

## RECENT ENGINEERING AND COMPUTER SCIENCE GRADUATES CONTINUE TO EARN THE HIGHEST SALARIES

by John Tsapogas

Data from the National Science Foundation's 2003 National Survey of Recent College Graduates (NSRCG) reveal patterns and trends in the employment of recent graduates who received bachelor's or master's degrees in science, engineering, or health fields. Data were collected between October 2003 and June 2004 and included bachelor's and master's graduates who received science, engineering, or health degrees between July 1, 2000 and June 30, 2002. Survey results on salaries, full-time employment status, full-time student status, employment in science, engineering, or health occupations, and employment sector of these graduates (hereafter, recent graduates) are highlighted here.

### Salaries

Among those employed full time, median annual salaries for electrical/computer engineering graduates and chemical engineering graduates were the highest at the bachelor's degree level (table 1), and industrial engineering and electrical/computer engineering graduates were the highest at the master's degree level (table 2). Among recent bachelor's degree recipients, median annual salaries in October 2003 were \$53,000 for graduates with degrees in electrical/computer engineering or chemical engineering, compared with \$36,000 for all science, engineering, and health graduates (table 1). Among recent master's degree recipients, median annual salaries in October 2003 were \$71,000 for graduates with degrees in industrial engineering and \$70,000 for graduates with degrees in electrical/computer engineering, compared with \$52,000 for all science, engineering, or health master's graduates (table 2). Among science graduates, the median annual salaries of computer

science graduates were the highest. Computer science graduates with bachelor's degrees earned a median annual salary of \$45,000, and those with master's degrees earned a median annual salary of \$60,000.

### Full-Time Employment Status

The percentage of recent science, engineering, and health graduates holding full-time jobs within a year or two after graduation varied substantially by level and field of degree (tables 1 and 2). In 2003, 66 percent of all recent science, engineering, and health bachelor's degree recipients and about three-quarters of all recent science, engineering, and health master's degree recipients were employed full time. At both degree levels, recent engineering and health graduates were more likely than science graduates to be employed full time: 79 percent of engineering graduates at the bachelor's level and 77 percent at the master's levels were employed full time, compared with 63 percent of science graduates with bachelor's degrees and 68 percent of science graduates with master's degrees. Among health graduates, 75 percent at the bachelor's level and 79 percent at the master's level held full-time jobs.

Among all recent graduates at both degree levels, those with degrees in industrial engineering and civil and architectural engineering were very likely to be employed full time (more than 80 percent) as were bachelor's graduates in computer science. At the master's level, 87 percent of recent graduates in the field of civil and architectural engineering and 86 percent of recent graduates in the field of industrial engineering



TABLE 1. Enrollment and employment status and median annual salaries of 2001 and 2002 science, engineering, and health bachelor's degree recipients, by field of degree: 2003

Field of degree	All recipients	Full-time student	Employed full time <sup>a</sup>	Salary, full-time employed <sup>b</sup>		
				Total	AY2000	AY2001
		Percent		Dollars		
All fields	937,700	24	66	36,000	37,000	35,000
Science	682,200	27	63	32,000	34,000	30,000
Biological, agricultural, and environmental life sciences	150,700	41	53	29,000	32,000	28,000
Computer and information sciences	84,800	8	81	45,000	47,000	43,000
Mathematics and statistics	25,600	23	68	36,000	40,000	34,000
Physical and related sciences	35,700	43	62	35,000	36,000	31,000
Psychology	153,000	29	59	28,000	30,000	27,000
Social and related sciences	232,300	22	64	30,000	32,000	30,000
Engineering	112,300	17	79	50,000	50,000	47,000
Aerospace and related engineering	3,100	19	77	48,000	51,000	46,000
Chemical engineering	10,600	25	77	53,000	55,000	50,000
Civil and architectural engineering	16,300	7	89	44,000	45,000	44,000
Electrical, electronic, computer, and communications engineering	35,800	15	76	53,000	55,000	51,000
Industrial engineering	6,600	11	83	47,000	49,000	46,000
Materials/metallurgical engineering	2,300	S	61	S	S	S
Mechanical engineering	24,800	19	79	50,000	52,000	46,000
Other engineering	12,900	23	71	43,000	44,000	43,000
Health	143,300	12	75	43,000	41,000	44,000

AY=academic year (the 2001 academic year begins on July 1, 2000 and ends on June 30, 2001 and the 2002 academic year begins on July 1, 2001 and ends on June 30, 2002)

S=data suppressed because of the small number of survey respondents used to generate the population estimate for this cell.

<sup>a</sup>Some graduates are both full-time employees and full-time students.

<sup>b</sup>Salary data are as of October 15, 2003 and are for principal job only and do not include the following groups: self-employed persons, full-time students, and individuals whose principal job was less than 35 hours per week.

NOTES: Data were collected between October 2003 and June 2004 and included bachelor's graduates who received an science, engineering or health degree between July 1, 2000, and June 30, 2002.

SOURCE: National Science Foundation/Division of Science Resources Statistics, National Survey of Recent College Graduates: 2003.

had gained full-time employment as of the survey reference date, October 1, 2003.

### Full-time Student Status

The number of recent science and engineering graduates who were full-time students 1-2 years after receiving their degrees varied significantly by degree level and field of study. S&E bachelor's degree recipients were more likely than S&E master's degree recipients to be enrolled as full-time students, 24 percent versus 17 percent. Among S&E bachelor's graduates, those with degrees in science fields were more likely to be full-time students than those with degrees in engineering fields, 27 percent versus 17 percent. Among

master's degree recipients those with degrees in science fields were equally as likely as those with degrees in engineering fields to be full-time students 1-2 years after receiving their S&E degrees, 24 percent versus 23 percent.

### Employment in Science, Engineering, and Health Occupations

At both degree levels, recent graduates in engineering fields were much more likely to be employed in science, engineering, or health occupations than were recipients of degrees in science fields (table 3). Recent graduates with bachelor's degrees in science were least likely to be employed in science, engineering, or health occupations.

TABLE 2. Enrollment and employment status and median annual salaries of 2001 and 2002 science, engineering, and health master's degree recipients, by field of degree: 2003

Field of degree	All recipients	Full-time student	Employed full time <sup>a</sup>	Salary, full-time employed <sup>b</sup>		
				Total	AY2000	AY2001
				Percent		Dollars
All fields	246,700	17	74	52,000	54,000	50,000
Science	117,000	24	68	45,000	48,000	42,000
Biological, agricultural, and environmental life sciences	16,800	27	71	40,000	43,000	40,000
Computer and information sciences	27,200	18	68	60,000	60,000	60,000
Mathematics and statistics	5,900	31	61	54,000	58,000	48,000
Physical and related sciences	9,600	32	74	49,000	49,000	50,000
Psychology	32,000	21	73	38,000	39,000	36,000
Social and related sciences	25,500	27	60	42,000	44,000	41,000
Engineering	47,000	23	77	65,000	65,000	62,000
Aerospace and related engineering	1,100	S	82	60,000	67,000	S
Chemical engineering	1,900	37	74	63,000	60,000	64,000
Civil and architectural engineering	6,000	15	87	54,000	55,000	49,000
Electrical, electronic, computer, and communications engineering	16,100	27	72	70,000	70,000	69,000
Industrial engineering	3,700	S	86	71,000	71,000	62,000
Materials/metallurgical engineering	1,900	S	S	S	S	S
Mechanical engineering	6,000	20	78	59,000	59,000	57,000
Other engineering	10,300	22	78	65,000	59,000	68,000
Health	82,700	S	79	53,000	54,000	50,000

AY=academic year (the 2001 academic year begins on July 1, 2000 and ends on June 30, 2001 and the 2002 academic year begins on July 1, 2001 and ends on June 30, 2002)

S=data suppressed because of the small number of survey respondents used to generate the population estimate for this cell.

<sup>a</sup>Some graduates are both full-time employees and full-time students.

<sup>b</sup>Salary data are as of October 15, 2003 and are for principal job only and do not include the following groups: self-employed persons, full-time students, and individuals whose principal job was less than 35 hours per week.

NOTES: Data were collected between October 2003 and June 2004 and included master's graduates who received an science, engineering or health degree between July 1, 2000, and June 30, 2002.

SOURCE: National Science Foundation/Division of Science Resources Statistics, National Survey of Recent College Graduates: 2003.

Recent graduates with health degrees at either the bachelor's or master's level were more likely than graduates in all other fields to be employed in science, engineering, or health occupations.

### Employment Sector

The business or industry sector is by far the largest employer of recent bachelor's and master's science, engineering, or health degree recipients. Overall, business or industry in 2003 employed 68 percent of bachelor's degree recipients and 58 percent of master's degree recipients and employed a larger proportion of engineering graduates than science graduates. This sector employed three-quarters of

engineering graduates at both the bachelor's and master's levels and three-quarters of bachelor's graduates with health degrees. Business and industry employed 64 percent of master's graduates with health degrees and 65 percent of bachelor's graduates with science degrees (table 4).

Educational institutions were the second largest employer of recent science, engineering, or health graduates at both degree levels, employing 21 percent of bachelor's graduates and 28 percent of master's graduates. Science graduates were more likely than engineering or health graduates to be employed in educational institutions at both degree levels.

TABLE 3. S&E bachelor's and master's degree recipients in 2001 and 2002 employed in science, engineering, or health jobs, by field of degree: 2003  
(Percent of employed graduates)

Field of degree	Bachelor's degree recipients	Master's degree recipients
All fields	17	31
Science	13	36
Biological, agricultural, and environmental life sciences	14	44
Computer and information sciences	46	50
Mathematics and statistics	16	46
Physical and related sciences	24	50
Psychology	5	29
Social and related sciences	6	17
Engineering	60	64
Aerospace and related engineering	58	73
Chemical engineering	57	47
Civil and architectural engineering	77	78
Electrical, electronic, computer, and communications engineering	60	61
Industrial engineering	52	62
Materials/metallurgical engineering	5	5
Mechanical engineering	58	67
Other engineering	51	60
Health	88	87

S=data suppressed because of the small number of survey respondents used to generate the population estimate for this cell.

NOTE: Employed graduates include full-time and part-time employed graduates and exclude graduates who were full-time students on the reference date of the survey, October 1, 2003.

SOURCE: National Science Foundation/Division of Science Resources Statistics, National Survey of Recent College Graduates: 2003.

With one exception, the government sector employed the smallest number of science, engineering, and health graduates at both the bachelor's and master's levels. The government sector was the second largest employer of recent bachelor's level graduates with engineering degrees, slightly outpacing the educational sector.

### Conclusion

Continuing a pattern that has been evident for decades, recent bachelor's and master's engineering graduates

and computer science graduates at the bachelor's level are more likely than graduates in other fields to be employed full time after graduation, and upon entering the workforce, they are rewarded with higher salaries. Science and engineering master's degree recipients have a higher likelihood of being employed in science and engineering jobs than science and engineering bachelor's degree recipients. Data on bachelor's and master's graduates in health were collected for the first time in the 2003 NSRCG. Health graduates show high levels of full-time employment 1-2 years after receiving their degrees. The private for-profit sector continues to be the largest employer of recent recipients of bachelor's and master's degrees in science, engineering, and health fields.

### Survey Information

The NSRCG is a biennial survey. The 2003 survey covered persons who received bachelor's and/or master's degrees between July 2000 and June 2002. This report is the first release of data from the 2003 survey. Data on graduates with degrees in health were collected for the first time in the 2003 NSRCG. The health degrees include bachelor's and master's degrees in a number of health and related fields ranging from health/medical assistants and technologies to physical therapy, public health, and nursing. See <http://www.nsf.gov/statistics/srvyrecentgrads/> for additional information on the NSRCG, including methodology and sampling errors.

For more information, contact

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TABLE 4. Employed 2001 and 2002 science, engineering, or health bachelor's and master's degree recipients, by sector of employment and field of degree: 2003  
(Percent distribution)

Degree and field	Employed <sup>a</sup> (thousands)	Employment status		Sector of primary full-time employment			
		Full time	Part time	All sectors	Educational institutions <sup>b</sup>	Government <sup>c</sup>	Private for-profit company <sup>d</sup>
Bachelor's	646,000	84	16	100	21	11	68
All sciences	442,500	82	18	100	24	11	65
All engineering	85,900	91	10	100	12	15	73
Health	117,200	89	11	100	14	11	75
Master's	186,600	86	14	100	28	14	58
All sciences	80,200	82	18	100	38	15	47
All engineering	33,700	88	12	100	21	8	71
Health	72,700	90	10	100	21	15	64

<sup>a</sup>Excludes full-time students.

<sup>b</sup>Educational institutions include elementary and secondary schools, 2- and 4-year colleges and universities, medical schools, university-affiliated research organizations, and all other educational institutions.

<sup>c</sup>Government includes local, state, and federal government, military, and commissioned corps.

<sup>d</sup>Private industry and business include all private for-profit and private not-for-profit companies, businesses, and organizations, except those reported as educational institutions. It also includes persons reporting self-employment.

NOTE: Detail may not add to total because of rounding.

SOURCE: National Science Foundation/Division of Science Resources Statistics, National Survey of Recent College Graduates: 2003.

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