43 | 52 | 1.77 |
| Highest degree graduate expects to obtain | | | | |
| Bachelor's degree | 10 | .59 | 26 | 2.92 |
| Master's degree | 12 | .29 | 56 | 1.36 |
| Doctoral degree | 26 | .82 | 85 | 1.60 |
| First-professional degree | 43 | 1.42 | 95 | .85 |

*Other fields includes agriculture and natural resources, architecture and environmental design, area and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library and archival sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.

Table A-5.--Enrollment in further education and work status of 1989-90 bachelor's degree recipients 1 year after graduation, by graduate characteristics: 1991

| Characteristic | Ever enrolled since graduation | | Ever enrolled full time | | Ever enrolled employed | | Ever enrolled not employed | | Enrolled in degree program beyond bachelor's | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Percent | Standard error | Percent | Standard error | Percent | Standard error | Percent | Standard error | Percent | Standard error |
| All bachelor's graduates | 35 | .50 | 17 | .36 | 24 | .40 | 11 | .25 | 24 | .46 |
| Gender | | | | | | | | | | |
| Male | 34 | .66 | 15 | .46 | 22 | .58 | 12 | .36 | 24 | .58 |
| Female | 35 | .56 | 18 | .43 | 25 | .47 | 10 | .29 | 24 | .48 |
| Race/ethnicity | | | | | | | | | | |
| American Indian/Native Alaskan | 37 | 4.91 | 16 | 4.32 | 27 | 4.14 | 10 | 3.93 | 28 | 4.91 |
| Asian/Pacific Islander | 43 | 2.09 | 18 | 1.13 | 23 | 1.23 | 20 | 1.59 | 31 | 1.68 |
| Black, non-Hispanic | 31 | 1.14 | 15 | .89 | 22 | 1.02 | 9 | .61 | 23 | 1.06 |
| Hispanic | 43 | 1.59 | 21 | 1.12 | 30 | 1.18 | 13 | 1.10 | 31 | 1.48 |
| White, non-Hispanic | 34 | .53 | 16 | .39 | 24 | .43 | 10 | .25 | 23 | .46 |
| Type of major field of study | | | | | | | | | | |
| Professional fields | 28 | .56 | 17 | .50 | 22 | .52 | 6 | .24 | 18 | .50 |
| Arts and sciences fields | 46 | .78 | 17 | .50 | 28 | .64 | 18 | .52 | 34 | .77 |
| Other fields* | 29 | 1.11 | 15 | .69 | 21 | .98 | 9 | .51 | 18 | .76 |
| Major field of study | | | | | | | | | | |
| Business/management | 21 | .73 | 13 | .68 | 16 | .74 | 5 | .34 | 12 | .62 |
| Education | 38 | .83 | 27 | .81 | 33 | .84 | 5 | .40 | 29 | .70 |
| Engineering | 32 | 1.16 | 18 | 1.26 | 23 | 1.21 | 9 | .68 | 23 | 1.25 |
| Health professions | 27 | 1.76 | 16 | 1.45 | 22 | 1.62 | 5 | .69 | 20 | 1.44 |
| Public affairs/social services | 35 | 2.18 | 13 | 1.21 | 28 | 1.76 | 7 | 1.13 | 22 | 1.77 |
| Biological sciences | 64 | 1.89 | 17 | 1.41 | 30 | 1.28 | 34 | 1.85 | 47 | 2.13 |
| Math, computer sciences, physical sciences | 40 | 1.76 | 17 | 1.07 | 24 | 1.45 | 16 | 1.33 | 30 | 1.75 |
| Social sciences | 42 | 1.34 | 16 | .83 | 28 | .94 | 14 | .88 | 30 | 1.28 |
| History | 50 | 2.79 | 17 | 1.90 | 30 | 2.36 | 21 | 2.00 | 37 | 2.61 |
| Humanities | 43 | 1.66 | 17 | 1.27 | 28 | 1.51 | 15 | .93 | 28 | 1.28 |
| Psychology | 50 | 1.72 | 19 | 1.31 | 31 | 1.86 | 20 | 1.45 | 40 | 1.64 |
| Other fields* | 29 | 1.11 | 15 | .69 | 21 | .98 | 9 | .51 | 18 | .76 |
| Age in December 1991 | | | | | | | | | | |
| 20-23 | 41 | .80 | 13 | .61 | 23 | .67 | 18 | .63 | 31 | .81 |
| 24-25 | 31 | .57 | 16 | .41 | 23 | .50 | 9 | .24 | 20 | .47 |
| 26 and older | 33 | .85 | 20 | .70 | 26 | .74 | 7 | .32 | 22 | .69 |
| Highest degree graduate expects to obtain | | | | | | | | | | |
| Bachelor's degree | 15 | .66 | 10 | .51 | 13 | .55 | 3 | .29 | 3 | .29 |
| Master's degree | 31 | .53 | 18 | .42 | 24 | .47 | 6 | .22 | 20 | .48 |
| Doctoral degree | 58 | 1.01 | 21 | .88 | 36 | .83 | 22 | .65 | 49 | .98 |
| First-professional degree | 68 | 1.44 | 9 | .74 | 27 | 1.28 | 41 | 1.50 | 61 | 1.36 |

*Other fields includes agriculture and natural resources, architecture and environmental design, area and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library end archival sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.

Table A-6.--Relationship of job to major field, career potential, and whether job required degree of employed 1989-90 bachelor's degree recipients 1 year after graduation, by graduate characteristics: 1991

| Characteristic | Job related to major field | | Job has career potential | | 4-year college degree not required for job | |
|---|---|---|---|---|---|---|
| | Percent | Standard error | Percent | Standard error | Percent | Standard error |
| All bachelor's graduates | 76 | .48 | 79 | .38 | 44 | .58 |
| Gender | | | | | | |
| Male | 74 | .66 | 81 | .48 | 45 | .93 |
| Female | 77 | .64 | 78 | .54 | 43 | .68 |
| Race/ethnicity | | | | | | |
| American Indian/Native Alaskan | 84 | 4.10 | 74 | 5.11 | 55 | 6.73 |
| Asian/Pacific Islander | 80 | 1.03 | 81 | 1.38 | 31 | 1.36 |
| Black, non-Hispanic | 75 | 1.11 | 76 | 1.17 | 49 | 1.27 |
| Hispanic | 74 | 1.65 | 76 | 1.78 | 41 | 2.07 |
| White, non-Hispanic | 76 | .53 | 80 | .40 | 44 | .62 |
| Type of major field of study | | | | | | |
| Professional fields | 85 | .46 | 85 | .42 | 39 | .88 |
| Arts and sciences fields | 61 | .95 | 71 | .68 | 50 | .68 |
| Other fields* | 74 | .88 | 78 | .92 | 51 | 1.08 |
| Major field of study | | | | | | |
| Business/management | 81 | .70 | 83 | .60 | 47 | .96 |
| Education | 87 | .71 | 84 | .77 | 24 | 1.00 |
| Engineering | 89 | 1.16 | 90 | .74 | 19 | 1.50 |
| Health professions | 95 | .84 | 92 | .88 | 49 | 3.48 |
| Public affairs/social services | 71 | 2.18 | 71 | 2.15 | 52 | 2.20 |
| Biological sciences | 73 | 1.84 | 67 | 2.27 | 42 | 2.01 |
| Math, computer sciences, physical sciences | 86 | 1.08 | 85 | 1.07 | 33 | 2.65 |
| Social sciences | 53 | 1.32 | 72 | 1.01 | 52 | 1.13 |
| History | 30 | 2.77 | 60 | 3.37 | 63 | 2.75 |
| Humanities | 57 | 1.70 | 66 | 1.58 | 57 | 1.40 |
| Psychology | 65 | 1.54 | 69 | 1.51 | 53 | 1.87 |
| Other fields* | 74 | .88 | 78 | .92 | 51 | 1.08 |
| Age in December 1991 | | | | | | |
| 20-23 | 74 | 1.09 | 77 | .74 | 39 | .91 |
| 24-25 | 75 | .61 | 79 | .53 | 42 | .78 |
| 26 and older | 78 | .55 | 81 | .54 | 50 | 1.04 |
| Highest degree graduate expects to obtain | | | | | | |
| Bachelor's degree | 74 | .73 | 81 | .81 | 56 | 1.00 |
| Master's degree | 78 | .57 | 81 | .39 | 41 | .63 |
| Doctoral degree | 72 | 1.26 | 73 | 1.08 | 42 | 1.33 |
| First-professional degree | 63 | 1.50 | 65 | 1.48 | 44 | 1.83 |

Table A-6.--Relationship of job to major field, career potential, and whether job required degree of employed 1989-90 bachelor's degree recipients 1 year after graduation, by graduate characteristics: 1991 (continued)

| Characteristic | Job related to major field | | Job has career potential | | 4-year college degree not required for job | |
|---|---|---|---|---|---|---|
| | Percent | Standard error | Percent | Standard error | Percent | Standard error |
| Occupation | | | | | | |
| Business/Managers | 82 | .90 | 89 | .65 | 36 | .95 |
| Educators | 92 | .58 | 85 | .79 | 16 | .86 |
| Engineers | 94 | .77 | 95 | .65 | 13 | 1.47 |
| Health professionals | 95 | .75 | 91 | 1.12 | 50 | 3.43 |
| Public affairs/social services | 90 | 1.57 | 83 | 1.47 | 23 | 1.77 |
| Biological scientists | 79 | 2.68 | 77 | 2.51 | 44 | 2.48 |
| Math and physical scientists | 92 | 2.43 | 92 | 1.70 | 11 | 1.79 |
| Computer scientists and programmers | 86 | 1.42 | 92 | 1.07 | 31 | 2.58 |
| Communications | 85 | 2.28 | 88 | 1.66 | 37 | 3.53 |
| Writers, artists, etc. | 85 | 2.12 | 80 | 2.11 | 55 | 3.02 |
| Technicians | 78 | 1.66 | 80 | 2.16 | 39 | 2.56 |
| Administrative support/clerical | 60 | 1.08 | 67 | 1.00 | 66 | .90 |
| Crafts/operators/laborers | 45 | 2.91 | 62 | 2.53 | 79 | 1.55 |
| Sales personnel | 68 | 1.26 | 78 | .98 | 53 | 1.50 |
| Service personnel | 42 | 1.46 | 48 | 1.51 | 85 | .99 |
| Other | 47 | 2.68 | 85 | 2.18 | 29 | 3.25 |

*Other fields includes agriculture and natural resources, architecture and environmental design, area and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library and archival sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.

Table A-7.—Job degree requirements and percent underemployed of employed 1989-90 bachelor's degree recipients 1 year after graduation, by major field of study: 1991

| Major field of study | College degree not required for job | | | | Underemployed[1] (Full time only) | |
|---|---|---|---|---|---|---|
| | Full and part time | | Full time only | | | |
| | Percent | Standard error | Percent | Standard error | Percent | Standard error |
| Total | 44 | .58 | 40 | .62 | 23 | .41 |
| Business/management | 47 | .96 | 44 | 1.10 | 28 | .88 |
| Education | 24 | 1.00 | 20 | 1.04 | 11 | .79 |
| Engineering | 19 | 1.50 | 17 | 1.39 | 7 | .75 |
| Health professions | 49 | 3.48 | 46 | 3.61 | 4 | .63 |
| Public affairs/social services | 52 | 2.20 | 50 | 2.26 | 35 | 2.14 |
| Biological sciences | 42 | 2.01 | 33 | 2.06 | 16 | 2.02 |
| Math, computer sciences, physical sciences | 33 | 2.65 | 30 | 2.90 | 10 | 1.25 |
| Social sciences | 52 | 1.13 | 46 | 1.35 | 31 | 1.23 |
| History | 63 | 2.75 | 57 | 3.34 | 39 | 2.85 |
| Humanities | 57 | 1.40 | 54 | 1.87 | 33 | 1.44 |
| Psychology | 53 | 1.87 | 48 | 2.09 | 28 | 1.82 |
| Other fields[2] | 51 | 1.08 | 47 | 1.14 | 29 | .96 |

[1]Underemployed graduates include those who reported that a college degree was not required for the job and are employed full time in sales, service, administrative support/clerical, or crafts/operators/laborers.

[2]Other fields includes agriculture and natural resources, architecture and environmental design, area and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library and archival sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.

Table A-8.--Average annual salary of 1989-90 bachelor's degree recipients employed 1 year after graduation, by graduate characteristics: 1991

| Characteristic | Total employed | | Average annual salary of full-time and part-time employed | |
|---|---|---|---|---|
| | Number | Standard error | Mean | Standard error |
| All bachelor's graduates | 884,773 | 3,048 | $21,870 | $180 |
| Gender | | | | |
| Male | 410,417 | 2,056 | 23,883 | 230 |
| Female | 474,356 | 2,054 | 20,128 | 204 |
| Race/ethnicity | | | | |
| American Indian/Native Alaskan | 4,529 | 567 | 19,539 | 1,493 |
| Asian/Pacific Islander | 28,049 | 1,208 | 24,328 | 323 |
| Black, non-Hispanic | 54,147 | 3,487 | 21,074 | 274 |
| Hispanic | 32,142 | 2,193 | 22,280 | 408 |
| White, non-Hispanic | 765,905 | 5,140 | 21,833 | 193 |
| Type of major field of study | | | | |
| Professional fields | 483,661 | 7,883 | 23,970 | 258 |
| Arts and sciences fields | 290,182 | 6,433 | 19,384 | 239 |
| Other fields* | 110,930 | 3,405 | 19,215 | 258 |
| Major field of study | | | | |
| Business/management | 224,977 | 6,609 | 23,766 | 319 |
| Education | 96,241 | 499 | 17,503 | 167 |
| Engineering | 71,939 | 6,476 | 30,290 | 438 |
| Health professions | 62,018 | 5,754 | 29,616 | 793 |
| Public affairs/social services | 28,485 | 2,083 | 19,182 | 444 |
| Biological sciences | 27,921 | 1,385 | 18,373 | 375 |
| Math, computer sciences, physicel sciences | 46,437 | 3,317 | 25,375 | 433 |
| Social sciencas | 81,357 | 3,036 | 20,253 | 316 |
| History | 16,782 | 1,079 | 18,352 | 707 |
| Humenities | 77,049 | 4,065 | 16,642 | 346 |
| Psychology | 40,636 | 2,053 | 17,115 | 348 |
| Other fields* | 110,930 | 3,405 | 19,215 | 258 |
| Age in December 1991 | | | | |
| 20-23 | 222,549 | 6,791 | 19,703 | 202 |
| 24-25 | 354,114 | 5,449 | 20,918 | 271 |
| 26 and older | 308,109 | 9,166 | 24,529 | 296 |
| Highest degree graduate expects to obtain | | | | |
| Bachelor's degree | 162,547 | 3,396 | 22,883 | 339 |
| Master's degree | 572,580 | 4,468 | 22,056 | 194 |
| Doctoral degree | 103,228 | 2,822 | 20,038 | 282 |
| First-professional degree | 46,418 | 1,879 | 20,094 | 405 |

Table A-8.--Average annual salary of 1989-90 bachelor's degree recipients employed 1 year after graduation, by graduate characteristics: 1991 (continued)

| Characteristic | Total employed | | Average annual salary of full-time and part-time employed | |
|---|---|---|---|---|
| | Number | Standard error | Mean | Standard error |
| Occupation | | | | |
| Business/Managers | 128,671 | 3,244 | $25,540 | $328 |
| Educators | 123,528 | 2,277 | 16,961 | 138 |
| Engineers | 52,069 | 4,865 | 31,777 | 391 |
| Health professionals | 60,527 | 5,362 | 29,440 | 718 |
| Public affairs/social services | 32,204 | 1,729 | 18,322 | 256 |
| Biological scientists | 20,744 | 1,149 | 19,827 | 510 |
| Math and physical scientists | 10,356 | 757 | 25,682 | 541 |
| Computer scientists and programmers | 36,099 | 2,595 | 29,534 | 599 |
| Communications | 18,225 | 1,164 | 18,274 | 305 |
| Writers, artists, etc. | 21,268 | 1,739 | 19,798 | 637 |
| Technicians | 28,246 | 1,638 | 23,439 | 407 |
| Administrative support/clerical | 158,996 | 3,203 | 18,182 | 207 |
| Crafts/operators/laborers | 33,147 | 2,067 | 21,428 | 686 |
| Sales personnel | 93,668 | 2,677 | 22,067 | 270 |
| Service personnel | 53,186 | 1,569 | 15,146 | 379 |
| Other | 13,839 | 1,831 | 22,301 | 720 |

*Other fields includes agriculture and natural resources, architecture and environmental design, area and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library and archival sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.
NOTE: Details may not add to totals due to rounding.

Table A-9.--Average annual salary of 1989-90 bachelor's degree recipients employed full time 1 year after graduation, by graduate characteristics: 1991

| Characteristic | Total employed full time | | Annual salary of full-time employed | |
|---|---|---|---|---|
| | Number | Standard error | Mean | Standard error |
| All bachelor's graduates | 774,199 | 3,801 | $23,632 | $180 |
| Gender | | | | |
| Male | 369,796 | 2,657 | 25,432 | 220 |
| Female | 404,402 | 2,322 | 21,986 | 216 |
| Race/ethnicity | | | | |
| American Indian/Native Alaskan | 3,982 | 574 | 21,238 | 1,454 |
| Asian/Pacific Islander | 25,153 | 1,170 | 25,911 | 350 |
| Black, non-Hispanic | 48,043 | 3,126 | 22,597 | 273 |
| Hispanic | 28,325 | 2,138 | 23,890 | 362 |
| White, non-Hispanic | 668,696 | 5,181 | 23,624 | 194 |
| Type of major field of study | | | | |
| Professional fields | 440,047 | 7,556 | 25,289 | 265 |
| Arts and sciences fields | 237,496 | 5,592 | 21,725 | 218 |
| Other fields* | 96,656 | 2,885 | 20,773 | 270 |
| Major field of study | | | | |
| Business/management | 210,491 | 6,379 | 24,727 | 324 |
| Education | 80,668 | 777 | 19,110 | 137 |
| Engineering | 69,609 | 6,388 | 30,933 | 392 |
| Health professions | 54,405 | 4,867 | 31,455 | 859 |
| Public affairs/social services | 24,875 | 1,932 | 20,801 | 466 |
| Biological sciences | 22,594 | 1,268 | 21,051 | 414 |
| Math, computer sciences, physical sciences | 41,752 | 3,146 | 27,156 | 399 |
| Social sciences | 68,783 | 2,611 | 22,213 | 327 |
| History | 13,295 | 907 | 21,315 | 606 |
| Humanities | 58,184 | 3,215 | 19,059 | 340 |
| Psychology | 32,889 | 1,740 | 19,154 | 314 |
| Other fields* | 96,656 | 2,885 | 20,773 | 270 |
| Age in December 1991 | | | | |
| 20-23 | 191,618 | 6,279 | 21,585 | 184 |
| 24-25 | 312,062 | 5,282 | 22,548 | 277 |
| 26 and older | 270,519 | 8,037 | 26,332 | 303 |
| Highest degree graduate expects to obtain | | | | |
| Bachelor's degree | 145,509 | 3,069 | 24,366 | 356 |
| Master's degree | 508,821 | 4,305 | 23,630 | 182 |
| Doctoral degree | 83,532 | 2,718 | 22,595 | 284 |
| First-professional degree | 36,336 | 1,567 | 23,108 | 426 |

Table A-9.--Average annual salary of 1989-90 bachelor's degree recipients employed full time 1 year after graduation, by graduate characteristics: 1991 (continued)

| Characteristic | Total employed full time | | Annual salary of full-time employed | |
|---|---|---|---|---|
| | Number | Standard error | Mean | Standard error |
| Occupation | | | | |
| Business/Management | 124,511 | 3,050 | $25,961 | $325 |
| Educators | 98,818 | 1,957 | 19,116 | 138 |
| Engineers | 51,087 | 4,780 | 31,974 | 377 |
| Health professionals | 53,049 | 4,482 | 30,971 | 794 |
| Public affairs/social services | 28,733 | 1,605 | 19,227 | 181 |
| Biological scientists | 18,616 | 1,147 | 21,325 | 477 |
| Math and physical scientists | 10,164 | 751 | 26,040 | 540 |
| Computer scientists and programmers | 34,552 | 2,523 | 30,419 | 601 |
| Communications | 16,336 | 1,062 | 19,584 | 354 |
| Writers, artists, etc. | 16,817 | 1,520 | 22,353 | 671 |
| Technicians | 26,052 | 1,523 | 24,708 | 373 |
| Administrative support/clerical | 135,050 | 2,766 | 19,946 | 197 |
| Crafts/operators/laborers | 28,245 | 1,882 | 23,558 | 743 |
| Sales personnel | 83,198 | 2,571 | 23,603 | 298 |
| Service personnel | 36,534 | 1,232 | 18,360 | 420 |
| Other | 12,436 | 1,825 | 24,097 | 825 |

*Other fields includes agriculture and natural resources, architecture and environmental design, area and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library and archival sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.
NOTE: Details may not add to totals due to rounding.

Table A-10.—Percentage distribution of 1989-90 bachelor's degree recipients employed full time and average annual salary 1 year after graduation, by gender, major field of study, and occupation

| Characteristics | Total number employed full time | | Percentage distribution | | | | Average annual salary of full-time employed | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Male | | Female | | Male | | Female | |
| | Estimate | Standard error | Estimate | Standard error | Estimate | Standard error | Average | Standard error | Average | Standard error |
| Total number | 774,199 | 3,763 | 369,796 | 2,657 | 404,402 | 2,322 | $25,432 | $220 | $21,986 | $216 |
| Type of major field of study | | | | | | | | | | |
| Professional fields | 57% | .85% | 58% | 1.06% | 56% | .97% | 27,118 | 309 | 23,577 | 306 |
| Arts and sciences fields | 31 | .76 | 31 | .94 | 30 | .91 | 23,537 | 300 | 20,037 | 230 |
| Other fields* | 12 | .37 | 11 | .52 | 13 | .43 | 22,095 | 490 | 19,735 | 293 |
| Major field of study | | | | | | | | | | |
| Business/management | 27 | .79 | 30 | 1.09 | 24 | .78 | 25,927 | 436 | 23,343 | 322 |
| Education | 10 | .10 | 5 | .12 | 15 | .17 | 21,009 | 300 | 18,559 | 132 |
| Engineering | 9 | .80 | 17 | 1.40 | 2 | .29 | 31,024 | 399 | 30,236 | 631 |
| Health professions | 7 | .63 | 3 | .37 | 11 | .97 | 33,884 | 1,084 | 30,941 | 843 |
| Public affairs/social services | 3 | .25 | 3 | .33 | 3 | .33 | 21,639 | 933 | 20,152 | 454 |
| Biological sciences | 3 | .16 | 3 | .23 | 3 | .22 | 21,850 | 665 | 20,359 | 492 |
| Math, computer sciences, physical sciences | 5 | .41 | 7 | .65 | 3 | .24 | 27,994 | 448 | 25,514 | 574 |
| Social sciences | 9 | .34 | 10 | .47 | 8 | .35 | 24,212 | 530 | 19,995 | 333 |
| History | 2 | .12 | 2 | .19 | 1 | .13 | 20,948 | 696 | 22,143 | 1,139 |
| Humanities | 8 | .43 | 6 | .50 | 9 | .55 | 20,278 | 363 | 18,343 | 460 |
| Psychology | 4 | .23 | 3 | .18 | 6 | .34 | 19,742 | 564 | 18,917 | 362 |
| Other fields* | 12 | .37 | 11 | .52 | 13 | .43 | 22,095 | 490 | 19,735 | 293 |
| Occupation | | | | | | | | | | |
| Business/Management | 16 | .37 | 17 | .62 | 15 | .49 | 26,862 | 396 | 25,034 | 401 |
| Educators | 13 | .27 | 7 | .22 | 18 | .46 | 20,325 | 269 | 18,717 | 135 |
| Engineers | 7 | .60 | 12 | 1.08 | 1 | .20 | 32,167 | 390 | 30,294 | 646 |
| Health professionals | 7 | .58 | 3 | .36 | 11 | .88 | 32,270 | 1,155 | 30,658 | 781 |
| Public affairs/social services | 4 | .21 | 2 | .21 | 5 | .32 | 19,252 | 433 | 19,216 | 236 |
| Biological scientists | 2 | .15 | 3 | .21 | 2 | .18 | 20,568 | 764 | 22,281 | 470 |
| Math and physical scientists | 1 | .10 | 2 | .13 | 1 | .11 | 26,416 | 761 | 25,539 | 704 |
| Computer science and programming | 4 | .32 | 7 | .50 | 2 | .22 | 31,040 | 743 | 28,806 | 696 |
| Communications | 2 | .14 | 2 | .17 | 3 | .20 | 19,861 | 662 | 19,416 | 566 |
| Writers, artists, etc. | 2 | .20 | 2 | .24 | 2 | .24 | 22,309 | 724 | 22,396 | 1,085 |
| Technicians | 3 | .19 | 4 | .33 | 3 | .23 | 25,846 | 561 | 23,176 | 435 |
| Administrative support/clerical | 17 | .36 | 13 | .49 | 22 | .48 | 21,183 | 423 | 19,293 | 177 |
| Crafts/operators/laborers | 4 | .24 | 7 | .49 | 1 | .10 | 24,312 | 807 | 18,466 | 1,401 |
| Sales personnel | 11 | .34 | 13 | .49 | 9 | .40 | 25,590 | 453 | 20,902 | 348 |
| Service personnel | 5 | .16 | 5 | .26 | 4 | .22 | 20,233 | 524 | 16,260 | 811 |
| Other | 2 | .23 | 2 | .41 | 1 | .10 | 24,509 | 1,121 | 22,955 | 815 |

*Other fields includes agriculture and natural resources, architecture and environmental design, area and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library and archival sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.
NOTE: Percentages may not add to 100 due to rounding.

Table A-11.--Percentage distribution of enrollment status of graduates by labor force status: 1991

| Enrollment status in April 1991 | Labor force status in April 1991 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | | Employed full time | | Employed part time | | Unemployed | | Not in labor force because of school | | Not in labor force other reason | |
| | Percent | Standard error | Percent | Standard error | Percent | Standard error | Percent | Standard error | Percent | Standard error | Percent | Standerd error |
| Total . . . . . | 100 | - | 100 | - | 100 | - | 100 | - | 100 | - | 100 | - |
| Full-time enrolled | 13 | .30 | 3 | .15 | 27 | 1.09 | 11 | 1.31 | 91 | .48 | 10 | 1.04 |
| Part-time enrolled | 9 | 1.04 | 9 | .31 | 12 | .61 | 7 | 1.18 | 6 | .39 | 6 | 1.05 |
| Not enrolled . . . . | 78 | 1.49 | 88 | .38 | 61 | 1.11 | 82 | 1.58 | 3 | .30 | 85 | 1.49 |

NOTE: Percentages may not add to 100 due to rounding.

Table A-12.--Average salary and job characteristics for full-time employed 1989-90 bachelor's graduates who are not full-time enrolled in April 1991

| Characteristic | Average full-time salary | | Job related to major field | | Job has career potential | | 4-year degree not raquired | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Standard error | Percent | Standard error | Percent | Standard error | Percent | Standard error |
| All bachelor's graduates | $23,697 | $182 | 79 | .46 | 84 | .34 | 40 | .63 |
| Gender | | | | | | | | |
| Male | 25,494 | 223 | 77 | .63 | 85 | .43 | 41 | .98 |
| Female | 22,052 | 215 | 81 | .63 | 83 | .52 | 39 | .73 |
| Race/ethnicity | | | | | | | | |
| American Indian/Native Alaskan | 21,755 | 1,478 | 86 | 4.42 | 78 | 5.39 | 56 | 7.26 |
| Asian/Pacific Islander | 25,961 | 324 | 83 | 1.23 | 86 | 1.39 | 26 | 1.34 |
| Black, non-Hispanic | 22,588 | 282 | 77 | 1.09 | 79 | 1.29 | 45 | 1.53 |
| Hispanic | 24,078 | 370 | 76 | 1.75 | 82 | 1.84 | 38 | 1.98 |
| White, non-Hispanic | 23,687 | 198 | 79 | .51 | 84 | .34 | 40 | .66 |
| Type of major field of study | | | | | | | | |
| Professional fields | 25,325 | 263 | 87 | .46 | 87 | .40 | 36 | .91 |
| Arts and sciences fields | 21,814 | 219 | 65 | .98 | 77 | .65 | 45 | .90 |
| Other fields* | 20,805 | 271 | 77 | .94 | 82 | .92 | 47 | 1.14 |
| Major field of study | | | | | | | | |
| Business/management | 24,709 | 317 | 84 | .71 | 85 | .59 | 44 | 1.10 |
| Education | 19,156 | 138 | 89 | .73 | 88 | .74 | 20 | 1.08 |
| Engineering | 31,003 | 377 | 90 | .95 | 92 | .68 | 18 | 1.36 |
| Health professions | 31,642 | 871 | 97 | .62 | 95 | .72 | 46 | 3.67 |
| Public affairs/social services | 20,840 | 472 | 73 | 2.47 | 75 | 2.54 | 49 | 2.30 |
| Biological sciences | 21,358 | 427 | 80 | 1.99 | 76 | 2.34 | 31 | 2.08 |
| Math, computer sciences, physical sciences | 27,395 | 396 | 88 | 1.18 | 89 | 1.08 | 30 | 2.89 |
| Social sciences | 22,301 | 335 | 56 | 1.35 | 78 | 1.07 | 46 | 1.36 |
| History | 20,808 | 605 | 31 | 3.26 | 68 | 3.32 | 58 | 3.49 |
| Humanities | 19,096 | 341 | 58 | 1.93 | 72 | 1.78 | 55 | 1.86 |
| Psychology | 19,164 | 3[illegible] | 69 | 1.99 | 76 | 1.40 | 47 | 2.18 |
| Other fields* | 20,805 | 271 | 77 | .94 | 82 | .92 | 47 | 1.14 |
| Age in December 1991 | | | | | | | | |
| 20-23 | 21,645 | 177 | 78 | 1.08 | 83 | .65 | 33 | .95 |
| 24-25 | 22,619 | 279 | 79 | .56 | 84 | .58 | 37 | .85 |
| 26 and older | 26,416 | 305 | 80 | .55 | 84 | .52 | 48 | 1.06 |
| Highest degree graduate expects to obtain | | | | | | | | |
| Bachelor's degree | 24,395 | 357 | 77 | .78 | 85 | .81 | 53 | 1.05 |
| Master's degree | 23,671 | 183 | 81 | .54 | 85 | .36 | 37 | .68 |
| Doctoral degree | 22,768 | 285 | 77 | 1.40 | 80 | 1.05 | 35 | 1.49 |
| First-professional degree | 23,207 | 412 | 70 | 1.73 | 75 | 1.79 | 37 | 1.99 |

*Other fields includes agriculture and natural resources, architecture and environmental design, area and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library and archival sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.

Table A-13a.--Job characteristics 1 year after graduation of 1989-90 bachelor's degree recipients with majors in **business and management**, by occupation: 1991

| Occupation | Total number | Percent | Job related to degree | Job has career potential | Degree not required | Annual income full and part*time | Annual income full*time |
|---|---|---|---|---|---|---|---|
| | | | Percent | Percent | Percent | Mean | Mean |
| Total business majors | 224,977 | 100 | 81 | 83 | 47 | $23,766 | $24,727 |
| Business/Managers | 74,714 | 33 | 92 | 91 | 31 | 26,545 | 26,673 |
| Educators | 3,130 | 1 | * | * | * | * | * |
| Engineers | 2,947 | 1 | * | * | * | * | * |
| Health professionals | 564 | ** | * | * | * | * | * |
| Public affairs/social services | 1,012 | ** | * | * | * | * | * |
| Biological scientists | 1,308 | 1 | * | * | * | * | * |
| Math and physical scientists | 3,730 | 2 | * | * | * | * | * |
| Computer scientists and programmers | 8,415 | 4 | 86 | 94 | 35 | 29,703 | 30,141 |
| Communications | 606 | ** | * | * | * | * | * |
| Writers, artists, etc. | 1,460 | 1 | * | * | * | * | * |
| Technicians | 3,062 | 1 | * | * | * | * | * |
| Administrative support/clerical | 64,571 | 29 | 78 | 77 | 58 | 20,006 | 21,213 |
| Crafts/operators/laborers | 8,739 | 4 | 48 | 68 | 78 | 24,023 | 26,512 |
| Sales personnel | 40,657 | 18 | 86 | 84 | 46 | 23,892 | 24,688 |
| Service personnel | 7,699 | 3 | 44 | 54 | 86 | 17,937 | 21,337 |
| Other | 2,364 | 1 | * | * | * | * | * |
| Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error |
| Total | 6,609 | *** | .70 | .60 | .96 | $319 | $324 |
| Business/Managers | 2,890 | .80 | .85 | .80 | 1.40 | 406 | 418 |
| Educators | 415 | .19 | * | * | * | * | * |
| Engineers | 545 | .24 | * | * | * | * | * |
| Health professionals | 212 | * | * | * | * | * | * |
| Public affairs/social services | 364 | * | * | * | * | * | * |
| Biological scientists | 378 | .16 | * | * | * | * | * |
| Math and physical scientists | 545 | .24 | * | * | * | * | * |
| Computer scientists and programmers | 805 | .32 | 1.96 | 1.30 | 4.76 | 1,346 | 1,359 |
| Communications | 174 | * | * | * | * | * | * |
| Writers, artists, etc. | 243 | .11 | * | * | * | * | * |
| Technicians | 397 | .17 | * | * | * | * | * |
| Administrative support/clerical | 2,456 | .74 | 1.28 | 1.29 | 1.59 | 369 | 347 |
| Crafts/operators/laborers | 891 | .37 | 5.15 | 4.62 | 3.57 | 2,036 | 2,178 |
| Sales personnel | 1,875 | .63 | 1.12 | 1.35 | 2.45 | 479 | 512 |
| Service personnel | 689 | .31 | 4.76 | 4.56 | 2.76 | 1,678 | 2,126 |
| Other | 410 | .19 | * | * | * | * | * |

*Occupation contains less than 3 percent of the total.
**Estimate less than 0.5.
***Zero standard error.
NOTE: Details may not add to totals and percentages may not add to 100 due to rounding. Some of the standard errors may have an insufficient number of degrees of freedom for reporting purposes. Large standard errors are due to a small number of distinct replicates.

Table A-13b.--Job characteristics 1 year after graduation of 1989-90 bachelor's degree recipients with majors in **education**, by occupation: 1991

| Occupation | Total number estimates | Percent | Job related to degree | Job has career potential | Degree not required | Annual income full and part time | Annual income full time |
|---|---|---|---|---|---|---|---|
| | | | Percent | Percent | Percent | Mean | Mean |
| Total education majors | 96,241 | 100 | 87 | 84 | 24 | $17,503 | $19,110 |
| Business/Managers | 2,403 | 2 | • | • | • | • | • |
| Educators | 73,885 | 77 | 99 | 90 | 10 | 17,596 | 19,116 |
| Engineers | 156 | •• | • | • | • | • | • |
| Health professionals | 1,299 | 1 | • | • | • | • | • |
| Public affairs/social services | 1,246 | 1 | • | • | • | • | • |
| Biological scientists | 496 | 1 | • | • | • | • | • |
| Math and physical scientists | 47 | •• | • | • | • | • | • |
| Computer scientists and programmers | 96 | •• | • | • | • | • | • |
| Communications | 38 | •• | • | • | • | • | • |
| Writers, artists, etc. | 510 | 1 | • | • | • | • | • |
| Technicians | 349 | •• | • | • | • | • | • |
| Administrative support/clerks | 6,702 | 7 | 42 | 67 | 80 | 16,231 | 18,185 |
| Crafts/operators/laborers | 1,623 | 2 | • | • | • | • | • |
| Sales personnel | 2,629 | 3 | 28 | 56 | 81 | 19,344 | 18,897 |
| Service personnel | 3,886 | 4 | 50 | 28 | 83 | 11,939 | 14,270 |
| Other | 878 | 1 | • | • | • | • | • |
| Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error |
| Total | 499 | ••• | .71 | .77 | 1.00 | $167 | $137 |
| Business/Managers | 270 | .28 | • | • | • | • | • |
| Educators | 1,076 | .93 | .18 | .61 | .82 | 159 | 122 |
| Engineers | 47 | • | • | • | • | • | • |
| Health professionals | 187 | .19 | • | • | • | • | • |
| Public affairs/social services | 190 | .20 | • | • | • | • | • |
| Biological scientists | 52 | .05 | • | • | • | • | • |
| Math and physical scientists | 3 | • | • | • | • | • | • |
| Computer scientists and programmers | 47 | • | • | • | • | • | • |
| Communications | 2 | • | • | • | • | • | • |
| Writers, artists, etc. | 100 | .10 | • | • | • | • | • |
| Technicians | 72 | • | • | • | • | • | • |
| Administrative support/clerks | 396 | .42 | 3.42 | 3.06 | 2.58 | 482 | 548 |
| Crafts/operators/laborers | 237 | .25 | • | • | • | • | • |
| Sales personnel | 319 | .33 | 4.10 | 5.01 | 2.83 | 1,398 | 1,318 |
| Service personnel | 346 | .36 | 4.23 | 4.82 | 3.99 | 656 | 741 |
| Other | 168 | .17 | • | • | • | • | • |

*Occupation contains less than 3 percent of the total.
**Estimate less than 0.5.
***Zero standard error.
NOTE: Details may not add to totals and percentages may not add to 100 due to rounding. Some of the standard errors may have an insufficient number of degrees of freedom for reporting purposes. Large standard errors are due to a small number of distinct replicates.

Table A-13c.--Job characteristics 1 year after graduation of 1989'90 bachelor's degree recipients with majors in engineering, by occupation: 1991

| Occupation | Total number | Percent | Job related to degree | Job has career potential | Degree not required | Annual income full and part time | Annual income full time |
|---|---|---|---|---|---|---|---|
| | | | Percent | Percent | Percent | Mean | Mean |
| Total engineering majors | 71,939 | 100 | 89 | 90 | 19 | $30,290 | $30,933 |
| Business/Managers | 5,096 | 7 | 84 | 91 | 30 | 28,859 | 29,268 |
| Educators | 899 | 1 | * | * | * | * | * |
| Engineers | 41,845 | 58 | 98 | 96 | 7 | 32,170 | 32,348 |
| Health professionals | 309 | ** | * | * | * | * | * |
| Public affairs/social services | 41 | ** | * | * | * | * | * |
| Biological scientists | 591 | 1 | * | * | * | * | * |
| Math and physical scientists | 290 | ** | * | * | * | * | * |
| Computer scientists and programmers | 4,410 | 6 | 91 | 89 | 19 | 30,601 | 31,663 |
| Communications | 111 | ** | * | * | * | * | * |
| Writers, artists, etc. | 689 | 1 | * | * | * | * | * |
| Technicians | 4,988 | 7 | 86 | 93 | 24 | 31,447 | 32,283 |
| Administrative support/clerical | 2,823 | 4 | 62 | 72 | 51 | 25,881 | 31,152 |
| Crafts/operators/laborers | 5,076 | 7 | 71 | 60 | 67 | 25,235 | 26,084 |
| Sales personnel | 2,327 | 3 | 76 | 91 | 19 | 29,959 | 29,959 |
| Service personnel | 422 | 1 | * | * | * | * | * |
| Other | 2,023 | 3 | 51 | 90 | 20 | 25,237 | 25,237 |
| Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error |
| Total | 6,476 | *** | 1.16 | .74 | 1.50 | $438 | $392 |
| Business/Managers | 622 | .81 | 3.34 | 2.29 | 4.32 | 979 | 938 |
| Educators | 172 | .29 | * | * | * | * | * |
| Engineers | 4,670 | 2.14 | .63 | .69 | 1.17 | 364 | 330 |
| Health professionals | 180 | * | * | * | * | * | * |
| Public affairs/social services | 41 | * | * | * | * | * | * |
| Biological scientists | 196 | .27 | * | * | * | * | * |
| Math and physical scientists | 41 | * | * | * | * | * | * |
| Computer scientists and programmers | 666 | .71 | 2.58 | 3.09 | 3.91 | 866 | 566 |
| Communications | 113 | * | * | * | * | * | * |
| Writers, artists, etc. | 235 | .31 | * | * | * | * | * |
| Technicians | 594 | .63 | 3.59 | 3.65 | 7.00 | 1,028 | 766 |
| Administrative support/clerical | 280 | .43 | 5.10 | 4.67 | 4.89 | 2,045 | 1,936 |
| Crafts/operators/laborers | 568 | .78 | 4.38 | 5.30 | 4.46 | 1,400 | 1,333 |
| Sales personnel | 483 | .62 | 7.16 | 6.47 | 6.56 | 1,532 | 1,532 |
| Service personnel | 105 | .14 | * | * | * | * | * |
| Other | 777 | .99 | 6.64 | 1.61 | 4.70 | 2,964 | 2,964 |

*Occupation contains less than 3 percent of the total.
** Estimate less than 0.5.
***Zero standard error.
NOTE: Details may not add to totals and percentages may not add to 100 due to rounding. Some of the standard errors may have an insufficient number of degrees of freedom for reporting purposes. Large standard errors are due to a small number of distinct replicates.

Table A-13d.--Job characteristics 1 year after graduation of 1989-90 bachelor's degree recipients with majors in health professions, by occupation: 1991

| Occupation | Total number | Percent | Job related to degree | Job has career potential | Degree not required | Annual income full and part time | Annual income full time |
|---|---|---|---|---|---|---|---|
| | | | Percent | Percent | Percent | Mean | Mean |
| Total health professions majors | 62,018 | 100 | 95 | 92 | 49 | $29,616 | $31,455 |
| Business/Managers | 2,240 | 4 | 89 | 100 | 62 | 29,654 | 32,700 |
| Educators | 1,505 | 2 | * | * | * | * | * |
| Engineers | ** | ** | * | * | * | * | * |
| Health professionals | 49,359 | 80 | 99 | 95 | 48 | 31,465 | 32,691 |
| Public affairs/social services | 726 | 1 | * | * | * | * | * |
| Biological scientists | 1,930 | 3 | 93 | 93 | 30 | 24,603 | 26,776 |
| Math and physical scientists | 201 | ** | * | * | * | * | * |
| Computer scientists and programmers | 39 | ** | * | * | * | * | * |
| Communications | 106 | ** | * | * | * | | * |
| Writers, artists, etc. | 111 | ** | * | * | * | * | * |
| Technicians | 789 | 1 | * | * | * | * | * |
| Administrative support/clerical | 2,931 | 5 | 44 | 49 | 77 | 16,948 | 22,751 |
| Crafts/operators/laborers | 100 | ** | * | * | * | * | * |
| Sales personnel | 887 | 1 | * | * | * | * | * |
| Service personnel | 1,014 | 2 | * | * | * | * | * |
| Other | 80 | ** | * | * | * | * | * |
| Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error |
| Total | 5,754 | *** | .84 | .88 | 3.48 | $793 | $859 |
| Business/Managers | 405 | .62 | 3.92 | * | 10.61 | 4,201 | 4,145 |
| Educators | 290 | .47 | * | * | * | * | * |
| Engineers | * | * | * | * | * | * | * |
| Health professionals | 5,258 | 1.71 | .24 | 1.20 | 3.84 | 755 | 858 |
| Public affairs/social services | 119 | .24 | * | * | * | * | * |
| Biological scientists | 364 | .55 | 5.69 | 5.58 | 8.87 | 1,594 | 819 |
| Math and physical scientists | 102 | * | * | * | * | * | * |
| Computer scientists and programmers | 2 | * | * | * | * | * | * |
| Communications | 106 | * | * | * | * | * | * |
| Writers, artists, etc. | 110 | * | * | * | * | * | * |
| Technicians | 210 | .33 | * | * | * | * | * |
| Administrative support/clerical | 330 | .63 | 6.47 | 6.60 | 6.25 | 1,292 | 1,028 |
| Crafts/operators/laborers | 100 | * | * | * | * | * | * |
| Sales personnel | 183 | .27 | * | * | * | * | * |
| Service personnel | 157 | .35 | * | * | * | * | * |
| Other | 41 | * | * | * | * | * | * |

*Occupation contains less than 3 percent of the total.
**Estimate less than 0.5.
***Zero standard error.
NOTE: Percentages may not add to 100 due to rounding. Some of the standard errors may have an insufficient number of degrees of freedom for reporting purposes. Large standard errors are due to a small number of distinct replicates.

Table A-13e.--Job characteristics 1 year after graduation of 1989-90 bachelor's degree recipients with majors in **public affairs and social services**, by occupation: 1991

| Occupation | Total number | Percent | Job related to degree | Job has career potential | Degree not required | Annual income full and part time | Annual income full time |
|---|---|---|---|---|---|---|---|
| | | | Percent | Percent | Percent | Mean | Mean |
| Total public affairs/social services majors | 28,485 | 100 | 71 | 71 | 52 | $19,182 | $20,801 |
| Business/Management | 1,907 | 7 | 53 | 67 | 69 | 23,613 | 26,901 |
| Educators | 1,245 | 4 | 67 | 48 | 36 | 12,900 | 16,627 |
| Engineers | ** | ** | * | * | * | * | * |
| Health professionals | 571 | 2 | * | * | * | * | * |
| Public affairs/social services | 8,915 | 31 | 98 | 82 | 15 | 18,245 | 19,251 |
| Biological scientists | 445 | 2 | * | * | * | * | * |
| Math and physical scientists | 94 | ** | * | * | * | * | * |
| Computer scientists and programmers | 246 | 1 | * | * | * | * | * |
| Communications | 101 | ** | * | * | * | * | * |
| Writers, artists, etc. | 675 | 2 | * | * | * | * | * |
| Technicians | 620 | 2 | * | * | * | * | * |
| Administrative support/clerical | 3,552 | 12 | 58 | 72 | 73 | 16,898 | 17,387 |
| Crafts/operators/laborers | 1,483 | 5 | 14 | 58 | 86 | 21,644 | 22,237 |
| Sales personnel | 950 | 3 | 15 | 60 | 54 | 21,554 | 21,554 |
| Service personnel | 7,271 | 26 | 78 | 74 | 76 | 19,196 | 21,644 |
| Other | 410 | 1 | * | * | * | * | * |
| Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error |
| Total | 2,083 | *** | 2.18 | 2.15 | 2.20 | $444 | $466 |
| Business/Managers | 260 | .93 | 8.96 | 7.53 | 7.86 | 3,817 | 3,962 |
| Educators | 356 | 1.16 | 12.24 | 10.25 | 14.06 | 1,865 | 1,723 |
| Engineers | * | * | * | * | * | * | * |
| Health professionals | 140 | .47 | * | * | * | * | * |
| Public affairs/social services | 851 | 2.17 | .45 | 3.69 | 3.52 | 492 | 412 |
| Biological scientists | 277 | .93 | * | * | * | * | * |
| Math and physical scientists | 42 | * | * | * | * | * | * |
| Computer scientists and programmers | 112 | .39 | * | * | * | * | * |
| Communications | 101 | * | * | * | * | * | * |
| Writers, artists, etc. | 218 | .74 | * | * | * | * | * |
| Technicians | 109 | .40 | * | * | * | * | * |
| Administrative support/clerical | 514 | 1.66 | 6.58 | 8.32 | 5.69 | 842 | 860 |
| Crafts/operators/laborers | 353 | 1.13 | 8.61 | 12.62 | 8.61 | 2,966 | 3,178 |
| Sales personnel | 211 | .71 | 4.84 | 12.56 | 11.59 | 1,754 | 1,754 |
| Service personnel | 941 | 2.29 | 2.66 | 4.08 | 3.76 | 813 | 810 |
| Other | 178 | .65 | * | * | * | * | * |

*Occupation contains less than 3 percent of the total.
**Estimate less than 0.5.
***Zero standerd error.
NOTE: Percentages may not add to 100 due to rounding. Some of the standard errors may have an insufficient number of degrees of freedom for reporting purposes. Large standard errors are due to a small number of distinct replicates.

Table A-13f.—Job characteristics 1 year after graduation of 1989-90 bachelor's degree recipients with majors in **biological sciences**, by occupation: 1991

| Occupation | Total number | Percent | Job related to degree | Job has career potential | Degree not required | Annual income full and part time | Annual income full time |
|---|---|---|---|---|---|---|---|
| | | | Percent | Percent | Percent | Mean | Mean |
| Total biological sciences majors | 27,321 | 100 | 73 | 67 | 42 | $18,373 | $21,051 |
| Business/Management | 2,203 | 8 | 75 | 76 | 39 | 24,163 | 24,637 |
| Educators | 2,392 | 9 | 96 | 72 | 26 | 15,801 | 18,490 |
| Health professionals | 1,968 | 7 | 79 | 66 | 67 | 17,567 | 21,110 |
| Public affairs/social services | 309 | 1 | * | * | * | * | * |
| Biological scientists | 7,525 | 27 | 95 | 75 | 21 | 19,930 | 21,099 |
| Math and physical scientists | 1,135 | 4 | 91 | 82 | 9 | 22,079 | 22,079 |
| Computer scientists and programmers | 166 | 1 | * | * | * | * | * |
| Writers, artists, etc. | 211 | 1 | * | * | * | * | * |
| Technicians | 2,845 | 10 | 92 | 71 | 28 | 18,437 | 19,966 |
| Administrative support/clerical | 3,264 | 12 | 42 | 39 | 78 | 13,769 | 17,622 |
| Crafts/operators/laborers | 1,206 | 4 | 45 | 37 | 75 | 18,867 | 23,740 |
| Sales personnel | 2,449 | 9 | 37 | 64 | 55 | 18,012 | 20,832 |
| Service personnel | 1,699 | 6 | 60 | 74 | 64 | 13,606 | 19,630 |
| Other | 550 | 2 | * | * | * | * | * |
| Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error |
| Total | 1,385 | *** | 1.84 | 2.27 | 2.01 | $375 | $414 |
| Business/Managers | 412 | 1.37 | 9.15 | 7.69 | 10.94 | 1,661 | 1,445 |
| Educators | 328 | 1.12 | 4.48 | 7.72 | 7.48 | 1,073 | 857 |
| Health professionals | 394 | 1.35 | 9.00 | 9.49 | 8.20 | 1,689 | 1,711 |
| Public affairs/social services | 181 | .65 | * | * | * | * | * |
| Biological scientists | 643 | 1.96 | 1.88 | 2.78 | 2.56 | 487 | 506 |
| Math and physical scientists | 300 | 1.11 | 9.08 | 8.02 | 2.39 | 1,036 | 1,036 |
| Computer scientists and programmers | 14 | .06 | * | * | * | * | * |
| Writers, artists, etc. | 159 | .56 | * | * | * | * | * |
| Technicians | 514 | 1.73 | 1.63 | 6.79 | 6.27 | 683 | 1,011 |
| Administrative support/clerical | 385 | 1.20 | 5.10 | 6.47 | 4.27 | 970 | 938 |
| Crafts/operators/laborers | 353 | 1.24 | 12.47 | 11.97 | 12.96 | 3,749 | 4,124 |
| Sales personnel | 347 | 1.24 | 8.37 | 7.21 | 8.24 | 1,176 | 1,050 |
| Service personnel | 377 | 1.30 | 10.93 | 9.60 | 10.05 | 2,022 | 2,984 |
| Other | 146 | .51 | * | * | * | * | * |

*Occupation contains less than 3 percent of the total.
** Estimate less than 0.5.
***Zero standard error.
NOTE: Details may not add to totals and percentages may not add to 100 due to rounding. Some of the standard errors may have an insufficient number of degrees of freedom for reporting purposes. Large standard errors are due to a small number of distinct replicates.

Table A-13g.—Job characteristics 1 year after graduation of 1989-90 bachelor's degree recipients with majors in **math, computer sciences, and physical sciences**, by occupation: 1991

| Occupation | Total number | Percent | Job related to degree | Job has career potential | Degree not required | Annual income full and part time | Annual income full time |
|---|---|---|---|---|---|---|---|
| | | | Percent | Percent | Percent | Mean | Mean |
| Total math, computer sciences, physical sciences majors | 46,437 | 100 | 86 | 85 | 33 | $25,375 | $27,156 |
| Business/Management | 2,817 | 6 | 82 | 93 | 47 | 25,793 | 26,913 |
| Educators | 5,320 | 11 | 88 | 77 | 19 | 17,459 | 20,247 |
| Engineers | 2,411 | 5 | 90 | 100 | 20 | 32,630 | 32,993 |
| Health professionals | 494 | 1 | * | * | * | * | * |
| Public affairs/social services | 106 | ** | * | * | * | * | * |
| Biological scientists | 1,439 | 3 | 90 | 87 | 21 | 25,020 | 26,145 |
| Math and physical scientists | 2,797 | 6 | 97 | 95 | 10 | 26,673 | 27,302 |
| Computer scientists and programmers | 18,182 | 39 | 98 | 97 | 24 | 30,273 | 30,520 |
| Communications | 100 | ** | * | * | * | * | * |
| Writers, artists, etc. | 381 | 1 | * | * | * | * | * |
| Technicians | 1,970 | 4 | 95 | 83 | 35 | 20,778 | 23,562 |
| Administrative support/clerical | 5,277 | 11 | 71 | 60 | 50 | 19,416 | 21,840 |
| Crafts/operators/laborers | 1,225 | 3 | 47 | 65 | 63 | 26,453 | 30,805 |
| Sales personnel | 1,655 | 4 | 46 | 59 | 73 | 21,155 | 25,549 |
| Service personnel | 1,228 | 3 | 19 | 33 | 85 | 15,284 | 19,030 |
| Other | 1,035 | 2 | * | * | * | * | * |
| Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error |
| Total | 3,317 | *** | 1.08 | 1.07 | 2.65 | $433 | $399 |
| Business/Managers | 346 | .78 | 6.02 | 2.20 | 5.14 | 1,942 | 1,840 |
| Educators | 349 | 1.16 | 2.81 | 2.85 | 3.05 | 568 | 653 |
| Engineers | 309 | .56 | 4.11 | * | 5.33 | 1,329 | 1,357 |
| Health professionals | 177 | .38 | * | * | * | * | * |
| Public affairs/social services | 51 | * | * | * | * | * | * |
| Biological scientists | 225 | .55 | 5.61 | 6.09 | 6.75 | 1,902 | 1,924 |
| Math and physical scientists | 312 | .80 | 2.59 | .57 | 2.38 | 624 | 624 |
| Computer scientists and programmers | 2,286 | 2.53 | .67 | .96 | 4.56 | 488 | 479 |
| Communications | 50 | * | * | * | * | * | * |
| Writers, artists, etc. | 118 | .26 | * | * | * | * | * |
| Technicians | 264 | .51 | .82 | 4.02 | 6.88 | 831 | 917 |
| Administrative support/clerical | 547 | 1.18 | 3.90 | 4.43 | 4.38 | 700 | 697 |
| Crafts/operators/laborers | 286 | .56 | 11.89 | 11.99 | 9.75 | 3,404 | 3,533 |
| Sales personnel | 254 | .41 | 13.60 | 9.00 | 5.54 | 1,744 | 2,295 |
| Service personnel | 301 | .57 | 10.41 | 11.94 | 10.42 | 2,479 | 2,588 |
| Other | 317 | .65 | * | * | * | * | * |

*Occupation contains less than 3 percent of the total.
** Estimate less than 0.5.
***Zero standard error.
NOTE: Percentages may not add to 100 due to rounding. Some of the standard errors may have an insufficient number of degrees of freedom for reporting purposes. Large standard errors are due to a small number of distinct replicates.

Table A-13h.--Job characteristics 1 year after graduation of 1989-90 bachelor's degree recipients with majors in **social sciences**, by occupation: 1991

| Occupation | Total number | Percent | Job related to degree | Job has career potential | Degree not required | Annual income full and part time | Annual income full time |
|---|---|---|---|---|---|---|---|
| | | | Percent | Percent | Percent | Mean | Mean |
| Total social sciences majors | 81,357 | 100 | 53 | 72 | 52 | $20,253 | $22,213 |
| Business/Managers | 14,481 | 18 | 64 | 89 | 31 | 24,981 | 25,834 |
| Educators | 5,119 | 6 | 67 | 68 | 31 | 15,634 | 18,447 |
| Engineers | 778 | 1 | • | • | • | • | • |
| Health professionals | 944 | 1 | • | • | • | • | • |
| Public affairs/social services | 6,179 | 8 | 89 | 77 | 22 | 19,134 | 19,455 |
| Biological scientists | 701 | 1 | • | • | • | • | • |
| Math and physical scientists | 1,119 | 1 | • | • | • | • | • |
| Computer scientists and programmers | 1,788 | 2 | • | • | • | • | • |
| Communications | 1,131 | 1 | • | • | • | • | • |
| Writers, artists, etc. | 1,457 | 2 | • | • | • | • | • |
| Technicians | 3,280 | 4 | 52 | 67 | 36 | 21,398 | 24,457 |
| Administrative support/clerical | 20,076 | 25 | 49 | 68 | 68 | 17,447 | 19,172 |
| Crafts/operators/laborers | 2,950 | 4 | 18 | 61 | 83 | 19,673 | 22,624 |
| Sales personnel | 10,271 | 13 | 48 | 77 | 50 | 21,592 | 23,758 |
| Service personnel | 8,535 | 10 | 32 | 44 | 89 | 16,781 | 20,374 |
| Other | 2,548 | 3 | 43 | 84 | 36 | 18,627 | 21,226 |
| Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error |
| Total | 3,036 | ••• | 1.32 | 1.01 | 1.13 | $316 | $327 |
| Business/Managers | 1,052 | .93 | 3.36 | 1.97 | 3.16 | 757 | 755 |
| Educators | 500 | .59 | 5.08 | 4.75 | 5.18 | 804 | 656 |
| Engineers | 259 | .31 | • | • | • | • | • |
| Health professionals | 181 | .21 | • | • | • | • | • |
| Public affairs/social services | 513 | .62 | 3.54 | 3.81 | 4.01 | 346 | 362 |
| Biological scientists | 106 | .14 | • | • | • | • | • |
| Math and physical scientists | 175 | .23 | • | • | • | • | • |
| Computer scientists and programmers | 329 | .39 | • | • | • | • | • |
| Communications | 184 | .22 | • | • | • | • | • |
| Writers, artists, etc. | 287 | .34 | • | • | • | • | • |
| Technicians | 445 | .53 | 6.06 | 5.80 | 5.63 | 1,606 | 1,645 |
| Administrative support/clerical | 1,094 | 1.11 | 3.17 | 2.64 | 2.80 | 349 | 337 |
| Crafts/operators/laborers | 433 | .49 | 2.60 | 5.55 | 3.23 | 1,279 | 1,130 |
| Sales personnel | 824 | .93 | 3.18 | 2.56 | 3.43 | 661 | 672 |
| Service personnel | 641 | .65 | 3.57 | 3.62 | 2.25 | 846 | 962 |
| Other | 616 | .74 | 6.61 | 5.13 | 6.89 | 1,591 | 1,112 |

•Occupation contains less than 3 percent of the total.
•• Estimate less than 0.5.
•••Zero standard error.
NOTE: Some of the standard errors may have an insufficient number of degrees of freedom for reporting purposes. Large standard errors are due to a small number of distinct replicates.

Table A-13i.--Job characteristics 1 year after graduation of 1989-90 bachelor's degree recipients with majors in history, by occupation: 1991

| Occupation | Total number | Percent | Job related to degree | Job has career potential | Degree not required | Annual income full and part time | Annual income full time |
|---|---|---|---|---|---|---|---|
| | | | Percent | Percent | Percent | Mean | Mean |
| Total history majors | 16,782 | 100 | 30 | 60 | 63 | $18,352 | $21,315 |
| Business/Managers | 1,363 | 8 | 15 | 92 | 42 | 28,425 | 28,425 |
| Educators | 2,853 | 17 | 71 | 63 | 13 | 16,174 | 18,619 |
| Engineers | •• | •• | • | • | • | • | • |
| Health professionals | 37 | •• | • | • | • | • | • |
| Public affairs/social services | 646 | 4 | 64 | 78 | 60 | 18,060 | 20,893 |
| Biological scientists | 640 | 4 | • | 67 | 100 | 14,061 | 18,666 |
| Math and physical scientists | 223 | 1 | • | • | • | • | • |
| Computer scientists and programmers | 200 | 1 | • | • | • | • | • |
| Communications | 610 | 4 | 40 | 60 | 40 | 11,737 | 14,607 |
| Writers, artists, etc. | 197 | 1 | • | • | • | • | • |
| Technicians | 673 | 4 | 50 | 51 | 44 | 20,136 | 20,136 |
| Administrative support/clerical | 4,280 | 26 | 22 | 43 | 86 | 15,516 | 18,201 |
| Crafts/operators/laborers | 660 | 4 | • | 51 | 100 | 18,172 | 18,172 |
| Sales personnel | 2,104 | 13 | 24 | 73 | 67 | 25,516 | 26,725 |
| Service personnel | 1,554 | 9 | 6 | 26 | 100 | 8,943 | 13,793 |
| Other | 742 | 4 | 19 | 100 | 41 | 21,758 | 24,467 |
| Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error |
| Total | 1,079 | ••• | 2.77 | 3.37 | 2.75 | $707 | $606 |
| Business/Managers | 183 | 1.04 | 10.22 | 8.23 | 7.13 | 1,546 | 1,546 |
| Educators | 419 | 2.13 | 7.34 | 7.41 | 5.13 | 947 | 829 |
| Engineers | • | • | • | • | • | • | • |
| Health professionals | 2 | • | • | • | • | • | • |
| Public affairs/social services | 102 | .60 | 6.75 | 9.57 | 7.30 | 1,624 | 417 |
| Biological scientists | 256 | 1.47 | • | 22.62 | • | 3,608 | 3,207 |
| Math and physical scientists | 147 | .86 | • | • | • | • | • |
| Computer scientists and programmers | 143 | .84 | • | • | • | • | • |
| Communications | 230 | 1.29 | 18.90 | 15.32 | 15.32 | 1,293 | 1,026 |
| Writers, artists, etc. | 9 | .09 | • | • | • | • | • |
| Technicians | 143 | .85 | 11.52 | 10.83 | 12.62 | 1,559 | 1,559 |
| Administrative support/clerical | 526 | 2.65 | 5.30 | 5.59 | 4.81 | 1,019 | 915 |
| Crafts/operators/laborers | 314 | 1.79 | • | 11.14 | • | 6,153 | 6,153 |
| Sales personnel | 288 | 1.67 | 5.72 | 5.08 | 6.38 | 1,546 | 1,597 |
| Service personnel | 305 | 1.85 | 4.57 | 9.33 | • | 1,308 | 2,261 |
| Other | 137 | .86 | 4.13 | • | 8.51 | 1,015 | 1,134 |

*Occupation contains less than 3 percent of the total.
** Estimate less than 0.5.
***Zero standard error.
NOTE. Some of the standard errors may have an insufficient number of degrees of freedom for reporting purposes. Large standard errors are due to a small number of distinct replicates.

Table A-13j.—Job characteristics 1 year after graduation of 1989-90 bachelor's degree recipients with majors in humanities, by occupation: 1991

| Occupation | Total number | Percent | Job related to degree | Job has career potential | Degree not required | Annual income full and part time | Annual income full time |
|---|---|---|---|---|---|---|---|
| | | | Percent | Percent | Percent | Mean | Mean |
| Total humanities majors | 77,049 | 100 | 57 | 66 | 57 | $16,642 | $19,059 |
| Business/Managers | 6,473 | 8 | 48 | 72 | 49 | 20,777 | 21,661 |
| Educators | 12,788 | 17 | 86 | 83 | 18 | 14,965 | 19,213 |
| Engineers | 531 | 1 | • | • | • | • | • |
| Health professionals | 515 | 1 | • | • | • | • | • |
| Public affairs/social services | 2,542 | 3 | 68 | 86 | 40 | 16,805 | 18,362 |
| Biological scientists | 820 | 1 | • | • | • | • | • |
| Math and physical scientists | 111 | •• | • | • | • | • | • |
| Computer scientists and programmers | 441 | 1 | • | • | • | • | • |
| Communications | 3,748 | 5 | 81 | 84 | 31 | 18,983 | 20,439 |
| Writers, artists, etc. | 9,713 | 13 | 95 | 83 | 60 | 17,744 | 20,803 |
| Technicians | 3,246 | 4 | 66 | 76 | 50 | 23,013 | 23,921 |
| Administrative support/clerical | 15,451 | 20 | 37 | 50 | 72 | 16,051 | 17,687 |
| Crafts/operators/laborers | 3,379 | 4 | 29 | 45 | 87 | 15,212 | 16,948 |
| Sales personnel | 7,840 | 10 | 47 | 64 | 73 | 14,743 | 17,369 |
| Service personnel | 7,893 | 10 | 19 | 35 | 91 | 12,483 | 13,447 |
| Other | 1,558 | 2 | • | • | • | • | • |
| Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error |
| Total | 4,065 | ••• | 1.71 | 1.58 | 1.40 | $346 | $340 |
| Business/Managers | 597 | .71 | 5.27 | 3.60 | 4.21 | 765 | 816 |
| Educators | 1,104 | 1.23 | 2.54 | 2.70 | 1.97 | 608 | 466 |
| Engineers | 223 | .28 | • | • | • | • | • |
| Health professionals | 303 | .39 | • | • | • | • | • |
| Public affairs/social services | 570 | .72 | 9.55 | 6.86 | 8.87 | 1,562 | 1,493 |
| Biological scientists | 230 | .29 | • | • | • | • | • |
| Math and physical scientists | 109 | • | • | • | • | • | • |
| Computer scientists and programmers | 197 | .26 | • | • | • | • | • |
| Communications | 726 | .87 | 4.83 | 4.51 | 6.44 | 841 | 928 |
| Writers, artists, etc. | 1,293 | 1.42 | 1.79 | 2.86 | 4.25 | 1,304 | 1,538 |
| Technicians | 611 | .72 | 8.08 | 9.23 | 6.66 | 770 | 835 |
| Administrative support/clerical | 1,096 | 1.12 | 2.45 | 3.05 | 3.07 | 379 | 385 |
| Crafts/operators/laborers | 434 | .47 | 5.30 | 7.80 | 4.28 | 1,121 | 1,368 |
| Sales personnel | 864 | 1.02 | 4.95 | 4.96 | 4.19 | 872 | 810 |
| Service personnel | 813 | .98 | 3.19 | 3.95 | 2.88 | 939 | 1,099 |
| Other | 335 | .41 | • | • | • | • | • |

*Occupation contains less than 3 percent of the total.
** Estimate less than 0.5.
***Zero standard error.
NOTE: Some of the standard errors may have an insufficient number of degrees of freedom for reporting purposes. Large standard errors are due to a small number of distinct replicates.

Table A-13k.--Job characteristics 1 year after graduation of 1989-90 bachelor's degree recipients with majors in psychology, by occupation: 1991

| Occupation | Total number | Percent | Job related to degree | Job has career potential | Degree not required | Annual income full and part time | Annual income full time |
|---|---|---|---|---|---|---|---|
| | | | Percent | Percent | Percent | Mean | Mean |
| Total psychology majors | 40,636 | 100 | 65 | 69 | 53 | $17,115 | $19,154 |
| Business/Managers | 3,921 | 10 | 73 | 83 | 41 | 21,120 | 22,659 |
| Educators | 5,838 | 14 | 91 | 74 | 26 | 16,096 | 17,609 |
| Engineers | ** | ** | * | * | * | * | * |
| Health professionals | 2,102 | 5 | 80 | 76 | 69 | 19,095 | 19,280 |
| Public affairs/social services | 7,942 | 20 | 100 | 83 | 23 | 17,798 | 18,846 |
| Biological scientists | 1,022 | 3 | 60 | 100 | 39 | 23,555 | 27,511 |
| Math and physical scientists | ** | ** | * | * | * | * | * |
| Computer scientists and programmers | 1,028 | 3 | 31 | 80 | 70 | 22,300 | 24,376 |
| Communications | ** | ** | * | * | * | * | * |
| Writers, artists, etc. | 319 | 1 | * | * | * | * | * |
| Technicians | 1,011 | 2 | * | * | * | * | * |
| Administrative support/clerical | 8,497 | 21 | 41 | 58 | 74 | 15,782 | 18,858 |
| Crafts/operators/laborers | 980 | 2 | * | * | * | * | * |
| Sales personnel | 4,090 | 10 | 38 | 58 | 66 | 14,506 | 17,013 |
| Service personnel | 3,507 | 9 | 47 | 36 | 94 | 13,748 | 15,669 |
| Other | 380 | 1 | * | * | * | * | * |
| Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error |
| Total | 2,053 | *** | 1.54 | 1.51 | 1.87 | $348 | $314 |
| Business/Managers | 411 | .93 | 5.59 | 4.40 | 5.47 | 1,096 | 1,091 |
| Educators | 730 | 1.53 | 3.21 | 3.67 | 4.85 | 593 | 637 |
| Engineers | * | * | * | * | * | * | * |
| Health professionals | 353 | .87 | 6.39 | 7.22 | 6.75 | 1,383 | 1,257 |
| Public affairs/social services | 678 | 1.33 | .04 | 2.70 | 3.07 | 289 | 280 |
| Biological scientists | 352 | .85 | 15.03 | * | 18.11 | 5,124 | 5,617 |
| Math and physical scientists | * | * | * | * | * | * | * |
| Computer scientists and programmers | 249 | .59 | 10.71 | 8.19 | 9.23 | 3,036 | 2,561 |
| Communications | * | * | * | * | * | * | * |
| Writers, artists, etc. | 170 | .42 | * | * | * | * | * |
| Technicians | 328 | .80 | * | * | * | * | * |
| Administrative support/clerical | 923 | 1.79 | 4.42 | 3.78 | 3.85 | 611 | 635 |
| Crafts/operators/laborers | 208 | .49 | * | * | * | * | * |
| Sales personnel | 416 | 1.07 | 4.63 | 5.14 | 4.68 | 780 | 662 |
| Service personnel | 328 | .87 | 4.96 | 4.69 | 3.09 | 897 | 877 |
| Other | 114 | .27 | * | * | * | * | * |

*Occupation contains less than 3 percent of the total.
** Estimate less than 0.5.
***Zero standard error.
NOTE: Details may not add to totals and percentages may not add to 100 due to rounding. Some of the standard errors may have an insufficient number of degrees of freedom for reporting purposes. Large standard errors are due to a small number of distinct replicates.

Table A-13l.--Job characteristics 1 year after graduation of 1989-90 bachelor's degree recipients with majors in other fields, by occupation: 1991

| Occupation | Total number | Percent | Job related to degree | Job has career potential | Degree not required | Annual income full and part time | Annual income full time |
|---|---|---|---|---|---|---|---|
| | | | Percent | Percent | Percent | Mean | Mean |
| Total other fields | 110,930 | 100 | 74 | 78 | 51 | $19,215 | $20,773 |
| Business/Managers | 11,054 | 10 | 77 | 88 | 45 | 22,664 | 22,598 |
| Educators | 8,555 | 8 | 84 | 81 | 26 | 16,924 | 20,075 |
| Engineers | 3,402 | 3 | 88 | 89 | 21 | 23,936 | 24,565 |
| Health professionals | 2,365 | 2 | * | * | * | * | * |
| Public affairs/social services | 2,541 | 2 | * | * | * | * | * |
| Biological scientists | 3,828 | 3 | 94 | 89 | 52 | 17,937 | 18,849 |
| Math and physical scientists | 608 | 1 | * | * | * | * | * |
| Computer scientists and programmers | 1,087 | 1 | * | * | * | * | * |
| Communications | 11,676 | 11 | 93 | 90 | 36 | 17,842 | 18,989 |
| Writers, artists, etc. | 5,544 | 5 | 99 | 84 | 34 | 20,024 | 20,728 |
| Technicians | 5,412 | 5 | 92 | 88 | 38 | 20,395 | 21,196 |
| Administrative support/clerical | 21,573 | 19 | 56 | 65 | 71 | 16,754 | 18,065 |
| Crafts/operators/laborers | 5,728 | 5 | 65 | 69 | 76 | 19,673 | 21,280 |
| Sales personnel | 17,809 | 16 | 74 | 82 | 53 | 22,247 | 23,713 |
| Service personnel | 8,478 | 8 | 43 | 51 | 86 | 14,177 | 18,339 |
| Other | 1,273 | 1 | * | * | * | * | * |
| Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error | Standard error |
| Total | 3,405 | *** | .88 | .92 | 1.08 | $258 | $270 |
| Business/Managers | 928 | .74 | 3.22 | 2.08 | 4.25 | 562 | 548 |
| Educators | 721 | .59 | 2.80 | 3.35 | 3.32 | 626 | 627 |
| Engineers | 321 | .29 | 3.78 | 1.17 | 3.95 | 908 | 920 |
| Health professionals | 384 | .33 | * | * | * | * | * |
| Public affairs/social services | 299 | .26 | * | * | * | * | * |
| Biological scientists | 684 | .61 | 2.94 | 2.98 | 5.68 | 962 | 898 |
| Math and physical scientists | 148 | .13 | * | * | * | * | * |
| Computer scientists and programmers | 239 | .21 | * | * | * | * | * |
| Communications | 838 | .73 | 1.43 | 1.94 | 3.85 | 474 | 485 |
| Writers, artists, etc. | 701 | .63 | .11 | 3.91 | 4.04 | 415 | 457 |
| Technicians | 616 | .52 | 2.59 | 3.33 | 5.23 | 821 | 799 |
| Administrative support/clerical | 964 | .82 | 2.66 | 2.18 | 2.57 | 278 | 221 |
| Crafts/operators/laborers | 1,188 | 1.00 | 4.98 | 4.59 | 3.29 | 1,145 | 1,160 |
| Sales personnel | 1,151 | 1.00 | 1.96 | 1.84 | 2.19 | 720 | 863 |
| Service personnel | 717 | .57 | 3.05 | 3.00 | 2.91 | 784 | 918 |
| Other | 169 | .15 | * | * | * | * | * |

*Occupation contains less than 3 percent of the total.
**Estimate less than 0.5.
***Zero standard error.
NOTE: Details may not add to totals due to rounding. Some of the standard errors may have an insufficient number of degrees of freedom for reporting purposes. Large standard errors are due to a small number of distinct replicates.

Table A-14.--Assistantship and work status of 1989-90 bachelor's degree recipients 1 year after graduation: 1991

| Characteristic | Have assistantship and no other job | | Have assistantship and also other job | | No assistantship (all other graduates) | |
|---|---|---|---|---|---|---|
| | Percent | Standard error | Percent | Standard error | Percent | Standard error |
| All bachelor's graduates | 3 | .14 | 1 | .08 | 96 | .18 |
| Gender | | | | | | |
| Male | 3 | .20 | 1 | .12 | 96 | .25 |
| Female | 3 | .15 | 1 | .09 | 96 | .19 |
| Race/ethnicity | | | | | | |
| American Indian/Native Alaskan | 2 | 1.82 | 4 | 1.98 | 94 | 2.60 |
| Asian/Pacific Islander | 5 | .50 | - | .03 | 95 | .51 |
| Black, non-Hispanic | 3 | .31 | 1 | .18 | 96 | .36 |
| Hispanic | 3 | .54 | 1 | .52 | 96 | .77 |
| White, non-Hispanic | 3 | .14 | 1 | .08 | 96 | .19 |
| Type of major field of study | | | | | | |
| Professional fields | 2 | .11 | 1 | .09 | 97 | .16 |
| Arts and sciences fields | 5 | .28 | 2 | .15 | 94 | .36 |
| Other fields* | 3 | .29 | 1 | .14 | 97 | .34 |
| Major field of study | | | | | | |
| Business/management | 1 | .17 | - | .07 | 99 | .19 |
| Education | 2 | .26 | 1 | .14 | 97 | .29 |
| Engineering | 5 | .41 | 1 | .33 | 94 | .49 |
| Health professions | 1 | .28 | - | .20 | 98 | .27 |
| Public affairs/social services | 1 | .39 | 3 | .56 | 96 | .68 |
| Biological sciences | 7 | .96 | 2 | .60 | 91 | 1.22 |
| Math, computer sciences, physical sciences | 8 | .80 | 2 | .30 | 91 | .84 |
| Social sciences | 2 | .33 | 2 | .26 | 96 | .45 |
| History | 2 | .81 | - | - | 98 | .81 |
| Humanities | 4 | .59 | 1 | .26 | 94 | .70 |
| Psychology | 5 | .71 | 1 | .39 | 94 | .86 |
| Other fields* | 3 | .29 | 1 | .14 | 97 | .34 |
| Age in December 1991 | | | | | | |
| 20-23 | 4 | .32 | 1 | .16 | 94 | 40 |
| 24-25 | 3 | .15 | 1 | .11 | 96 | .17 |
| 26 and older | 2 | .21 | 1 | .11 | 97 | .24 |
| Highest degree graduate expects to obtain | | | | | | |
| Bachelor's degree | - | .09 | - | .06 | 100 | .12 |
| Master's degree | 2 | .13 | 1 | .08 | 97 | .18 |
| Doctoral degree | 11 | .55 | 3 | .37 | 86 | .72 |
| First-professional degree | 4 | .44 | 1 | .20 | 96 | .53 |

*Other fields includes agriculture and natural resources, architecture and environmental design, area and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library and archival sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.

# APPENDIX B

# TECHNICAL NOTES

## APPENDIX B. TECHNICAL NOTES

The Recent College Graduates Study is designed to describe the educational and occupational experiences of U.S. bachelor's and master's degree recipients approximately 1 year after graduation. For the 1991 survey (RCG:91), a sample of graduates who received a bachelor's or master's degree between July 1989 and June 1990 were interviewed about their employment and educational status approximately 1 year after graduation. For the employment question the reference was the week of April 22, 1991. The sample of approximately 18,000 graduates consisted of 16,000 bachelor's degree recipients and 2,000 master's degree recipients. Surveys were collected by telephone, using Computer Assisted Telephone Interviewing (CATI). The type of data collected included information about the degree received (major, minor, and grade point average), additional education after receipt of the degree, employment experience, relationship of degree to current job, teacher certification and employment, background, and financial support to attend school.

### Sample Design

The RCG:91 survey used a two-stage sample design, with a sample of 400 institutions in the first stage, and a sample of 18,000 graduates from the institutions in the second stage.

**Institution Sampling.** The frame consisted of institutions from the 1988-89 IPEDS Completions tape that satisfied the following criteria: (1) the institution had a FICE code (i.e., was a "higher education institution," accredited at the college level by an agency recognized by the U.S. Secretary of Education); (2) the institution was in one of the 50 states or the District of Columbia; (3) the institution was a 4-year (or above) institution; and (4) the institution reported a positive number of bachelor's or master's degrees.

Table B-1 shows the total number of eligible institutions in the universe and the institution sample sizes, broken down by the six institutional strata. These universe totals came from the 1988-89 IPEDS completions file (the file from which the institution sample was selected).

**Table B-1. Total number of eligible institutions in the universe* and the institution sample sizes, broken down by the six institutional strata**

| Institutional strata | Universe total* | Sample size |
|---|---|---|
| Total | 1,978 | 400 |
| Public institutions (bilingual strata) | 45 | 27 |
| Public institutions (education strata) | 252 | 174 |
| Other public institutions | 259 | 58 |
| Private institutions (bilingual strata) | 38 | 15 |
| Private institutions (education strata) | 49 | 11 |
| Other private institutions | 1,335 | 115 |

*From the 1988-1989 IPEDS completions file. For IPEDS documentation contact Frank Morgan, U.S. Department of Education, National Center for Education Statistics, 555 New Jersey Avenue, NW, Washington, DC, 20208-5652.

Sample selection within stratum was done systematically with probability proportionate to size. The universe was sorted by stratum, geographic region within stratum, by FIPS state code within stratum and geographic region, and finally by IPEDS Unit ID Code. This sort order ensured geographic dispersion in the sample. The measure of size was designed by NCES to give extra weight to institutions based on the proportion of degrees awarded to blacks. The measure of size can be written as:

MOS = total bachelor's and master's degrees (if < 100 it was set to 100) + (750 * proportion of degrees to black graduates)

The factor of 750 was determined empirically to give substantial added emphasis to black graduates, while reducing the overall efficiency of the sample by less than 10 percent.

**Within-Institution Sampling.** The second stage of the sampling process selected graduates within the institutions. Each of the participating sampled institutions sent a list of all their 1989-90 bachelor's and master's degree recipients, either on paper or in a computer file. Institutions were requested to include degree (bachelor's/master's), major field of study, and race/ethnicity on their lists. These lists were provided in a variety of formats, such as magnetic tapes, diskettes, printouts, and commencement programs. All lists were edited to verify that they included all eligible graduates and to delete any ineligibles. As part of this editing process, counts of the numbers of bachelor's and master's degree recipients for each school were compared to those reported to IPEDS. Discrepancies of 20 percent or more were clarified by telephone followup to the school.

After being edited, files obtained in computer-readable form (tapes and diskettes) were copied into a standard format for sampling by computer. For lists received on paper, sampling was more complicated. Since different sampling rates were used according to major and race/ethnicity, drawing the samples entirely by hand would have meant an involved process of identifying the correct stratum for each graduate on the list, and applying different sampling rates for each stratum. To avoid this difficulty, paper lists were sampled in steps. First, a sample was drawn by hand from the entire list at the highest rate to be applied within that school. The highest rate for a school was calculated as three times the school base rate. Second, information for this initial sample (including major and race/ethnicity) was keyed and verified. Third, this keyed file was sub-sampled by computer to obtain the appropriate sampling rate for each graduate stratum.

For sampling, each graduate was classified into one of seven strata. All master's degree recipients were in one stratum, and bachelor's degree recipients were divided into the following strata: (1) black graduates; (2) Hispanic graduates, (3) education majors who were not black or Hispanic; (4) math majors who were not black or Hispanic; (5) physical science majors who were not black or Hispanic; and (6) all other graduates.

A systematic sample of graduates was selected by stratum. The base rates for bachelor's and master's degree graduates were derived by taking the desired sample size and dividing by the number of graduates from all institutions in the universe. Over-sampling was done to ensure adequate sample sizes for groups of interest. Bachelor's degree black and Hispanic graduates were over-sampled at three times the base rate. Bachelor's degree education majors were over-sampled at two and a half times the base rate. Finally, bachelor's degree math and physical sciences majors were over-sampled at two times the base rate. Table B-2 shows the total number of graduates from the 1989-90 IPEDS completions file and the sample sizes achieved, broken down by the seven graduate strata.

### Data Collection and Response Rates

The first data collection activity was to collect lists of bachelor's and master's degree recipients from the sampled colleges and universities. Of the 400 sampled schools, 378 sent usable lists, 20 were nonrespondents, and 2 were ineligible for the study. Both the unweighted and weighted response rates were 95.0 percent for schools.

Table B-2. **Total number of graduates from the 1989-90 IPEDS completions file, and the graduate sample sizes achieved, broken down by the seven graduate strata**

| Graduate Strata | Universe Total* | Sample Size |
|---|---|---|
| Total | 1,373,501 | 18,135 |
| Master's graduates | 323,844 | 1,963 |
| Bachelor's, nonblack non-Hispanic: | | |
| Education majors | 97,621 | 2,919 |
| Math majors | 13,536 | 343 |
| Physical sciences majors | 15,030 | 357 |
| All other majors | 832,591 | 10,101 |
| Bachelor's, black graduates | 59,193 | 1,743 |
| Bachelor's, Hispanic graduates | 31,686 | 709 |

*From the 1989-90 IPEDS completions file.

Of the participating institutions, 72 percent were able to supply race/ethnicity data for at least some of their graduates. Of the sampled graduates, 64 percent had race/ethnicity identified by the institution prior to sampling.

Once the graduate sample was selected from the lists, flyers were mailed to the sampled graduates requesting their participation in the study and asking for updated address and telephone number information. While earlier cycles of RCG conducted data collection using mail with telephone followup, the 1991 survey conducted data collection primarily by telephone, using the computer assisted telephone interviewing (CATI) system. In RCG:91, collection of questionnaires by mail was used only for graduates with unlisted numbers, those without telephones, and telephone refusals. A total of 124 surveys were completed by mail in RCG:91. Using the telephone as the primary data collection mode allowed earlier identification of graduates needing tracing, and reduced the need for data retrieval.

As shown in Table B-3, the survey sample contained 18,135 graduates. Of these, 14,405 completed questionnaires, 2,930 were nonrespondents, and 800 were ineligible. This resulted in an unweighted graduate response rate of 83.1 percent. The weighted graduate response rate (calculated as the weighted number of completes divided by the sum of the weighted number of completes and nonrespondents) is 83.2 percent. For bachelor's degree recipients the weighted response rate is 83.6 percent, and for master's degree recipients, it is 82.0 percent. The weighted overall response rate (percent of all graduates represented by our sample) is calculated as the school response rate times the graduate response rate (.95 x .832 = .79).

### Editing and Item Nonresponse Imputation

Most editing checks were included within the CATI system, including range checks, skip pattern rules, and logical consistency checks. Skip patterns were controlled by the CATI system so that inappropriate items were avoided. For logical

**Table B-3. Number of sampled graduates and weighted response rates by graduate and institution characteristics**

| Graduate and institution characteristic | Number of sampled graduates by status | | | | Weighted graduate response rate[2] |
|---|---|---|---|---|---|
| | Total | Complete | Non-response | Ineligible[1] | |
| Total | 18,135 | 14,405 | 2,930 | 800 | 83.2% |
| Degree[3] | | | | | |
| Bachelor's | 16,172 | 12,898 | 2,608 | 666 | 83.6% |
| Master's | 1,963 | 1,507 | 322 | 134 | 82.0% |
| Gender[4] | | | | | |
| Male | 7,568 | 6,236 | 1,332 | - | 82.8% |
| Female | 9,767 | 8,169 | 1,598 | - | 83.7% |
| Not coded | 800 | - | - | 800 | - |
| Major for bachelor's degree recipients[5] | | | | | |
| Education | 3,109 | 2,630 | 381 | 98 | 87.3% |
| Mathematics | 379 | 325 | 43 | 11 | 87.8% |
| Physical sciences | 388 | 316 | 55 | 17 | 85.6% |
| Other | 12,296 | 9,627 | 2,129 | 540 | 83.1% |
| Race/ethnicity for bachelor's degree recipients[5] | | | | | |
| American Indian/Native Alaskan | 38 | 31 | 6 | 1 | 83.9% |
| Asian/Pacific Islander | 386 | 270 | 85 | 31 | 75.8% |
| Black, non-Hispanic | 1,743 | 1,187 | 484 | 72 | 70.9% |
| Hispanic | 709 | 544 | 128 | 37 | 80.6% |
| White, non-Hispanic | 8,803 | 7,425 | 1,076 | 302 | 86.7% |
| Not reported | 4,493 | 3,441 | 829 | 223 | 80.2% |
| Institution control | | | | | |
| Public | 12,340 | 9,794 | 2,027 | 519 | 82.8% |
| Private | 5,795 | 4,611 | 903 | 281 | 84.1% |
| Institution size | | | | | |
| Enrollment less than 1,500 | 7,617 | 6,134 | 1,170 | 313 | 84.6% |
| Enrollment 1,500-5,999 | 8,549 | 6,715 | 1,441 | 393 | 82.4% |
| Enrollment 6,000 or more | 1,969 | 1,556 | 319 | 94 | 82.2% |

[1]The 800 ineligibles include graduates that did not receive their degree within the time frame (375), those living outside the country (368), those that received a degree other than bachelor's or master's (27), deceased or incapacitated (25), and duplicates (5).

[2]The weighted response rate is the weighted number of completed surveys divided by the sum of the weighted number of completed surveys and nonrespondents.

[3]The degree codes are those reported by institutions for the entire sample and may not match data reported by the respondents on the survey.

[4]For respondents, the gender code was taken from the survey data. For nonrespondents, the gender was coded from the name. For ineligibles, the gender was not coded, since it was not needed to calculate response rates.

[5]The major and race/ethnicity codes are those reported by institutions for all bachelor's degree recipients and may not match data reported by the respondents on the survey. These items were collected from institutions for bachelor's degree recipients only, since they were not needed for sampling master's degree recipients. Therefore, the columns for major and race/ethnicity will sum to the bachelor's degree totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *1991 Recent College Graduates Survey*.

consistency check violations, a special CATI screen appeared that explained the discrepancy, displayed responses to the relevant items, and allowed the interviewer to enter a correction. Some additional logical consistency checks were made during the data preparation operation, and all edit checks were rerun after item nonresponse imputation was completed.

Item nonresponse occurred when a graduate cooperated in the survey but did not answer one or more survey questions. Since the study was collected by telephone, only a small amount of item nonresponse occurred. Item response rates for the questionnaire items included in this report appear in Table B-4. Imputation for item nonresponse was performed for each survey item to make the study results simpler to present and allow consistent totals to be obtained when analyzing different questionnaire items. Imputation was performed using a "hot-deck" procedure. Hot-deck methods estimate the missing value of an item by using value(s) of the same item from other record(s) in the same file. Using the hot-deck procedure, each missing questionnaire item was imputed separately. First, respondent records were sorted by items thought to be related to the missing item. Next, a value was imputed for each item nonresponse "recipient" from a respondent "donor" within the same subgroup. The results of the imputation procedure for each item were reviewed to ensure that the imputation plan had been followed correctly. In addition, all edit checks were run on the imputed file to be sure that no data inconsistencies were created by imputation.

**Table B-4. Questionnaire item response rates for items included in this report. Item response rates were calculated as the weighted number of respondents (R) who answered a given item divided by the weighted number of respondents for whom the item was applicable**

| QUESTION | WEIGHTED ITEM RESPONSE RATE (PERCENT) | DESCRIPTION |
|---|---|---|
| Q4 | 100.0 | Was this degree bachelor's or master's |
| Q6 | 100.0 | Major field of study |
| Q12 | 100.0 | Has R attended school since degree |
| Q22 | 99.9 | Was R attending full or part time |
| Q23 | 99.8 | Was R working for pay in reference week |
| Q24 | 99.4 | Was R looking for work in reference week |
| Q25 | 99.2 | Was R available to work in reference week |
| Q27 | 99.9 | Type of business or industry |
| Q28 | 99.9 | Occupation |
| Q29 | 99.8 | Duties on job |
| Q32 | 99.8 | Was this job full time or part time |
| Income (Q37,Q39,Q87c) | 94.3 | Income from principal job |
| Q38 | 99.4 | Hours/week R usually employed at job |
| Q42 | 99.0 | Was college degree required for main job |
| Q43 | 99.7 | How close was major related to main job |
| Q45 | 99.6 | What best describes job/career on Apr 22 |
| Q90 | 99.5 | Date of birth of respondent |
| Q91 | 100.0 | Gender of respondent |
| Q94 | 99.9 | Is R of Hispanic origin |
| Q95 | 98.1 | What is R's race |

## Sampling Errors

The findings in this report are estimates based on the sample selected and, consequently, are subject to sampling variability. If the interviews had been conducted with a different sample, the responses would not have been identical; some figures might have been higher, while others might have been lower.

The standard error is a measure of the variability of estimates due to sampling. It indicates the variability of a sample estimate that would be obtained from all possible samples of a given design and size. Standard errors can be used as a measure of the precision expected from a particular sample. Appendix A contains standard errors for each estimate included in this report.

If all possible samples were surveyed under similar conditions, intervals within plus or minus 1.96 standard errors of a particular statistic would include the true population parameter being estimated in about 95 percent of the samples. This is the 95 percent confidence interval. For example, the estimated mean annual salary for business and management majors working full time is $24,727, and the estimated standard error is $324. The 95 percent confidence interval for the statistic extends from:

$24,727 - ($324 x 1.96) to $24,727 + ($324 x 1.96)
= $24,092 to $25,362

This means that one can be confident that intervals constructed in this way contain the true population parameter 95 percent of the time.

Estimates of standard errors were computed using a technique known as jackknife replication. As with any replication method, jackknife replication involves constructing a number of subsamples (replicates) from the full sample and computing the statistic of interest for each replicate. The mean square error of the replicate estimates around their corresponding full sample estimate provides an estimate of the sampling variance of the statistic of interest. To construct the replications, 50 stratified subsamples of the full sample were created. Fifty jackknife replicates were then formed by deleting one subsample at a time from the full sample. WESVAR, a proprietary computer program available at Westat, was used to calculate the estimates of standard errors.

## Tests of Statistical Significance

The comparisons in the text have all been tested for statistical significance to ensure that the differences are larger than those that might be expected due to sampling variation. All differences cited in the text or marked with an asterisk (*) in the figures are significant at the 5 percent level of significance with pair-wise t tests using a Bonferroni adjustment to the critical value for multiple comparisons. The following is a description of the procedures used to test significance including the Bonferroni adjustment for multiple comparisons.

The student's t statistic can be used to test the likelihood that the differences between two percentages are larger than would be expected by sampling error.

$$t = \frac{P_1 - P_2}{\sqrt{se_1^2 + se_2^2}}$$

where $P_1$ and $P_2$ are the estimates to be compared and $se_1$ and $se_2$ are their corresponding standard errors.

The significance of the difference between the overall mean (i.e., the mean of the entire population) and a subgroup mean (e.g., between the mean salary of all graduates and the mean salary of graduates in a particular major) was tested using a t-test in which the standard error of the difference was adjusted for the covariance between the subgroup and the total group. The exact formula for the appropriate t-test is

$$t = \frac{\bar{X}_S - \bar{X}_T}{[se_S^2 + se_t^2 - 2(p)\, se_S^2]^{1/2}}$$

where $\bar{X}_S$ and $se_S$ are the mean and standard error for the subgroup; $\bar{X}_T$ and $se_T$ are the mean and standard error for the total group; and p is the proportion of the total group contained in the subgroup.

As the number of comparisons on the same set of data increases, the likelihood that the t value for at least one of the comparisons will exceed 1.96 simply by chance, when in fact there is no difference in the underlying population, increases. For a single comparison, there is a 5 percent chance that the t value will exceed 1.96 due to chance. For five tests, the risk of getting at least one t value that high increases to 23 percent, and for 20 comparisons, to 64 percent.

One way to compensate for this danger when making multiple comparisons is to adjust the alpha level to take into account the number of comparisons being made. For example, rather than establishing an alpha level of 0.05 for a single comparison, the alpha level is set to ensure that the likelihood is less than 0.05 that the t value for any of the comparisons exceeds the critical value by chance alone when there are truly no differences for any of the comparisons. This Bonferroni adjustment is calculated by taking the desired alpha level and dividing by the number of possible comparisons, based on the variable(s) being compared. The t value corresponding to the revised, lower alpha level must be exceeded in order for any of the comparisons to be considered significant.

To test for differences using the Bonferroni adjustment to the alpha level the following steps would be involved.

- Establish the number of comparisons
  - In the case of comparisons between subgroups, for example the unemployment rate of whites, blacks and Hispanics, the number of comparisons would be three (whites and blacks; whites and Hispanics; and blacks and Hispanics). The number of two-way comparisons that can be made equals [(n)(n-1)]/2 where n is the number of variable categories. Thus, with three categories the number of possible comparisons is [(3)(2)]/2 = 3.
  - In the case of comparing a subgroup estimate to the estimate for the total (rather than comparing estimates between subgroups, as above), the number of comparisons equals the number of subgroups. For example, to compare the difference between the mean salary of each of major fields with the mean salary for the total graduates, the number of comparisons is 11, one for each of the major field categories. (Health; engineering; math, computer science and physical science; business/management; social sciences; history; biological science; public affairs/social services; psychology; education; and humanities are each compared to the national average.)
- Divide the desired alpha level, 0.05, by the number of comparisons to obtain the new alpha level. In the first example this would be 3 (0.05/3 = 0.0166); in the second example this would be 11 (0.05/11 = .0045).
- Consult table of t statistics (or the standard normal table for z values if the N is large) to find the t value that corresponds to the alpha level (in the first example t = 2.39 for alpha = 0.0166; in the second example t = 2.85 for alpha = 0.0045).

All comparisons in this report were tested using the Bonferroni adjustments for the t tests.

### Design Effects

The design effect is the ratio of the variance of an estimate computed from the sample to the variance that would have been obtained if a simple random sample had been selected. In effect, the design effect indicates the impact of the sample design on the precision of the estimates. Design effects greater than unity indicate that the sample design resulted in increases in the variance due to factors such as clustering of the sample, differential sampling rates, or other adjustments in

the design and estimation stages of the sample. Table B-5 contains design effects and root design effects for selected classification variables included in this report. The RCG survey has a clustered sample with many graduates being sampled from the same sample institution. While this method of sampling is very cost effective, clustering generally results in design effects that are greater than unity.

### Nonsampling Errors

In addition to sampling errors, the survey estimates are also subject to nonsampling errors that can arise because of nonobservation (nonresponse or noncoverage), reporting errors, and errors made in the collection and processing of data. These errors can sometimes bias the data. The RCG:91 survey included procedures for both minimizing and measuring nonsampling errors.

Procedures to minimize nonsampling errors were followed throughout the survey. Extensive questionnaire design and testing was conducted, including two types of pretests: (1) the questionnaire was pretested informally with several recent college graduates before the CATI survey was finalized; and (2) a formal CATI pretest was conducted with part of the main study sample of graduates. Strict training and monitoring of telephone interviewers and data processing staff was conducted to help ensure the consistency and accuracy of the data file. Data collection was conducted almost entirely by telephone to help reduce the amount of item nonresponse and item inconsistency. Mail questionnaires were used for cases difficult to complete by telephone (unlisted numbers, those without telephones, and telephone refusals). Nonresponse was handled in ways designed to minimize the impact on data quality (i.e., through weighting adjustments by strata for questionnaire nonresponse, and through hot deck imputation for item nonresponse).

While general sampling theory can be used to estimate the sampling variability of a statistic, the measurement of nonsampling errors is not easy, and usually requires that an experiment be conducted as part of the data collection procedures, or that data external to the study be used. For RCG:91, an evaluation study was conducted to measure some of the potential nonsampling errors associated with the survey. The Evaluation Study consisted of three sub-studies: (1) Response Validity - the external validity of responses to items concerning teacher certification compared to data from state certification agencies; (2) Response Reliability - the reliability of responses to a select number of key items; and (3) Nonresponse Analysis.

For the response reliability study, a sample of 583 respondents was drawn to be re-asked selected questionnaire items. Of these, 512 completed the reinterview, for a response rate of 88 percent. Table B-6 shows the comparisons of reinterview and main study data for items in this report. Results are reported as the gross difference rate and the net difference rate.

The gross difference rate is the weighted percent of cases that were reported differently in the original and reinterview surveys. For example, question 43 (Was the respondent's job related to major field of study) has a gross difference rate of 6.91. This means that 6.91 percent of the respondents answered differently on the reinterview than they did on the original interview. The net difference is the difference between the total number of respondents with a characteristic as reported in the reinterview and the total number as reported in the original interview. It includes off-setting differences. The net difference rate is the ratio of the net difference to the total number of reinterviews. It is useful in determining the direction of bias. For example, the net difference rate for the question cited above (relationship of job to major) was only 2.51. This indicates that for this question, 2.51 percent more graduates responded that their job was related to their major on the original than did on the reinterview survey.

**Table B-5. Design effects and root design effects for 1989-90 bachelor's degree recipients 1 year after graduation, by graduate characteristics**

| Characteristic | Sample Size | Design Effect | Root Design Effect |
|---|---|---|---|
| Gender | | | |
| Male | 5,564 | * | * |
| Female | 7,324 | * | * |
| Race/ethnicity | | | |
| Native American | 63 | 0.97 | 0.98 |
| Asian | 392 | 0.83 | 0.91 |
| Black, non-Hispanic | 1,379 | 3.50 | 1.87 |
| Hispanic | 753 | 1.67 | 1.29 |
| White, non-Hispanic | 10,301 | 2.91 | 1.71 |
| Major field of study | | | |
| Professional fields | 7,009 | 3.01 | 1.73 |
| Arts and sciences fields | 4,476 | 3.07 | 1.75 |
| Other fields** | 1,403 | 1.59 | 1.26 |
| Major field of study | | | |
| Business/management | 2,682 | 3.30 | 1.82 |
| Education | 2,361 | * | * |
| Engineering | 849 | 7.94 | 2.82 |
| Health profession | 754 | 7.08 | 2.66 |
| Public affairs/social service | 363 | 1.76 | 1.33 |
| Biological sciences | 490 | 0.96 | 0.98 |
| Math, computer sciences, physical sciences | 984 | 3.05 | 1.75 |
| Social sciences | 1,102 | 1.81 | 1.34 |
| History | 237 | 0.95 | 0.98 |
| Humanities | 1,069 | 3.30 | 1.82 |
| Psychology | 594 | 1.28 | 1.13 |
| Other fields** | 1,403 | 1.59 | 1.26 |
| Age | | | |
| 20-23 | 3,331 | 4.27 | 2.07 |
| 24-25 | 5,043 | 1.84 | 1.36 |
| 26 and older | 4,514 | 5.43 | 2.33 |

**Table B-5. Design effects and root design effects for 1989-90 bachelor's degree recipients 1 year after graduation, by graduate characteristics (continued)**

| Characteristic | Sample Size | Design Effect | Root Design Effect |
|---|---|---|---|
| Educational expectations | | | |
| Bachelor's degree | 1,987 | 1.16 | 1.08 |
| Master's degree | 8,147 | 1.09 | 1.04 |
| Doctoral degree | 1,830 | 1.19 | 1.09 |
| First-professional degree | 924 | 1.48 | 1.22 |
| Occupation | | | |
| Business/Managers | 1,350 | 0.97 | 0.98 |
| Educators | 1,946 | 0.61 | 0.78 |
| Engineers | 526 | 5.62 | 2.37 |
| Health professionals | 588 | 5.05 | 2.25 |
| Public affairs/social services | 346 | 1.17 | 1.08 |
| Biological scientists | 224 | 0.90 | 0.95 |
| Math and physical scientists | 135 | 0.66 | 0.81 |
| Computer scientists and programmers | 402 | 2.32 | 1.52 |
| Communications | 169 | 0.88 | 0.94 |
| Writers, artists, etc. | 174 | 1.73 | 1.31 |
| Technicians | 286 | 1.08 | 1.04 |
| Administrative support/clerical | 1,551 | 0.85 | 0.92 |
| Crafts/operators/laborers | 312 | 1.58 | 1.26 |
| Sales personnel | 884 | 1.14 | 1.07 |
| Service personnel | 429 | 0.55 | 0.74 |
| Other | 151 | 3.27 | 1.81 |

*Design effects are zero due to poststratification by these variables.

**Other fields includes agriculture and natural resources, architecture and environmental design, area and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library and archival sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.

**Table B-6. Reinterview results for key items included in this report**

| | Item | Unweighted number of cases** | Gross difference rate | Net difference rate |
|---|---|---|---|---|
| Q6 | Major field of study (12 classifications used in report)* | 512 | 3.17% | 0.60% |
| Q12 | Has R enrolled since receiving degree | 512 | 6.91 | -2.73 |
| Q23 | Was R working for pay in reference week | 510 | 2.31 | 0.73 |
| Q24 | Was R looking for work in reference week | 66 | 15.12 | 0.14 |
| Q25 | Was R available for work in reference week | 67 | 5.09 | 1.23 |
| Q28 | Occupation* | 423 | 2.56 | 0.18 |
| Q32 | Was this job full time or part time | 423 | 5.14 | 1.24 |
| Q39 | Annual income rounded to $2,000 | 398 | 14.97 | 3.13 |
| | Annual income rounded to $4,000 | 398 | 8.54 | 2.75 |
| | Annual income rounded to $5,000 | 398 | 6.51 | 1.02 |
| Q42 | Was college degree required for job* | 419 | 11.68 | -2.30 |
| Q43 | Was job related to major (classified in two categories)* | 423 | 6.91 | 2.51 |
| Q45 | Does job have career potential (classified in two categories)* | 423 | 10.28 | 0.61 |
| Q94 | Is R of Hispanic origin* | 510 | 0.46 | -0.26 |
| Q95 | What is R's race* | 500 | 1.05 | 0.17 |

*Unreconciled results reported. All others represent reconciled results.

**The unweighted number is the number of cases where the item was applicable and reported for both the main interview and the reinterview.

# APPENDIX C

# DEFINITIONS OF TERMS AND CODES USED IN THIS REPORT

## APPENDIX C. DEFINITIONS OF TERMS AND CODES USED IN THIS REPORT*

1. **LABOR FORCE STATUS**: Graduates were asked whether they were working for pay during the week of April 22, 1991. Graduates who answered "no" to this question were asked whether they were looking for work, and whether they were available for work during that week. Based on the responses to these questions, the following labor force status categories were formed:

   - **Employed**: Graduates who said "yes," they were working for pay during the week of April 22, 1991 (Q23). This category is divided into those working full time and those working part time, based on the response to question 32.
   - **Not employed but looking for work**: Graduates who were not working for pay (Q23), but were looking for work during the week of April 22, 1991 (Q24).
   - **Not employed and not looking for work**: Graduates who were not working for pay (Q23), and were not looking for work during the week of April 22, 1991 (Q24).

   The following unemployment categories were formed:

   - **Unemployment percent**: The percent of the total graduates who were not working.
   - **Unemployed rate**: The percent of graduates in the labor force who were not working. The labor force is defined as graduates who were either working or not working and both looking for and available for work in the reference week.

   **Relevant Questionnaire Items:**

   Question 23. Please think back to April 22 1991. Were you working for pay during this week? Please include any paid job from which you were on leave or vacation. Exclude graduate student assistantships and work study (yes/no).

   Question 24. Were you **looking** for work during the week of April 22, 1991 (yes/no)?

   Question 25. Were you **available** for work during the week of April 22, 1991 (yes/no)?

   Question 32. Was this job full time or part time during the week of April 22, 1991 (full-time/part-time)?

2. **ANNUAL SALARY**: There are three survey questions that request salary information. As shown below, question 37 requests annual income information for graduates who were self-employed during the week of April 22, 1991. Question 39 requests salary information for all other graduates working for pay during that week. Question 87C requests annual income information for teachers working under a teaching contract that week. The annual salary estimates used to calculate the means included in this report were created according to the following rules:

   - If the graduate was self-employed, the personal annual income (from Q37) was used.
   - If the graduate was working under a teaching contract, the annual income from that contract (from Q87C) was used.
   - For all other graduates working for pay, the salary rate reported in Q39 was converted to an annual amount, if necessary, using the hours per week reported in Q38.

   **Relevant Questionnaire Items:**

   Self-employed:

   Question 37. What was your personal annual income from your business before taxes? [ENTER IN DOLLARS]

*A copy of the RCG questionnaire is available from Peter Stowe, U.S. Department of Education, NCES, 555 New Jersey Avenue, NW, Washington, DC, 20208-5652.

Not Self-employed:

Question 38. How many hours per week were you usually employed at this job?
[PLEASE INCLUDE ONLY THOSE HOURS FOR WHICH RESPONDENT IS PAID]

Question 39. At what rate (before deductions) were you paid on this job?
AMOUNT: _____
**PER**: HOUR/DAY/WEEK/MONTH/YEAR

Teachers under contract:

Question 87C. What was your annual income from the principal teaching contract under which you were working on April 22, 1991? [ENTER IN DOLLARS]

3. **JOB RELATED TO MAJOR FIELD OF STUDY**: Graduates who indicated that their jobs were closely or somewhat related to their major fields were included in this category.
**Relevant Questionnaire Item:**

Question 43. To what extent was your work on this principal job related to your major field of study for your 1989-90 degree. Was it ...

Closely related, . . . . . 1
Somewhat related, or . . . . . 2
Not related . . . . . 3

4. **JOB HAS CAREER POTENTIAL**: Graduates who indicated that their job had definite or possible career potential were included in this category.
**Relevant Questionnaire Item:**

Question 45. Which of the following statements best describes the principal job you held on April 22, 1991 with regard to career potential?

A job with definite career potential, . 1
A job with possible career potential, or 2
A temporary or permanent job without much career potential? . . . . . 3

5. **DEGREE NOT REQUIRED FOR JOB**: Graduates who indicated that a 4-year college degree was not required to obtain their job were included in this category.
**Relevant Questionnaire Item:**

Question 42. Was a 4-year college degree required in order to obtain your principal job during the week of April 22, 1991? (yes/no)

6. **UNDEREMPLOYED**: Graduates who indicated that a college degree was not required for their job and are employed full time in sales, service, administrative support/clerical, or crafts/operators/laborers. The relevant questionnaire items are question 42 as shown above, and occupation, as shown in definition 11.

7. **ENROLLMENT IN FURTHER EDUCATION:** Graduates who indicated that they attended school since receiving their 1989-90 degree were included in this category. This category is divided into those working (Q23 = yes) and those not working (Q23 = no). It is also divided into those enrolled full time (Q22 = full-time) and enrolled part time (Q22 = part-time).
**Relevant Questionnaire Item:**

Question 12. Have you attended school at any time since receiving the 1989-90 degree? (yes/no)
Question 22. Are/were you attending school part time or full time? (full-time/part-time)

8. **RACE/ETHNICITY**: Two survey questions were used to determine race/ethnicity. All graduates were asked whether they were of Hispanic or Spanish origin, and what race they considered themselves. Based on the responses to these questions, graduates were coded into the following categories:

- American Indian/Native Alaskan (If Q94=no and Q95=4)
- Asian or Pacific Islander (If Q94=no and Q95=3)
- Black, non-Hispanic (If Q94=no and Q95=2)
- Hispanic (If Q94=yes)
- White, non-Hispanic (If Q94=no and Q95=1)

**Relevant Questionnaire Items:**

Question 94. Are you of Hispanic or Spanish origin? (yes/no)

Question 95. What race do you consider yourself?

White [CAUCASIAN] . . . . . 1
Black [AFRICAN AMERICAN] . . . . . 2
Asian or Pacific Islander . . . . . 3
Native American or Alaskan Native
[AMERICAN INDIAN] . . . . . 4

9. **EDUCATIONAL EXPECTATIONS**: In question 101, graduates were asked to report the highest level of education that they expect to complete. Based on responses to this question, graduates were coded into the categories listed below. If Q101 was answered "Other certificate/award," then graduates were coded according to their 1989-90 degree (reported in Q4).

- Bachelor's degree (Q101 = 1 or 2)
- Master's degree (Q101 = 3 or 4)
- Doctoral degree (Q101 = 5)
- First-professional degree (Q101 = 6)

**Relevant Questionnaire Item:**

Question 101. What is the highest level of education you <u>expect</u> to complete?

BACHELOR'S DEGREE . . . . . 1
POST-BACCALAUREATE CERTIFICATE . . . . . 2
MASTER'S DEGREE . . . . . 3
POST-MASTER'S CERTIFICATE . . . . . 4
DOCTORAL DEGREE (PH.D. OR ED.D.) . . . . . 5
FIRST PROFESSIONAL DEGREE . . . . . 6
OTHER CERTIFICATE/AWARD (SPECIFY) . . . . . 91

10. **MAJOR FIELD OF STUDY**: Graduates were asked to report their major field of study for their 1989-90 degree. Response categories for this question were precoded with the most common majors. Any major that did not fit into these precoded categories was entered verbatim into the other (specify) field. These responses were then coded at the two-digit level into the Classification of Instructional Program (CIP) codes as shown in exhibit C-1. For analysis, majors were grouped into the following categories:

| Professional fields | CIP CODES CROSSWALK* |
|---|---|
| Business and management | 06, 07, 08 |
| Education | 13 |
| Engineering | 14, 15 |
| Health professions | 17, 18 |
| Public affairs/social services (protective services, parks and recreation) | 43, 44 |
| Arts and sciences fields | |
| Biological sciences (life sciences) | 26 |
| Mathematics, computer sciences,and physical sciences | 27, 11, 40, 41 |
| Social sciences | 45 |
| History | 45, 08 |
| Humanities (foreign languages, letters, philosophy, religion, theology, visual and performing arts) | 16, 23, 28, 38, 39, 50 |
| Psychology | 42 |
| Other fields | |
| All other fields are grouped into one category, and include the following: | |
| Agriculture and natural resources | 01, 02, 03 |
| Architecture and environmental design | 04 |
| Area and ethnic studies | 05 |
| Communication | 09, 10 |
| Consumer, personal, and miscellaneous services | 12 |
| Home economics | 19, 20 |
| Industrial arts | 21 |
| Law | 22 |
| Liberal/General studies | 24 |
| Library and archival sciences | 25 |
| Military sciences | 28, 29 |
| Multi/Interdisciplinary studies | 30 |
| Personal and social development | 32-37 |
| Trade and industrial | 46-49 |

*See Exhibit C.

**Relevant Questionnaire Item:**

Question 6. What was your major field of study for your 1989-90 {BACHELOR'S/MASTER'S} degree? [CODE ONLY ONE: IF RESPONDENT STATES FIELD NOT **VERBATIM** ON LIST, CODE 91 OTHER]

Exhibit C-1. Classification of Instructional Program (CIP) codes used for coding major field of study on RCG:91*

*Agriculture*
- 01. Agribusiness and Agricultural Production
- 02. Agricultural Sciences
- 03. Renewable Natural Resources

*Architecture and Environmental Design*
- 04. Architecture and Environmental Design

*Area and Ethnic Studies*
- 05. Area and Ethnic Studies

*Business*
- 06. Business and Management
- 07. Business and Office
- 08. Marketing and Distribution

*Communications*
- 09. Communications
- 10. Communications Technologies

*Computer and Information Sciences*
- 11. Computer and Information Sciences

*Consumer, Personal, and Miscellaneous Services*
- 12. Consumer, Personal, and Miscellaneous Services

*Education*
- 13. Education

*Engineering*
- 14. Engineering
- 15. Engineering and Engineering-Related Technologies

*Foreign Languages*
- 16. Foreign Languages

*Health*
- 17. Allied Health
- 18. Health Sciences

*Home Economics*
- 19. Home Economics
- 20. Vocational Home Economics

*Industrial Arts*
- 21. Industrial Arts

*Law*
- 22. Law

*Letters*
- 23. Letters

*Liberal/General Studies*
- 24. Liberal/General Studies

*Library and Archival Sciences*
- 25. Library and Archival Sciences

*Life Sciences*
- 26. Life Sciences

*Mathematics*
- 27. Mathematics

*Military Sciences*
- 28. Military Sciences
- 29. Military Technologies

*Multi/Interdisciplinary Studies*
- 30. Multi/Interdisciplinary Studies

*Parks and Recreation*
- 31. Parks and Recreation

*Personal and Social Development*
- 32. Basic Skills
- 33. Citizenship/Civic Activities
- 34. Health-related activities
- 35. Interpersonal skills
- 36. Leisure and Recreational Activities
- 37. Personal Awareness

*Philosophy, Religion, and Theology*
- 38. Philosophy and Religion
- 39. Theology

*Physical Sciences*
- 40. Physical Sciences
- 41. Science Technologies

*Psychology*
- 42. Psychology

*Public Affairs and Protective Services*
- 43. Protective Services
- 44. Public Affairs

*Social Sciences*
- 45. Social Sciences
- 45.08 History

*Trade and Industrial*
- 46. Construction Trades
- 47. Mechanics and Repairers
- 48. Precision and Production
- 49. Transportation and Material Moving

*Visual and Performing Arts*
- 50. Visual and Performing Arts

*A more complete discussion of instructional programs is found in 1990 edition of Classification of Instructional Programs available from the Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402

11. **OCCUPATION**: The graduate's occupation during the week of April 22, 1991 was coded from the verbatim responses to three questions: (1) the type of business, industry, or organization; (2) the type of work; and (3) the major job duties. Exhibit C-2 contains a list of the RCG:91 occupation codes, along with the corresponding Standard Occupational Classification (SOC) codes, and the codes used in the 1987 RCG survey. For analysis, occupations were grouped into the following categories:

| Occupation | RCG:91 Code |
|---|---|
| Business/managers | A, A1 |
| Educators | E22-E24 |
| Engineers | B, B1, B2 |
| Health professionals | F26-G30, I |
| Public affairs/social services | D19, D20 |
| Biological scientists | C1, N |
| Math and physical scientists | C |
| Computer scientists and programmers | C171, C172 |
| Communications | H1 |
| Writers, artists | H |
| Technicians | J37-J39 |
| Administrative support/clerical | L |
| Mechanics, operators, laborers | O-T |
| Sales personnel | K |
| Service personnel | M |
| Other | D21,E25,U,V |

**Relevant Questionnaire Items:**

Question 27. For what type of business, industry, or organization were you working during the week of April 22, 1991? (FOR EXAMPLE: OUTPATIENT CARE FACILITY, ACCOUNTING FIRM, TELEVISION MANUFACTURER, DAYCARE CENTER, SCHOOL.)

Question 28. What type of work were you doing? (FOR EXAMPLE: REGISTERED NURSE, ELECTRICAL ENGINEER, ACCOUNTANT, SCHOOL GUIDANCE COUNSELOR, SCHOOL TEACHER.)

Question 29. What were your major activities or duties on the job? [FOR EXAMPLE: CARING FOR PATIENTS, AUDITING FIRM'S BOOKS, DESIGNING, WIRING CIRCUITS, ADVISING AND COUNSELING STUDENTS, CARING FOR CHILDREN, TEACHING STUDENTS.]

Exhibit C-2. Occupation codes used for RCG:91, with corresponding Standard Occupational Classification (SOC) codes, and codes used for RCG:87

| 1991 RCG | OCCUPATION | SOC | 1987 RCG |
|---|---|---|---|
| A | Executive, administrative, and managerial occupations(except A1) | 11-14 | 1 |
| A1 | Accountants | 14 | 1 |
| B | Engineers, surveyors and architects (except B1 and B2) | 16 | 3 |
| B1 | Civil engineers | 16 | 3 |
| B2 | Electrical engineers | 16 | 3 |
| C | Natural scientists and mathematicians (except C1,C171/2) | 17/18 | 15 |
| C1 | Biologists and life scientists | 18 | 6 |
| C171 | Computer scientists | 171 | 7 |
| C172 | Computer programmers | 171 | 7 |
| D19 | Social scientists and urban planners | 19 | 5 |
| D20 | Social, recreation, and religious workers | 20 | 5 |
| D21 | Lawyers and judges | 21 | 15 |
| E22 | Teachers (college, university and other postsecondary) | 22 | 2 |
| E23 | Teachers except postsecondary | 23 | 2 |
| E24 | Vocational and educational counselors | 24 | 2 |
| E25 | Librarians, archivists, curators | 25 | 15 |
| F26 | Physicians and dentists | 26 | 4 |
| F27 | Veterinarians | 27 | 4 |
| F28 | Other health diagnosing and treating practioners | 28 | 4 |
| G29 | Registered nurses | 29 | 4 |
| G30 | Pharmacists, dietitians, therapists, and physicians assistants | 30 | 4 |
| H | Writers, artists, entertainers and athletes (except H1) | 32,33,34 | 9 |
| H1 | Editors, reporters, public relations, announcers, TV, Radio | 33 | 8 |
| I | Health technologists and technicians | 36 | 4 |
| J37 | Engineering and related technologists and technicians | 37 | 10 |
| J38 | Science technologists and technicians | 38 | 10 |
| J39 | Technicians except health, engineering, and science | 39 | 10 |
| K | Marketing and sales | 40-44 | 13 |
| L | Administrative support occupations including clerical | 45,46,47 | 11 |
| M | Service occupations | 50,51,52 | 14 |
| N | Agricultural, forestry, and fishing | 55-58 | 6 |
| O | Mechanics and repairers | 60,61 | 12 |
| O611 | Vehicle and mobile equipment mechanics and repairers | 611 | 12 |
| O615 | Electrical and electronic equipment repairers | 615 | 12 |
| P | Construction and extractive occupations | 63,64,65 | 12 |
| Q | Precision production occupations | 67,68,69 | 12 |
| R | Production working occupations | 71-78 | 12 |
| S | Transportation and material moving occupations | 81,82,83 | 12 |
| S821 | Motor vehicle operators | 821 | 12 |
| T | Handlers, equipment cleaners, helpers, and laborers | 85,86,87 | 12 |
| U | Military occupations | 91 | 15 |
| V | Miscellaneous occupations | 99 | 15 |
| Y | Housewife | - | 16 |
| Z | Unemployed, retired, disabled, or not classifiable | - | 16 |

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